

US DEPARTMENT OF ENERGY/LOS
ALAMOS NATIONAL LABORATORIES

RCRA
EMERGENCY PERMIT NO.
NM0890010515-EP1

THERMAL DECOMPOSITION OF
NITRATED CHEESECLOTH

issued by
NEW MEXICO ENVIRONMENT
DEPARTMENT

MAY 1994



4373

HAZARDOUS WASTE EMERGENCY PERMIT

PERMITTEE: US DEPARTMENT OF ENERGY/LOS ALAMOS
NATIONAL LABORATORIES

IDENTIFICATION NUMBER: NM0890010515
PERMIT NUMBER: NM0890010515-EP1

Pursuant to the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6901, et seq.), and the New Mexico Hazardous Waste Act (Section 74-4-1 et seq., NMSA 1978), an emergency permit is issued to the US Department of Energy/Los Alamos National Laboratories (hereafter called the Permittee) for treatment of a mixed waste (plutonium-impregnated nitrated cheesecloth) in Room 420, Building 4, (the Plutonium Facility), Technical Area 55, Los Alamos National Laboratories, Los Alamos County, New Mexico.

The Permittee must comply with all terms and conditions of this permit. This permit consists of the conditions contained herein, including the attachment. Applicable regulations cited are the New Mexico Hazardous Waste Management Regulations, as amended 1993 (HWMR-7), the regulations that are in effect on the date of permit issuance.

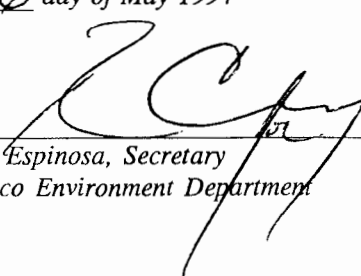
This permit is based on the assumption that all information contained in the permit application and the administrative record is accurate and that the activity will be conducted as specified in the permit, the permit application, and the administrative record.

Any inaccuracies found in the information submitted in the permit application may be grounds for the termination, revocation and reissuance, or modification of this permit and/or potential enforcement action.

The term of this permit shall not exceed ninety (90) days from effective date unless terminated, revoked and reissued, or modified.

Signed this 26 day of May 1994

by



Judith M. Espinosa, Secretary
New Mexico Environment Department

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PERMIT ATTACHMENT

Permit
Attachment

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MODULE I - GENERAL PERMIT CONDITIONS

I.A. EFFECT OF PERMIT

The Permittee is allowed to subject mixed waste to thermal decomposition for a period of ninety (90) days in accordance with the conditions of this temporary emergency permit. Subject to the New Mexico Hazardous Waste Management Regulations (HWMR-7), compliance with this permit generally constitutes compliance, for purposes of enforcement, with the Hazardous Waste Management Act (the Act), §74-4-1, et seq., NMSA 1979, as amended, 1989. Issuance of this permit does not convey any property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any order issued or any action brought under the Act, or any other law providing for protection of human health or the environment. [HWMR-7, Part IX, 40 CFR 270.4 and 270.30(g).]

I.B. PERMIT MODIFICATION, REVOCATION AND REISSUANCE, AND TERMINATION

This permit may be modified, revoked and reissued, or terminated for cause, as specified in HWMR-7, Part IX, 40 CFR 270.41, 270.42, and 270.43. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee, does not stay the applicability or enforceability of any permit condition. [HWMR-7, Part IX, 40 CFR 270.30(f).]

I.C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit, to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. [HWMR-7, Part X, §1004.]

I.D. DEFINITIONS

For purposes of this permit, terms used herein shall have the same meaning as those in HWMR-7, Parts I, II, V, IX, and X unless this permit specifically provides otherwise; where terms are not defined in HWMR-7 or this permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

For purposes of Modules I-III of this permit, "hazardous waste management unit" or "unit" means the Inert Atmosphere Decomposing

Unit and appurtenances, as described in Permit Condition III.A., located in Room 420 or the adjoining room, Building 4 (the Plutonium Facility), Technical Area 55, Los Alamos National Laboratories.

I.E. DUTIES AND REQUIREMENTS

I.E.1. Duty to Comply

The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the New Mexico Hazardous Waste Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. [HWMR-7, Part IX, 40 CFR 270.30(a).]

I.E.2. Term of Permit

This permit is effective as of the date of signature by the Secretary or of the date when the present stand-down order at Building 4 (the Plutonium Facility), Technical Area 55 is rescinded, whichever is later, but in no case later than August 1, 1994. If the effective date of this permit is determined by the ending of the present stand-down order at Technical Area 55, the Permittee shall inform the Department of this fact verbally concurrently with start of activities under this permit and in writing within seven (7) days.

I.E.3. Permit Expiration

The permit shall be effective for a fixed term not to exceed ninety (90) days. [HWMR-7, Part IX, 40 CFR 270.61(b)(2).]

I.E.4. Duty to Reapply

If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee shall inform the New Mexico Environment Department orally and shall submit an updated application for a new permit in a timely manner. The updated application shall include a detailed justification for the renewed permit. [HWMR-7, Part IX, 40 CFR 270.30(b).]

I.E.5. Permit Extension

If the Permittee has submitted a timely,

administratively complete application for a new emergency permit and, through no fault of the Permittee, the Secretary has not issued a new permit on or before the expiration date of the effective permit, this permit will continue in force until the effective date of a new permit. [HWMR-7, Part IX, 40 CFR 270.51(a).]

I.E.6. Need to Halt or Reduce Activity Not a Defense

In an enforcement action, it shall not be a defense for the Permittee that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. [HWMR-7, Part IX, 40 CFR 270.30(c).]

I.E.7. Duty to Mitigate

In the event of noncompliance with this permit, the Permittee shall take all reasonable steps to minimize releases to the environment and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. [HWMR-7, Part IX, 40 CFR 270.30(d).]

I.E.8. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain the processing and control systems and related appurtenances which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance/quality control procedures. This provision requires the operation of back-up or auxiliary systems only when necessary to achieve compliance with the conditions of this permit. [HWMR-7, Part IX, 40 CFR 270.30(e).]

I.E.9. Duty to Provide Information

The Permittee shall furnish to the Secretary, within a reasonable time, any relevant information which the Secretary may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Secretary, upon request, copies of records required to be kept by

this permit. [HWMR-7, Part V, 40 CFR 264.74(a) and Part IX, 40 CFR 270.30(h).]

I.E.10. Inspection and Entry

Pursuant to HWMR-7, Part IX, 40 CFR 270.30(i), the Permittee shall allow the Secretary, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

- I.E.10.a. Enter at reasonable times upon the Permittee's premises where the regulated hazardous waste management unit is located, or where records must be kept under the conditions of this permit;
- I.E.10.b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- I.E.10.c. Inspect at reasonable times the unit and equipment (including monitoring and control equipment), practices, and operations regulated or required under this permit; and
- I.E.10.d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

I.E.11. Monitoring and Records

- I.E.11.a. In accordance with HWMR-7, Part IX, 40 CFR 270.30(j)(1), measurements taken for the purpose of monitoring shall be representative of the monitored activity.
- I.E.11.b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least three (3) years from the date of the measurement, report, record, certification, or application. These periods may be extended by request of the Secretary at any time and are automatically extended during the course of any unresolved enforcement action regarding

this facility. [HWMR-7, Part V, 40 CFR 264.74(b) and Part IX, 40 CFR 270.30(j)(2).]

I.E.11.c. Pursuant to HWMR-7, Part IX, 40 CFR 270.30(j)(3), records of monitoring information shall specify:

i. The dates, exact place, and times of measurements;

ii. The individuals who performed the measurements;

iii. The methods used; and

iv. The results of such measurements.

I.E.12. Reporting Planned Changes

The Permittee shall give notice to the Secretary, as soon as possible, of any planned physical alterations or additions to the permitted hazardous waste management unit. [HWMR-7, Part IX, 40 CFR 270.30(1)(1).]

I.E.13. Reporting Anticipated Noncompliance

The Permittee shall give advance notice to the Secretary of any planned changes in the permitted unit or activity which may result in noncompliance with permit requirements. [HWMR-7, Part IX, 40 CFR 270.30(1)(2).]

I.E.14. Transfer of Permits

This permit is not transferable to any person, except after notice to the Secretary. The Secretary may require modification or revocation and reissuance of the permit pursuant to HWMR-7, Part IX, 40 CFR 270.40. Before transferring ownership or operation of the unit during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of HWMR-7, Part V, 40 CFR 264, and Part IX, 40 CFR 270 and this permit. [HWMR-7, Part V, 40 CFR 264.12(c) and Part IX, 40 CFR 270.30(1)(3).]

I.E.15. Twenty-Four Hour Reporting

I.E.15.a. The Permittee shall report to the Secretary any noncompliance which may endanger health or

the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the circumstances. The report shall include the following:

- i. Information concerning release of any hazardous waste that may cause an endangerment to public drinking water supplies; and
- ii. Any information of a release or discharge of hazardous waste, or of a fire or explosion from the hazardous waste management unit which could threaten the environment or human health outside the unit. [HWMR-7, Part IX, 40 CFR 270.30(1)(6).]

I.E.15.b. The description of the occurrence and its cause shall include:

- i. Name, address, and telephone number of the owner or operator;
- ii. Location of the unit and the telephone number of the party responding to the occurrence;
- iii. Date, time, and type of incident;
- iv. Name and quantity of materials involved;
- v. The extent of injuries, if any;
- vi. An assessment of actual or potential hazards to the environment and human health outside the unit, where this is applicable; and
- vii. Estimated quantity and disposition of recovered material that resulted from the incident. [HWMR-7, Part IX, 40 CFR 270.30(1)(6).]

I.E.15.c. A written submission shall also be provided within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period(s) of noncompliance (including exact dates and times); whether the noncompliance

has been corrected; and, if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Secretary may waive the five (5)-day written notice requirement in favor of a written report within fifteen (15) days. [HWMR-7, Part IX, 40 CFR 270.30(1)(6).]

I.E.16. Other Noncompliance

The Permittee shall report all other instances of noncompliance not otherwise required to be reported above in Permit Conditions I.E.11.-14., in the Final Report required under Permit Condition II.K. The report shall contain the information listed in Permit Condition I.E.14. [HWMR-7, Part IX, 40 CFR 270.30(1)(10).]

I.E.17. Other Information

Whenever the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Secretary, the Permittee shall promptly submit such facts or information. [HWMR-7, Part IX, 40 CFR 270.30(1)(11).]

I.F. SIGNATORY REQUIREMENT

All applications, reports, or information submitted to or requested by the Secretary, her designee or authorized representative, shall be signed and certified in accordance with HWMR-7, Part IX, 40 CFR 270.11 and 270.30(k).

I.G. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE SECRETARY

All reports, notifications, or other submissions which are required by this permit to be sent or given to the Secretary should be sent by certified mail or given to:

Program Manager, RCRA Permits Program
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
525 Camino de los Marquez
P.O. Box 26110
Santa Fe, New Mexico 87502

Telephone 505/827-4308
FAX 505/827-4361

I.H. CONFIDENTIAL INFORMATION

In accordance with HWMR-7, Part IX, 40 CFR 270.12, the Permittee may claim confidential any information required to be submitted by this permit.

I.I. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The Permittee shall maintain at the unit, until the Final Report required under Permit Condition II.K. is approved by the New Mexico Environment Department, the following documents and all amendments, revisions, and modifications to these documents:

1. Inspection schedules, as required by HWMR-7, Part V, 40 CFR 264.15(b)(2) and Permit Condition II.D.;
2. Personnel training documents and records, as required by HWMR-7, Part V, 40 CFR 264.16(d) and Permit Condition II.E.;
3. Emergency Procedures, as required by HWMR-7, Part V, 40 CFR 264.53(a) and Permit Condition II.H.; and
4. Operating record, as required by HWMR-7, Part V, 40 CFR 264.73 and Permit Condition II.I.

I.J. OTHER REQUIREMENTS

Section 1.0-6.0, Figures 1-6, and Attachment 1 of the permit application submitted by the Permittee, **Resource Conservation and Recovery Act Emergency Permit Application, Los Alamos National Laboratory**, are included in this permit as Permit Attachment A. The Permittee is required to comply with all the terms of Permit Attachment A.

MODULE II - GENERAL HAZARDOUS WASTE MANAGEMENT UNIT CONDITIONS

II.A. MAINTENANCE AND OPERATION OF HAZARDOUS WASTE MANAGEMENT UNIT

The Permittee shall maintain and operate the hazardous waste management unit to minimize the possibility of a fire, explosion, or any unplanned, sudden, or nonsudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment, as required by HWMR-7, Part V, 40 CFR 264.31.

II.B. GENERAL WASTE ANALYSIS

Due to the highly ignitable and reactive nature of the mixed waste, the New Mexico Environment Department waives a general waste analysis, and accepts, for this emergency permit, waste characterization by knowledge of process.

II.C. SECURITY

The Permittee shall comply with the security provisions of HWMR-7, Part V, 40 CFR 264.14(b) and Permit Attachment A, §5.0, **Operating Procedures**.

II.D. GENERAL INSPECTION REQUIREMENTS

The Permittee shall follow the inspection schedule for equipment malfunctions and operator errors that occur during processing identified in Permit Attachment A, §§3.0, **Process Location and Operation**, and 5.0, **Operating Procedures**. The Permittee shall remedy any deterioration or malfunction discovered by an inspection, as required by HWMR-7, Part V, 40 CFR 264.15(c). Records of inspection shall be kept, as required by HWMR-7, Part V, 40 CFR 264.15(d). [HWMR-7, Part V, 40 CFR 264.15.]

II.E. PERSONNEL TRAINING

The Permittee shall conduct personnel training, as required by HWMR-7, Part V, 40 CFR 264.16, and described in Permit Attachment A, §5.0, **Operating Procedures**. The Permittee shall maintain training documents and records, as required by HWMR-7, Part V, 40 CFR 264.16(d) and (e).

II.F. SPECIAL PROVISIONS FOR IGNITABLE AND REACTIVE WASTE

The Permittee shall take precautions to prevent accidental ignition or reaction of the ignitable and reactive waste to be treated under this permit and shall follow the procedures specified in Permit

Attachment A, §§2.0, **Material Included in the Emergency Permit**, and 3.0, **Process Location and Operation** regarding these precautions. [HWMR-7, Part V, 40 CFR 264.17.]

II.G. PREPAREDNESS AND PREVENTION

II.G.1. Required Equipment

At a minimum, the Permittee shall maintain at Building 4 the emergency equipment described in Permit Attachment A, Section 5.0, **Operating Procedures**, and listed in Permit Attachment A, Table 1, **Emergency Equipment Associated with TA-55, Building 4, Room 420**, as required by HWMR-7, Part V, 40 CFR 264.32.

II.G.2. Testing and Maintenance of Equipment

The Permittee shall test and maintain the emergency equipment specified in Permit Condition II.G.1 as necessary to assure its proper operation in time of emergency, in compliance with HWMR-7, Part V, 40 CFR 264.33 and Permit Attachment A, §5.0, **Operating Procedures**.

II.G.3. Access to Communications or Alarm System

The Permittee shall maintain access to the communications or alarm system in compliance with 40 CFR 264.34 and Permit Attachment A, §5.0, **Operating Procedures**.

II.G.4. Arrangements with Local Authorities

The Permittee shall maintain arrangements with State and local authorities, as required by 40 CFR 264.37 and Permit Attachment A, §5.0, **Operating Procedures**.

II.H. EMERGENCY PROCEDURES

II.H.1. Implementation of Emergency Procedures

The Permittee shall immediately carry out the emergency procedures provisions of Permit Attachment A, §5.0, **Operating Procedures**, whenever there is a fire, explosion, or release of hazardous waste or constituents which could threaten human health or the environment. [HWMR-7, Part V, 40 CFR 264.51(b).]

II.H.2. Relationship of Permit Emergency Procedures to Contingency Plan

The Permittee shall also immediately contact the Los Alamos National Laboratories (LANL) Environmental Management and Response Office, which bears primary responsibility for managing emergency response operations. This Office will manage emergency response in compliance with the Contingency Plan contained in the LANL general operating permit, No. NM0890010515, which covers all of the technical areas at LANL.

II.H.3. Copies of Emergency Procedures

In compliance with HWMR-7, Part V, 40 CFR 264.53, the Permittee shall maintain a copy of the emergency procedures provisions of Permit Attachment A, §5.0, Operating Procedures, at Building 4, TA-55.

II.H.4. Amendments to Emergency Procedures

The Permittee shall review and immediately amend, as necessary, the emergency procedures provisions of Permit Attachment A, §5.0, Operating Procedures, as required by HWMR-7, Part V, 40 CFR 264.54.

II.H.5. Emergency Coordinator

A trained Emergency Coordinator (Emergency Manager) shall be available at all times in case of an emergency, as required by HWMR-7, Part V, 40 CFR 264.55. Phone numbers for the Emergency Coordinator are:

505/667-6211	(during working hours)
505/667-7080	(after working hours)
9-911	(Central Alarm Station)

II.I. RECORDKEEPING AND REPORTING

In addition to the recordkeeping provisions of Permit Condition II.D., the Permittee shall maintain a written operating record at the unit, in accordance with HWMR-7, Part V, 40 CFR 264.55.

II.K. FINAL REPORT

II.K.1. Time Frame for Completion

In lieu of a Closure Report, the Permittee shall submit a Final Report to the Secretary within 60 days after completion of processing of the final volume of waste under this permit. This report shall identify the number of total process runs and, for each run, the amount of nitrated and non-nitrated cheesecloth processed, the start and end times, and beginning and maximum temperatures. The report shall also include a determination that all of the nitrated cheesecloth stored for processing at Building 4 has been processed so as to render it nonhazardous. The report shall also identify and explain all incidents of noncompliance required to be reported under Permit Condition I.E.15.

II.K.2. Certification of Completion

The Permittee shall also certify in the Final Report required by Permit Condition II.K.1. that the hazardous waste thermal decomposition process has been completed in accordance with the requirements of this permit.

MODULE III - PROCESSING ROOM AND EQUIPMENT

III.A. DESCRIPTION OF THERMAL DECOMPOSITION PROCESS AND EQUIPMENT

The process used to recover plutonium from the nitrated cheesecloth consists of ashing the cheesecloth, crushing the residue, drying the residue through a calcination process, acid leaching of plutonium from the residue, separation of plutonium from impurities by nitrate anion exchange, precipitation of plutonium oxalate, filtration of the precipitate, and calcination of the oxalate compound resulting in a plutonium oxide product. This permit regulates the first step in this process, ashing of the nitrated cheesecloth through thermal decomposition. The cheesecloth will be ashed in an Inert Atmosphere Decomposing Unit. Approximately 0.2 pound of nitrated cheesecloth and 1.8 pounds of non-nitrated cheesecloth will be ashed per run. A minimum of 23 runs will be performed. Each run will take approximately 4-6 hours, including heat-up and cool-down periods.

The processing will take place in Room 420 (approximately 53 feet by 44 feet) of Building 4 (the Plutonium Facility) at Technical Area 55, Los Alamos National Laboratories. An adjoining room, approximately 11 feet by 11 feet, contains the aqueous caustic scrubber. The cheesecloth is placed in a stainless steel vessel and lowered into a furnace well (the Inert Atmosphere Decomposing Unit), all contained in a stainless steel glovebox (8 feet long by 4½ feet wide by 44 inches high); the glovebox has a safety glass lining about ¼ inch thick. The furnace can containing the cheesecloth is purged with argon gas to maintain an inert environment for the thermal decomposition process. Complete ashing of the cheesecloth will occur, resulting in the residual material no longer exhibiting the characteristics of ignitability and reactivity.

After thermal decomposition, the offgas produced passes through the scrubber to absorb acid gases and volatile organic compounds produced and then is exhausted through four banks of high energy particulate air filters. The emissions are vented through a monitored stack. Provided that the scope of this project does not change, this project does not require an air quality permit under the New Mexico Air Quality Control Regulations.

Review of this process by the New Mexico Environment Department's Department of Energy/Los Alamos National Laboratories Oversight Program shows that expected emissions will not require an air quality permit. All other materials associated with this passivation process are, at the end of the process, not hazardous and may be used in the plutonium recovery process.

III.B. IDENTIFICATION OF PERMITTED AND PROHIBITED WASTE

III.B.1. The Permittee may process the following wastes in the Inert Atmosphere Decomposing Unit in Room 420, subject to the terms of this permit:

<u>Description of Mixed Hazardous Waste</u>	<u>EPA Hazardous Waste Number</u>	<u>Maximum Volume</u>	<u>Maximum Number and Type of Containers</u>
Nitrated cheese-cloth (cellulose)	D001 (ignitability), D003 (reactivity)	<44 liters combined with water	11 4-liter stainless steel containers
Plutonium*	-	-	-

* Not regulated under the New Mexico Hazardous Waste Management Regulations.

III.B.2. Processing of waste under this permit is restricted to Room 420.

III.B.3. The Permittee is prohibited from processing hazardous waste under this permit that is not identified in Permit Condition III.B.1. and Permit Attachment A, §2, **Material included in the Emergency Permit.**

III.C. CONDITION OF EQUIPMENT AND CONTAINERS

If equipment and containers holding hazardous waste for processing are not in good condition (e.g., apparent structural defects or leaking), the Permittee shall transfer the hazardous waste from such equipment or containers to equipment or containers that are in good condition or otherwise manage the waste in compliance with the conditions of this permit. [HWMR-7, Part V, 40 CFR 264.171.]

III.D. MANAGEMENT OF CONTAINERS

The Permittee shall not open, handle, or store containers holding hazardous waste in a manner which may rupture the containers or cause them to leak. [HWMR-7, Part V, 40 CFR 264.173.]

III.E. SPECIAL CONTAINER PROVISIONS FOR IGNITABLE AND REACTIVE WASTE

The Permittee shall take precautions to prevent accidental ignition or reaction of the ignitable and reactive waste to be processed under this permit and shall follow the procedures specified in Permit Attachment A, §2.0, **Material Included in the Emergency Permit.** [HWMR-7, Part V, 40 CFR 264.17(a).]

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**RESOURCE CONSERVATION AND RECOVERY ACT
EMERGENCY PERMIT APPLICATION
LOS ALAMOS NATIONAL LABORATORY**

1.0 INTRODUCTION

The Department of Energy (DOE) and the University of California, co-operators of the Los Alamos National Laboratory (LANL), are requesting the issuance of a Resource Conservation and Recovery Act (RCRA) temporary emergency permit for the processing of nitrated cheesecloth. The emergency permit is necessary since the continued storage of the nitrated cheesecloth presents an imminent and substantial endangerment to human health and the environment, and the method that will be used as a component of the process to recover plutonium from the cheesecloth is not called out in LANL's existing Hazardous Waste Permit (NM0890010515). The request for the emergency permit is made pursuant to the New Mexico Hazardous Waste Management Regulations (HWMR-7), Pt. IX, Part 270 "EPA Administered Permit Programs: The Hazardous Waste Permit Program." To provide the New Mexico Environment Department (NMED) with the information necessary to issue the emergency permit, this application addresses the material to be processed, the process location and how it operates, why the emergency permit is needed, and the process operating procedures.

The purpose of the process is to recover plutonium from the nitrated cheesecloth. The destruction of the nitrated cheesecloth is actually one step in an extensive procedure that consists of ashing the nitrated cheesecloth, crushing the residue, drying the residue through a calcination process, acid leaching of plutonium from the residue, separation of plutonium from impurities by nitrate anion exchange, precipitation of plutonium oxalate, filtration of the precipitate, and then calcination of the oxalate compound resulting in a plutonium oxide product.

2.0 MATERIAL INCLUDED IN THE EMERGENCY PERMIT

The material that will be processed pursuant to the emergency permit consists of less than 44 liters of nitrated cheesecloth combined with water. Prior to July, 1989, cheesecloth (which is composed of cellulose) was used to wipe the interior surface of gloveboxes to remove plutonium particles and other material. When the cheesecloth was used to clean gloveboxes containing nitric acid to recover plutonium, the cellulose became nitrated. The nitrated cellulose caused the cheesecloth to exhibit the hazardous waste characteristics of ignitability (D001) and reactivity (D003). The nitrated cheesecloth is not a listed hazardous waste. The storage of the cheesecloth in water for an extended period is the result of 1989 New Mexico Law, House Bill #59, which restricted the use of incinerators, the technique that was previously utilized as one step in the plutonium recovery process. The nitrated cheesecloth is no longer being generated. Sorb_x 2 (plastic) materials are now used in place of the cheesecloth.

The existing inventory of nitrated cheesecloth is currently stored at Technical Area (TA)-55 in Building 4, the facility in which the material was generated. The nitrated cheesecloth is in 11 separate 4-liter stainless steel containers with slip lids. The nitrated cheesecloth must be kept moist at all times to prevent spontaneous combustion, so it is submerged in liquid in the containers. The containers are kept in a glovebox and inspected each day the facility is in operation.

3.0 PROCESS LOCATION AND OPERATION

The processing of the nitrated cheesecloth will take place at LANL at TA-55. LANL is located in north central New Mexico on the Pajarito Plateau, west of the Rio Grande on the eastern slopes of the Jemez Mountains (see figure 1). LANL includes 50 TAs, 38 of which are developed, and covers approximately 111 square kilometers (27,500 acres) in and adjacent to Los Alamos County (see figure 2). TA-55 is located near the center of

LANL on a narrow mesa formed between a branch of Mortandad Canyon on the north and Pajarito Canyon on the south. At TA-55, the operation of the process will occur in Building 4, the Plutonium Facility, Room 420 (see figure 3).

The nitrated cheesecloth will be ashed in an inert atmosphere decomposing unit (IADU). The method uses a stainless steel vessel to contain the nitrated cheesecloth as it is heated to approximately 900 degrees Celsius with electric resistance heaters (Attachment 1). A positive flow of argon gas into the vessel maintains an inert environment. When the unit reaches approximately 900 degrees Celsius, the processed material is thermally decomposed to an ash-like material by breaking the organic bonds and recombining them with the oxygen present in the initial matrix. The offgas that is produced during the process passes through an aqueous caustic scrubber and then out the high efficiency particulate air (HEPA) filters. The aqueous caustic scrubber is designed to absorb acid gases and volatile organic compounds from the thermal decomposition. After exiting the scrubber, the offgas goes through the room HEPA filter and three banks of building HEPA filters before being released through a monitored stack at TA-55, Building 4. The residue that is generated from the ashing of the cheesecloth and from the filtration of residual water is subsequently processed through a rotary calciner drying unit and then reintroduced into the plutonium recovery process.

The thermal decomposition of the nitrated cheesecloth will be conducted under a Special Work Permit (SWP). A SWP is the normal method used by TA-55 for short-term and non-routine activities that are less than 90 days in duration. The SWP will address the procedural steps to be followed in the operation of the process. The procedural steps will be explained in detail below, and include performing an initial inspection of the unit, preparing the unit for operation, preparing the cheesecloth for thermal decomposition and loading it into the IADU, performing actual thermal decomposition, conducting an

analysis of the furnace residue, filtering and analyzing the residual process solutions, and performing routine maintenance on the HEPA filter and caustic scrubber.

During the initial inspection and preparation of the IADU, the process control panel will be energized. The solenoid valves used to circulate the chilled water supply of the scrubber system and the return lines will then be energized and the circulation of the chilled water will be verified. The scrubber will be inspected, the furnace can and furnace heating coils will be removed and cleaned, and the vacuum gauges will be checked.

Preparing the cheesecloth for thermal decomposition and loading it into the IADU will involve removing a portion of the nitrated cheesecloth from the storage container, separating the water from the nitrated cheesecloth through filtration, and then wrapping the cheesecloth around the annulus, a wire mesh cylinder, to enhance uniform ashing. The annulus and wrapped cheesecloth will then be weighed and placed into the furnace can. The furnace can will not be loaded with more than 10 percent by weight of nitrated cheesecloth. The heating coils will then be placed into the furnace chamber and the furnace can will be inserted into the heating coils. At this point, the inlet tube for the argon gas and a thermocouple will be inserted into the furnace can. A pneumatic/hydraulic lift will then be used to lower the pneumatic lid to the floor of the glovebox. The pneumatic lid, which completely covers the furnace and acts as an additional safety shield, will then be clamped to the floor of the glovebox. The glovebox in which the process takes place will have the gloves clamped together on the exterior by using a ball joint clamp to assure they are not damaged by high heat exposure. The cheesecloth is still moist when wrapped around the annulus and loaded into the IADU so spontaneous combustion of the material at this time is not possible.

Actual thermal decomposition will include opening the air vent valves for the scrubber vacuum system, energizing the thermocouple readout, and then energizing the vacuum pump. A vacuum of 5 to 10 inches of water will be maintained by using the air vent valves. The valve for the argon gas supply will then be opened and the furnace can will be purged with argon for at least 15 minutes. After the furnace has been purged with argon, the high-temperature furnace will be energized. The start time of the process, the temperature of the furnace can at the start time, and the maximum temperature of the process run and time of observation will be recorded. The furnace will then be deenergized and, after cooling, the pneumatic lid will be unclenched and removed from the vicinity of the furnace using the pneumatic/hydraulic lift. The argon gas supply tubing will be removed from the furnace can inlet tube. The vacuum pump will be deenergized when off-gassing from the furnace can has ceased. Off-gassing ceases when the unit is close to returning to room temperature. The furnace can will then be removed from the furnace and the time will be recorded. The residue will be examined to ensure the nitrated cheesecloth has been completely ashed. No analytical procedures will be conducted to demonstrate the residual material no longer exhibits the ignitability or reactivity characteristic because cellulose will pyrolize into a nonreactive ash when heated to approximately 800 degrees Celsius in an argon atmosphere. The nitrated cellulose will be processed in the IADU at or exceeding 800 degrees Celsius, so the material will become completely ashed and no longer exhibit a characteristic. If the nitrated cheesecloth is not completely ashed after being run through the process, it will be reprocessed in the IADU until completely ashed.

After thermal decomposition has been completed and the nitrated cellulose has been ashed, the residue will be transferred from the furnace can to a storage container and the weight of the residue will be determined and recorded. The residue will then be transferred to the countroom for non-destructive assay and the special nuclear material



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JUDITH M. ESPINOSA
SECRETARY

RON CURRY
DEPUTY SECRETARY

September 12, 1994

Mr. Joseph C Vozella
Acting Assistant Area Manager
Office of Environment and Projects
Los Alamos Area Office
US Department of Energy
Los Alamos, New Mexico 87544

Dear Mr. Vozella:

Your request of September 2, 1994, to make clarifying changes to your RCRA Permit No. NM0890010515-EP1 is hereby granted as follows:

- 1) On page 4, paragraph 2 of Attachment A -
...The furnace can will not be loaded with more than 10 percent by ~~weight~~ volume of nitrated cheesecloth....
- 2) On page 6, paragraph 2 of Attachment A -
~~Maintenance of the caustic scrubber will be performed when, based on the visual observation of the scrubber water by the IADU operator, the water appears darkened or discolored. Maintenance is expected after the completion of every 3 to 5 runs to maintain a pH above 10.0 ensuring the ability of the scrubber water to treat off-gassed halogens. Scrubber water will be changed every three to five cycles.~~

Thank you for bringing these matters to our attention. If you have any questions please contact Stephanie Kruse of my staff at 827-4308.

Sincerely,

A handwritten signature in cursive script that reads "Barbara Hoditschek".

Barbara Hoditschek
Program Manager
RCRA Permits Program
Hazardous and Radioactive Materials Bureau

xc: William K. Honker, EPA
LANL Red file - 94



Department of Energy

Field Office, Albuquerque
Los Alamos Area Office
Los Alamos, New Mexico 87544

SEP - 2 1994



CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Stephanie Kruse
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
525 Camino de los Marquez
Santa Fe, NM 87502

Dear Ms. Kruse:

This letter is in regard to Clarification of Language - State Permit
No. NM5890110518-EP1.

The Los Alamos National Laboratory (LANL) began operating a thermal decomposition unit for treating plutonium-impregnated nitrated cheesecloth on July 7, 1994, pursuant to an emergency permit approved by the New Mexico Environment Department on May 26, 1994. Subsequent to permit issuance and initiation of operation, LANL has found two statements in the issued permit that require clarification.

1. On page 4, paragraph 2 of permit Attachment A, a sentence which reads "The furnace can will not be loaded with more than 10 percent by weight of nitrated cheesecloth" should be changed to *10 percent by volume*. The operating parameters described in the procedure developed for operating the thermal decomposition unit and used in writing this permit allows for a feed rate of 10 percent by volume, not weight. This action will not change the operating conditions or efficiency of the thermal decomposition unit.
2. On page 6, paragraph 2 of permit Attachment A, the following is written: "Maintenance of the caustic scrubber will be performed when, based on the visual observation of the scrubber water by the IADU operator, the water appears darkened or discolored. Maintenance is expected after the completion of every 3 to 5 runs." The purpose of the caustic scrubber water is neutralization of chlorides and other halogens off-gassed from decomposition of plutonium-impregnated nitrated cheesecloth. The scrubber is effective as long as the water maintains a high pH (i.e., greater than 10.0). The color of the water is not relevant to the effectiveness of the scrubber unit. Newly introduced scrubber water becomes discolored immediately as a result of remaining residue in the scrubber unit. Scrubber water has been found to maintain a pH of 10.0 or better after every three to five cycles. Therefore, the following language is suggested: *Maintenance of the caustic scrubber water will be performed to maintain a pH above 10.0 ensuring the ability of the scrubber water to treat off-gassed halogens. Scrubber water will be changed every three to five cycles.*

SEP - 2 1994

Stephanie Kruse

2

If you have any questions, please contact Jon Mack of my staff at 665-5026;
or Juan Corpion, ESH-8, LANL, at 665-0455.

Sincerely,



Joseph C. Vozella
Acting Asst. Area Manager
Office of Environment and
Projects

LAAMEP:7JM-259

cc:

D. Garvey, ESH-8, LANL, MS-K490
J. Corpion, ESH-8, LANL, MS-K498
(ESH-8/HSWS-94-0266-1)
A. Barr, ESH-8, LANL, MS-K498
J. Balkey, NMT-2, LANL, MS-E501
Q. Appert, NMT-2, LANL, MS-E501
J. Rochelle, LC/GL, LANL,
MS-A187
HSWS File, LANL, MS-K498

weight will be recorded. The material will then be transferred from the countroom to the vault for storage, pending further recovery operations.

The residual water from the storage of the cheesecloth will be filtered through vacuum filtration, the residual water will be sampled, and a radiochemical analysis of the solution will be performed. If below discard limits, the water will be transferred to TA-50 for additional treatment and solidification in cement. If above discard limits, the residual water will be put through anion exchange processing until below limits and then transferred to TA-50. The discard limit for neutral or basic solutions being transferred to TA-50 is 5×10^9 counts per-minute per-liter. The limit for acidic solutions being transferred to TA-50 is 7×10^7 counts per-minute per-liter. The residue from the filtration of the residual water will be combined with the furnace residue.

Maintenance of the caustic scrubber will be performed when, based on the visual observation of the scrubber water by the IADU operator, the water appears darkened or discolored. Maintenance is expected after the completion of every 3 to 5 runs. During the maintenance of the caustic scrubber, the solution in the scrubber will be transferred to a holding tank and then run through vacuum filtration. This filter residue will also be combined with the furnace residue. The remaining liquid effluents will be sampled to determine the alpha activity. If the alpha activity is below discard limits, the liquid effluents will be transferred to TA-50 for treatment via the caustic waste line. If the liquid effluent is above discard limits, the liquid will be put through anion exchange processing until below limits and then transferred to TA-50.

After the caustic scrubber has been drained, the scrubber will be flushed with steam. The liquid from the flushing will be filtered and then piped to TA-50 if below discard limits. The liquid will be put through anion exchange if it is above discard limits, and then piped

to TA-50 once below discard limits. This filter residue will also be combined with the furnace residue. The scrubber will then be filled with fresh water and caustic solution.

4.0 NECESSITY FOR EMERGENCY PERMIT

The permitting agency may issue an emergency permit with the finding of an imminent and substantial endangerment to human health or the environment. An imminent and substantial endangerment exists with the continued storage of the nitrated cheesecloth due to the risks associated with storing the nitrated cheesecloth in liquid. As indicated before, the nitrated cheesecloth must be kept moist at all times to prevent spontaneous combustion. It is possible for dehydration of the nitrated cheesecloth to occur if a container holding the nitrated cheesecloth were to leak. Corrosion which can be caused by the liquid coming in contact with the stainless steel storage container could cause the container to leak. Packaging the material in an alternative type of container or overpacking is not feasible due to the problems created by the radioactive components of the waste. Glass and plastic can become brittle and crack in an environment where alpha or gamma radiation is present, and criticality safety guidelines restrict overpacking the existing containers into a larger container because the storage would prevent neutron leakage. Neutron leakage is necessary to prevent radioactive material from reaching criticality. Under normal operations where the nitrated cheesecloth would be treated on a regular basis, the threat of the containers leaking would not be present since the material would not typically be stored in the stainless steel containers for extended periods.

The possibility of a container leaking and causing the nitrated cheesecloth to dry establishes the threat of the material becoming unstable. Nitrated cheesecloth, due to its high cellulose content, is ignitable and reactive when dry. The possibility of the nitrated cheesecloth drying, becoming unstable, and igniting must be abated since a

fire in the glovebox could result in the loss of radiation containment and the potential contamination of personnel within the facility. The threat, which only increases with the passage of time, should be addressed with the issuance of the temporary emergency permit.

5.0 OPERATING PROCEDURES

The IADU will be operated in a manner that is comparable to the standards of HWMR-7, Pt. V, Part 264 "Standards For Owners And Operators Of Hazardous Waste Treatment, Storage, And Disposal Facilities." The comparable requirements will be addressed in this section.

The location, design, and construction of the IADU and the facility in which it is located prevent releases that may have adverse effects on human health and the environment due to migration of constituents in the ground water, surface water, soil, or air. The facility in which the IADU is located (Building 4) is a 2 story, cast-in-place reinforced concrete structure. The facility is designed to withstand 200 mile-per-hour tornado force winds, high-velocity projectiles, earthquake events, and 4 hour fire events. The 4 exterior walls of the structure are constructed of 14 inch thick concrete. The roof consists of a 10 inch thick concrete slab. The basement floor of the structure is a 10 inch thick concrete slab placed on granular fill which is placed on volcanic tuff. The first floor, which is where the IADU is located, is constructed of a 10 inch thick concrete slab. The floors in Building 4 are coated with a Plascite epoxy primer and an epoxy topcoat. The building's floor construction joints are designed to prevent the penetration of fluids (joint details are presented in Figure 4). Plus, the room in which the IADU is located (Room 420) contains no drain. Thus, a release inside Building 4 within Room 420 must pass through a reinforced concrete ceiling, wall, or floor that is sealed with epoxy and contains no drain, preventing the migration of any spills to ground water, surface water, or soil.

Concerning other releases, the aqueous caustic scrubber, the HEPA filter located in the area where the caustic scrubber is located, the series of 3 HEPA filters in Building 4, and the monitored stack that the IADU emissions must pass through prevent a release to the air. Because the migration of any spills or releases to ground water, surface water, soil, or air will be prevented due to the location of the IADU, no monitoring, analysis, or inspection of these media will be performed pursuant to the emergency permit.

Concerning the location standards, a topographic map of the area where the facility is located and floodplain information for the area is contained in LANL's RCRA Part B Permit Application, Volume 1, submitted to NMED in October of 1993. Map 1 and Figure 8 in Section 1.0 of this document provide topographic maps for the area around TA-55. The IADU is not located within the 100-year floodplain boundary. A LANL-wide 100-year floodplain map is provided on page 36 of a report included as Appendix A of the RCRA Part B Permit Application. The IADU is located in a glovebox inside Building 4 so precipitation runoff or runoff is not a threat. Also, seismic considerations are not required for this application since the facility where the IADU will be operated is not a new facility.

Concerning material analysis, the primary method for characterizing material containing a radioactive component at LANL is through application of knowledge of process. Knowledge of process is defined in HWMR-7, Pt. III, Section 262.11 as determining if a listing applies or, for characteristic waste, applying knowledge of the hazardous characteristics of the waste, based on the materials and/or the processes used. The characterization of the nitrated cheesecloth comes from knowledge of process. The generator's knowledge of the potential unstable nature of the nitrated cheesecloth is the basis for determining that the material exhibits the ignitability and reactivity characteristics. The determination that the material is not a listed hazardous waste,

including a listed solvent hazardous waste, is also based on the generator's knowledge of the generation process.

Concerning security, TA-55 is a secured area at LANL. The TA is under 24-hour surveillance by guards and television monitors, and a number of artificial barriers, including but not limited to security fences, surround the area. All personnel enter TA-55 through a guarded entrance, and all visitors not cleared for work at TA-55 are allowed to enter the TA only with a cleared escort (see figure 5 for location of artificial barriers).

Inspections of the IADU and the associated emergency equipment will identify equipment malfunctions and operator errors. Inspections will be conducted at a sufficient frequency to identify problems promptly and allow for timely repair and cleanup. The IADU will be inspected immediately prior to and during operation. The inspection as described in the SWP will include energizing the process control panel and the solenoid valves used to circulate the chilled water supply of the scrubber system. If the panel or valves do not energize properly, repairs will be implemented. The scrubber will be inspected, the furnace can and furnace heating coils will be removed, inspected, and cleaned, and the vacuum gauges will be checked. If the solution in the scrubber system is not at the level indicated by a marker line, solution will be added or removed to achieve the proper level. If the vacuum gauges do not indicate that the proper amount of vacuum exists in the system, the system will be deenergized and repairs will be implemented.

Concerning inspections of the associated equipment, all HEPA filters in Building 4 are tested annually or when replaced using a challenge aerosol. At Building 4, glovebox fire detectors are tested biannually, smoke detectors and pull stations are tested annually, and all fire detection points are continuously monitored by the facility operations center.

The facility operations center is occupied by personnel 24 hours a day, every day of the year, to monitor the detection and emergency notification equipment at TA-55. Air monitors are calibrated on a weekly basis, criticality alarms are calibrated quarterly, fire alarms are tested annually, and an emergency paging system is continuously monitored by the facility operations center. Also, the public address alarms are checked on the first Monday of each month to assure all personnel are familiar with the alarms.

Concerning training, the primary objective of the training is to prepare persons to operate and maintain the treatment process safely. The training for the operation of the IADU will be actual on-the-job training. On-the-job-training will consist of having the IADU operators learn the operating procedures discussed in this application, and then have the operators take part in an equipment check/dry run of the unit. All of the operators will sign a certification statement indicating they have received the designated training. In addition, some of the personnel that will be operating the IADU have operated a similar unit in the past and are familiar with the process. The personnel that will be operating the IADU also have received extensive training on the standard and safe operating procedures for the handling of radioactive materials. The training records for the IADU operators are provided as Attachment 2 and are maintained at the facility.

After the processing of the nitrated cheesecloth has been completed, another use for the IADU will be considered. In the interim period, the unit will be decontaminated of RCRA constituents through a sweep and vacuum process. A vacuum cleaner will be used to extract all residual material after the process has been completed and the extraction will be visually verified. The vacuumed material will be run through a vacuum filter bag and then processed to reclaim recoverable amounts of plutonium.

In the event of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents during the operation of the IADU, LANL provides effective response by maintaining the proper equipment, Emergency Managers (equivalent to RCRA Emergency Coordinators), evacuation plans, emergency response teams, and arrangements with local authorities. Additional information on general response procedures for TA-55 is contained in LANL's RCRA Part B Permit Application, Volume II, Section 7.0 Contingency Plan, submitted to NMED in October of 1993.

During the operation of the IADU, if an emergency occurs the unit will be shutdown by deenergizing the unit, and the flow of argon gas into the unit will be increased to the maximum flow rate. A failure of the power supply to the IADU during operation will be prevented because the unit is connected to two sources of power and has access to an additional backup generator system. If an equipment or power failure does occur, the unit will be flooded with the maximum flow of argon gas. The argon gas is provided through a mechanical valve system that does not rely on electrical power, so a supply of argon will continue with an emergency or power failure. The continuous flow of argon gas will maintain an inert gas atmosphere in the IADU. This will ensure that any cheesecloth that has not yet been thermally decomposed does not react or ignite due to the unlikely introduction of oxygen. This flow will be maintained at a maximum rate until power is restored. The argon gas will still vent from the glovebox through the scrubber system with no power supply. This response will help control a potential fire or explosion and help prevent a release since uncontrolled decomposition will not be sustained in an inert environment. In the event a fire, explosion, or release of hazardous waste constituents does occur, personnel are instructed to evacuate the area and activate the alarm system.

To prevent contamination, prior to the operator entering the area where the caustic scrubber is located the Health Physics Operations group will monitor the area. Access to the room where the process will be conducted by personnel other than the IADU operator will be prohibited during process operations with the use of an electrical interlock system. Anyone entering the area will be required to wear protective clothing, including two pair of long-sleeved coveralls with taped openings, LANL furnished T-shirt and socks, two pair of surgeon's gloves with the inner pair taped to the coverall sleeves, and two pair of booties. Self-monitoring is required each time hands are withdrawn from a glovebox or a potentially contaminated hood.

The emergency and communication equipment at TA-55 located in and around Room 420 is listed in Table 1. The equipment is tested as necessary to assure proper operation. An alarm system and emergency communication device is readily available to personnel during the operation of the IADU, as is evident from the listings and locations of the equipment provided in Table 1.

During an emergency situation, line management (i.e., the Group Leader of the affected area) works with the designated Emergency Manager from LANL's Environmental Management and Response (EM&R) Office. EM&R assumes the primary responsibility for managing emergency response operations. Emergency Managers work on alternating shifts and can always be reached by contacting the EM&R Office (667-6211 during working hours, 667-7080 after working hours) or the Central Alarm Station (CAS) dispatcher (9-911). TA-55 also maintains a response group that is implemented during an emergency situation prior to the implementation of the LANL facility contingency plan. The facility operations center located at TA-55 is notified initially, and the center then notifies the members of the TA-55 response group. Doug Tuggle is the coordinator for the TA-55 response group, and can be contacted at 667-9364 at work or 989-0226 by pager.

TABLE 1

**EMERGENCY EQUIPMENT ASSOCIATED WITH
TA-55, BUILDING 4, ROOM 420**

I. FIRE CONTROL EQUIPMENT:

A. Fire Extinguishers

Location:

2 26-pound Halo 1211s in Room 420

Description of General Capabilities:

The fire extinguishers in Room 420 are for use only in case of fire outside of the gloveboxes. The fire extinguishers are portable, manually-operated units. They may be used by any employee in case of fire.

B. Fire Alarm Systems

Locations:

1 pull box outside of Room 420

5 drop box alarm pushbutton stations in Room 420

Description of General Capabilities:

Fire alarms may be activated by any employee in the event of fire.

C. An automatic fire suppression sprinkler system is located in Room 420.

D. Automatic thermal alarms are located in the gloveboxes in Room 420.

E. Fire hoses located in the hallway outside Room 420 are connected to a water source located outside of TA-55, Building 4.

F. Seven fire hydrants are located outdoors on the north, south, and west sides of TA-55, Building 4.

II. SPILL CONTROL EQUIPMENT:

A. There is curbing between the rooms which will constrain any spills which may occur in the room.

B. A mobile cart is located in the basement of TA-55, Building 4. The spill cart may be transported to any spill location when the need arises. The spill cart contains:

2 boxes of latex gloves, 4 rolls of masking tape, 6 rolls of yellow vinyl tape, 2 rolls of yellow caution tape (1 acid, 1 caustic), 1 box of polyethylene booties, 4 boxes of shoulder-length polyethylene gloves, 2 boxes of yellow latex gloves, 1 wrench, 30 yellow protective suits (assorted sizes), 2 rolls of cheesecloth, 33 pair of chemical protective goggles, 92 spill pillows, 3 bottles of Neutra Acid and spray triggers, 1 bottle of base neutralizer, 3 canisters for Mine Safety Appliance (MSA) canister gas masks, 8 pair of neoprene gloves, and a vinyl bag.

III. COMMUNICATION EQUIPMENT

A. 5 telephones are located in or near Room 420. These telephones are capable of receiving incoming and transmitting outgoing calls and paging.

B. Alarms at TA-55, Building 4:

1. Fire alarm is an area-wide whooping sound. If a dropbox pushbutton station is used, a local, high-pitched constant tone will also be activated.
2. Evacuation alarm is a facility-wide warbled tone.
3. Continuous Air Monitor (CAM) alarm is a local short, fast pulsing high-pitched tone.
4. Ventilation alarm is a local slow, repeating high-pitched tone.
5. The PA system may also be used to announce an evacuation.

TABLE 1
(Continued)

IV. DECONTAMINATION EQUIPMENT

- A. 2 safety showers are located in Room 420.
- B. 2 eye washes are located in Room 420.
- C. Material Safety Data Sheets (MSDSs) for each chemical handled in Room 420 are available.

V. PERSONAL PROTECTIVE EQUIPMENT

- A. Four Self-Contained Breathing Apparatus (SCBAs) are located in the hallway outside Room 420. Three SCBAs are located in the northside hallway in Building 4.
- B. Change rooms with protective clothing available are located on the first floor of Building 4 (Rooms 132 and 133).
- C. More than 100 respirators are located in Building 3 (Room 107) and Building 4 (Room 515) at TA-55 for all personnel in Building 4. Particulate and toxic gas canisters are available in Building 4, Room 515.

The facility will be evacuated upon the voice command to evacuate the area, or upon the sounding of the evacuation alarm or the fire alarm. Personnel are instructed to shut down equipment prior to evacuating the building unless an immediate building evacuation is announced or signaled. The evacuation routes are provided in Figure 6.

The emergency response teams maintained by LANL consist of the Health and Safety (HS) Division response groups and the Environmental Management (EM) Division response groups. From HS Division, Health Physics Operations (HS-1) maintains a decontamination facility at TA-55 and can perform radiological monitoring and decontamination under the supervision of certified health physicists; Occupational Medicine (HS-2) maintains a medical facility at TA-3 with a fully-equipped emergency room and decontamination facility, and maintains a satellite first-aid station at TA-55; Industrial Hygiene (HS-5) provides information on correct handling of chemicals and makes recommendations on protective clothing and equipment; and LANL's Hazardous Material (HAZMAT) Response Team (HS-10) provides aggressive mitigation of chemical and mixed waste emergencies, including field decontamination of victims and responders. The EM Division response groups include Waste Management (EM-7) and Environmental Protection (EM-8). EM-7 provides guidance for normal operation of RCRA units, and EM-8 provides regulatory guidance and determines the environmental effects of a release.

Due to arrangements with local authorities, assistance may also be obtained from the Los Alamos County Fire Department (LACFD) and Los Alamos County Police Department (LACPD) in the event of an emergency. The LACFD provides fire protection and ambulance coverage for the communities of Los Alamos and White Rock, and for LANL. In the case of an emergency within LANL, the LACFD coordinates fire suppression efforts. The agreement between DOE and the County of Los Alamos for the LACFD to provide assistance in the event of an emergency at LANL is provided in Attachment 2. The

interaction between LANL and the LACPD during an emergency situation is limited to traffic control on DOE roads and to criminal investigations. The agreement between DOE and the County of Los Alamos for the LACPD to provide assistance in the event of an emergency at LANL is provided in Attachment 3.

LANL also maintains agreements with medical facilities for the facilities to provide assistance if an emergency occurs at LANL. Medical cases that cannot be handled at the HS-2 medical facility will typically be transferred to the Los Alamos Medical Center (LAMC), where LANL maintains a fully-equipped decontamination room adjacent to the emergency room. HS-2 provides medical support personnel for the emergency room staff in the event that a case is sent to the hospital. The agreements between DOE and the medical centers to provide assistance in the event of an emergency at LANL are provided in Attachment 4.

Within 30 days from the date the emergency permit expires, LANL will submit a report to NMED confirming the conclusion of the activity allowed pursuant to the emergency permit. The report will include, but not be limited to, the date and time the thermal decomposition unit was operated pursuant to the emergency permit, the volume and/or weight for each feed placed in the IADU for thermal decomposition, and the volume and/or weight for each product (residual material) generated from the thermal decomposition. The report will include a statement that the ignitability and reactivity characteristics have been successfully removed through the thermal decomposition of the nitrated cheesecloth which has been verified using knowledge of process. The report will also confirm that the operation of the IADU occurred as described in the emergency permit application or describe the procedure that was used if it varied from the application description.

6.0 CERTIFICATION

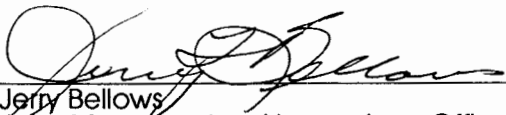
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Dennis J. Erickson
Division Director for Quality, Environment, Safety and Health Assurance
Los Alamos National Laboratory
Operator

12/2/93

Date Signed



Jerry Bellows
Area Manager, Los Alamos Area Office
U.S. Department of Energy
Albuquerque Operations
Owner/Operator

12/6/93

Date Signed

FIGURE 1

**REGIONAL MAP IDENTIFYING LOCATION OF
LOS ALAMOS NATIONAL LABORATORY**

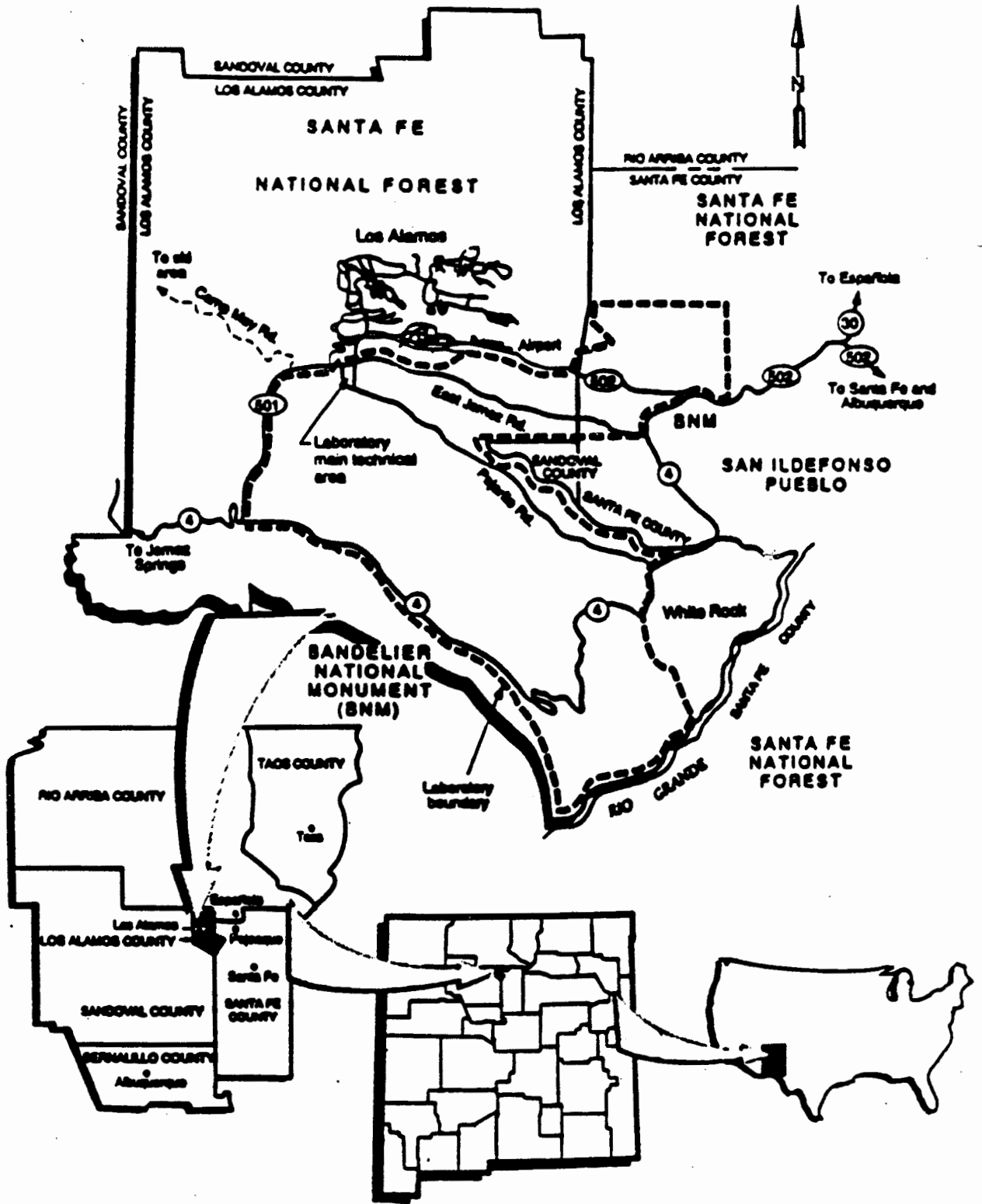


FIGURE 2
LOCATION MAP OF
LOS ALAMOS NATIONAL LABORATORY
TECHNICAL AREAS

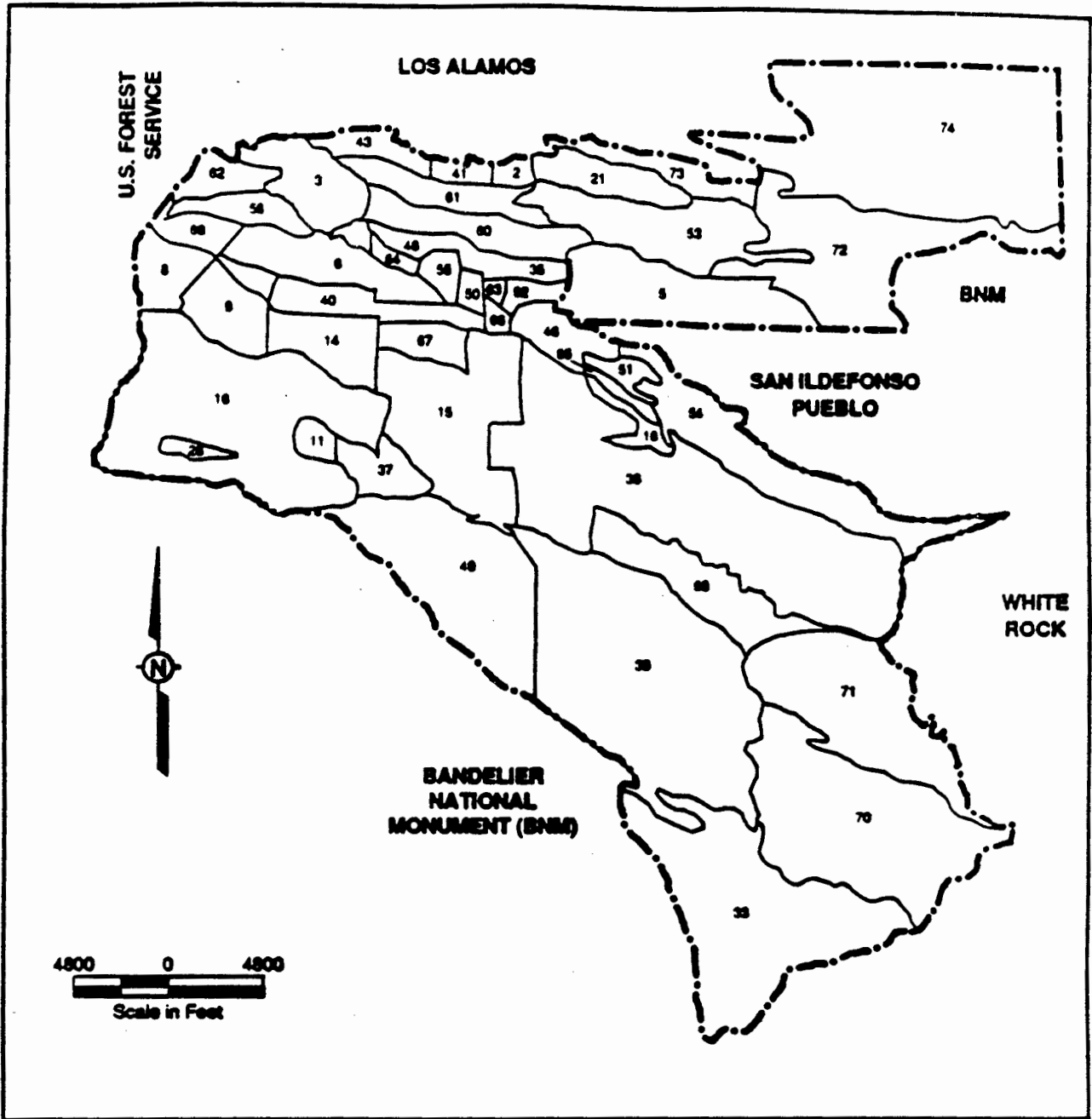


FIGURE 3
LOCATION MAP OF
TA-55, BUILDING 4, ROOM 420

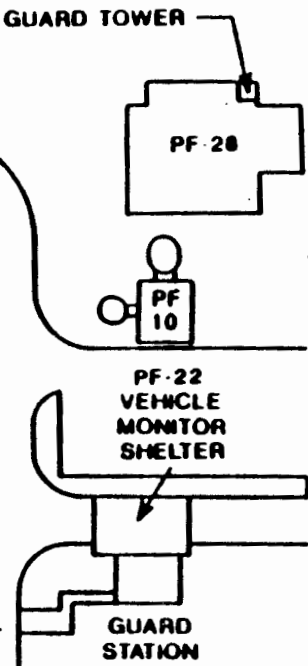
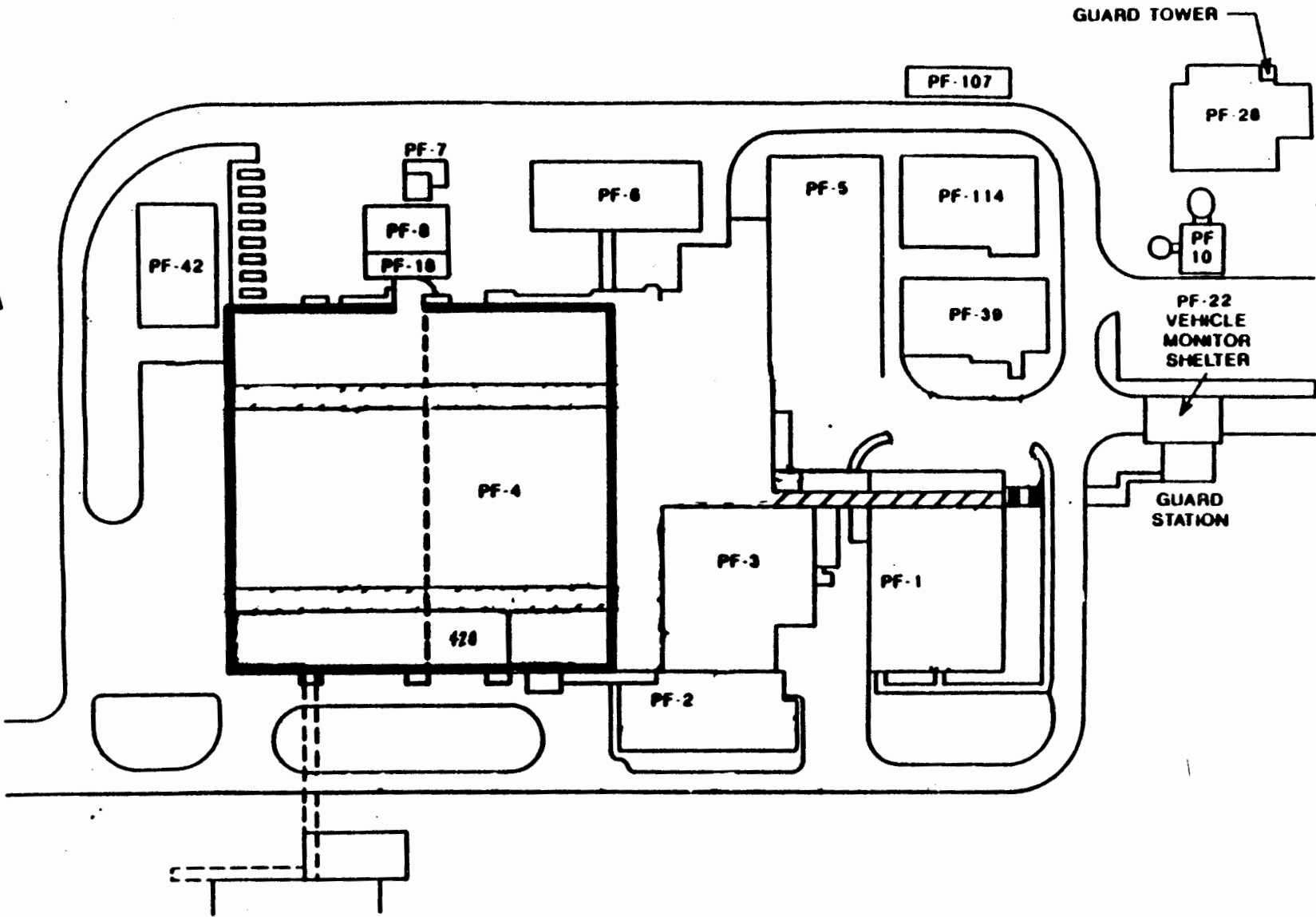
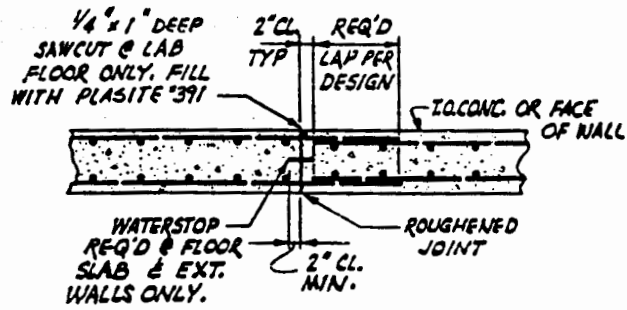


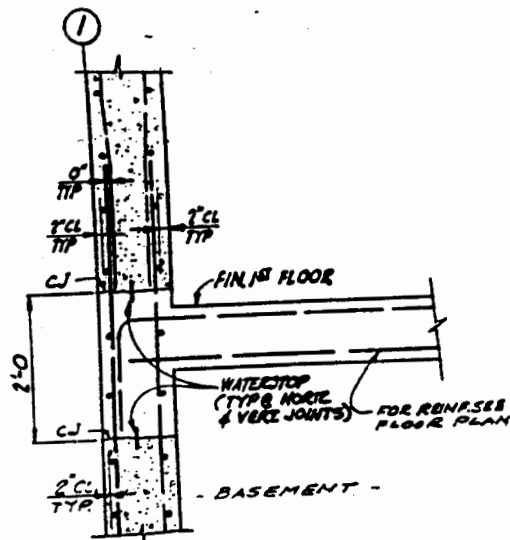
FIGURE 4
TA-55, BUILDING 4
CONSTRUCTION JOINT DETAIL



TYPICAL CONSTRUCTION JOINT
FOR FLOORS AND WALLS

SCALE: $\frac{3}{4}$ " = 1'-0"

Typical Floor or Wall Construction Joint Detail

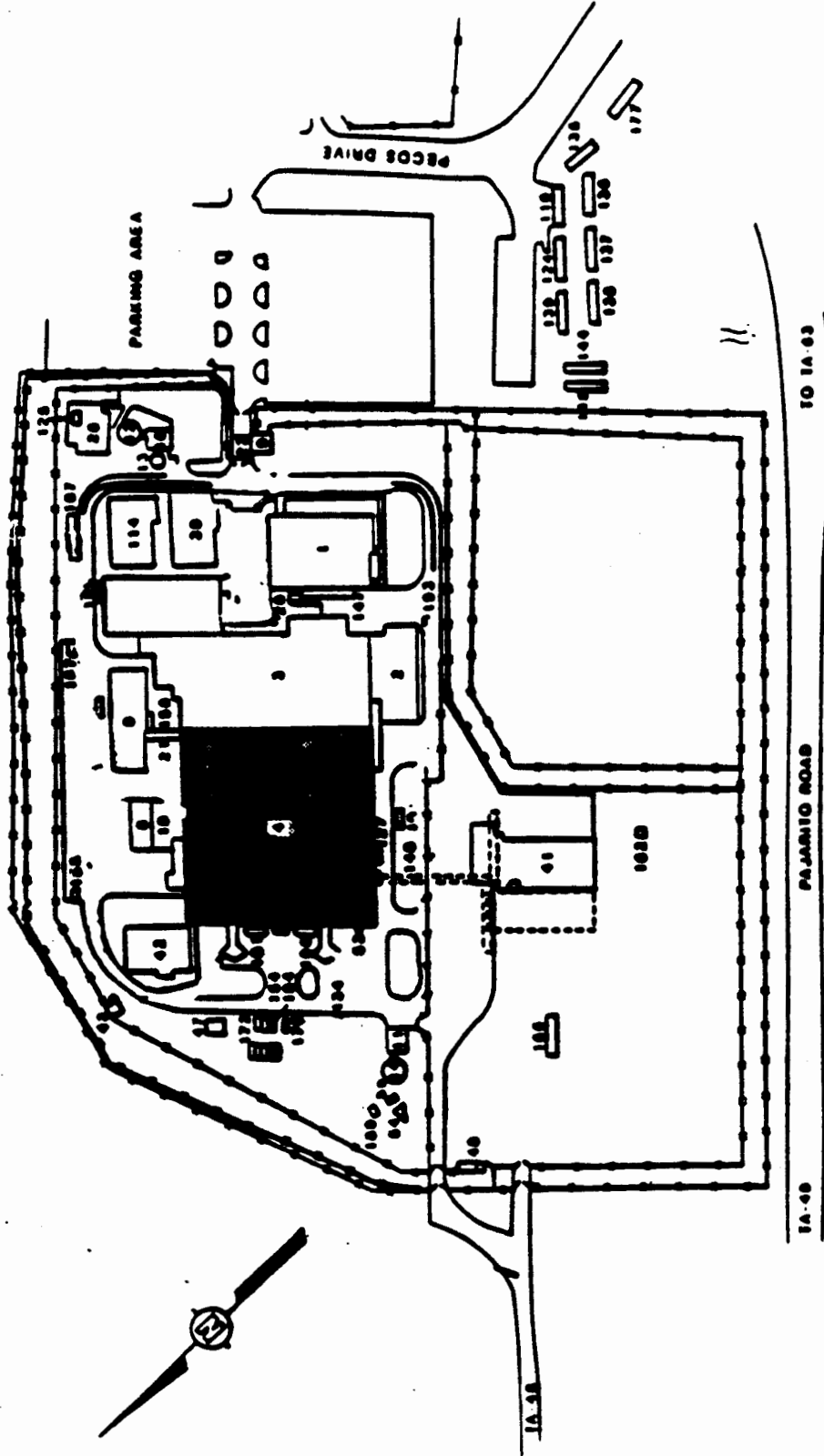


Typical Exterior Wall Construction Joint Detail at First Floor

FIGURE 5

**LOCATION MAP OF
SECURITY PERIMETER**

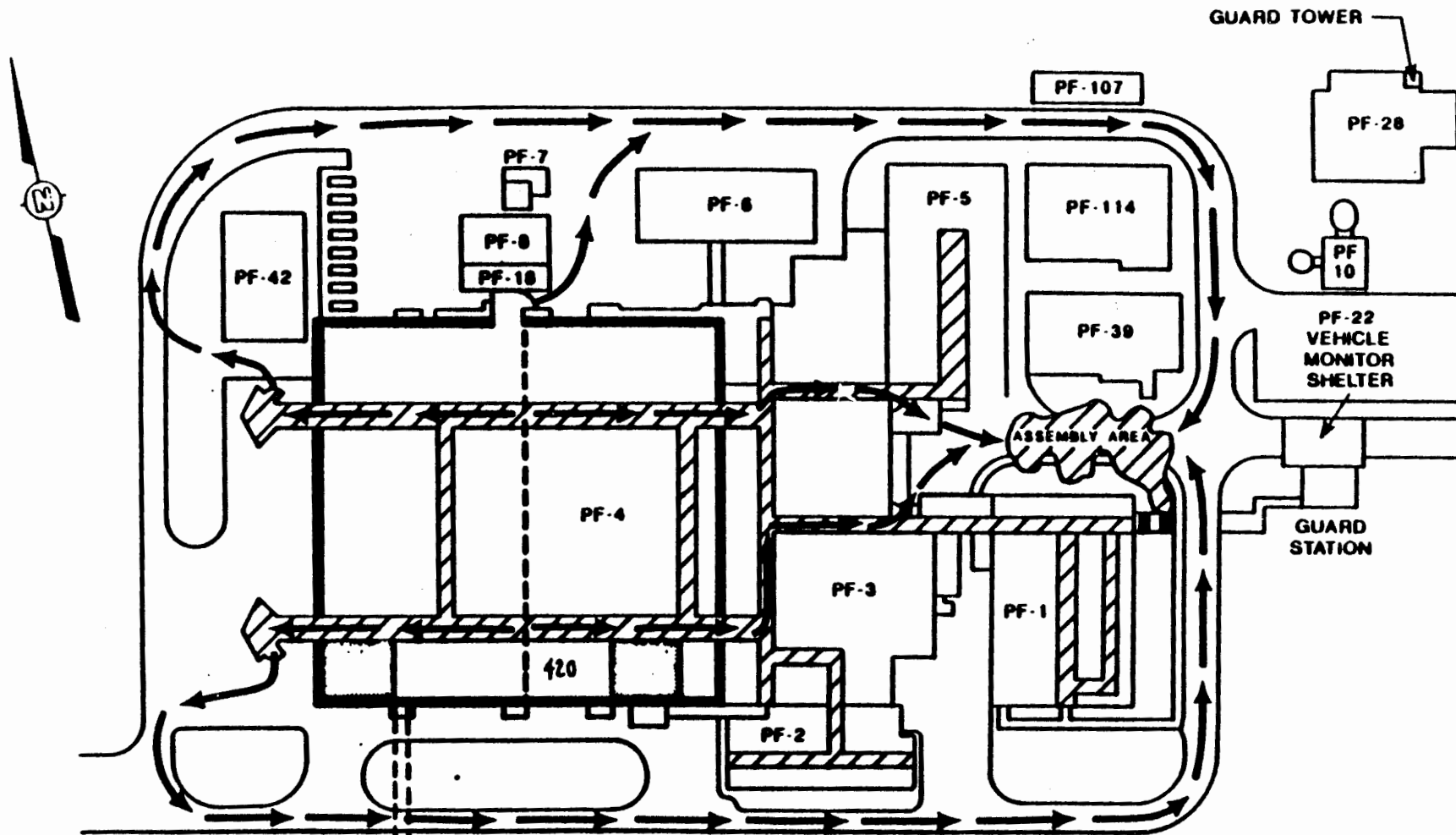
TA-55



200 0 200 FEET

SECURITY FENCE

FIGURE 6
EVACUATION ROUTES
FOR TA-55, BUILDING 4

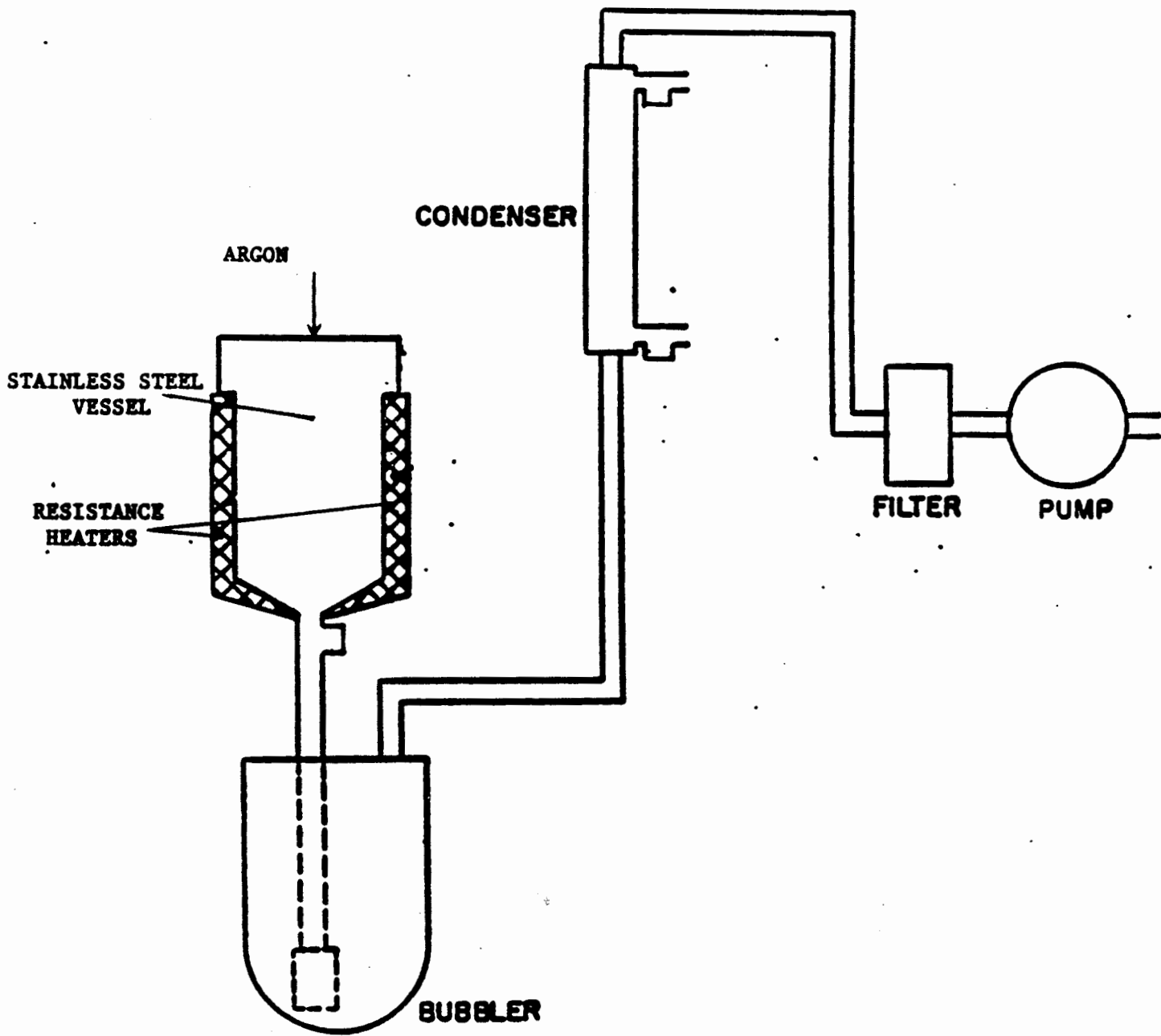


LEGEND

-  MAIN CORRIDORS
-  EVACUATION ROUTES

NOT TO SCALE

ATTACHMENT 1
SCHEMATIC FOR IADU



SCHEMATIC