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Department of Energy
Field Office, Albuquerque
Los Alamos Area Office
Los Alamos, New Mexico 87544

OCT 2 5 1995

ENTERED

Mr. Benito Garcia, Bureau Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo St., Building A
P. O. Box 26110
Santa Fe, NM 87505

Dear Mr. Garcia:

Subject: RCRA ID No. NM0890010515, Interim Status Unit, Los Alamos National Laboratory, TA-55 Oxygen Sparging Unit

The purpose of this letter is to submit the Closure Plan, Closure Report and Certification of Closure for the Oxygen Sparging Unit that was operated at Los Alamos National Laboratory (LANL) TA-55. This unit was operated under the Interim Status Provisions of HWMR-6 (20 NMAC 4.1, Subpart VI, 265) from approximately January 1991 to October 1993. Closure of the facility began in November 1993 and was completed in December 1993. Operational criteria for this facility are found in a controlled document available for review by NMED, but due to security concerns, it cannot be included in this submittal.

If you have any questions, please contact Jody Plum, Office of Environment and Projects, at (505) 665-5042.

Sincerely,

Larry Kirkman, P.E.
Acting Area Manager

LAAMEP:6JP-004

Enclosure

OCT 2 5 1995

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Contract 9-XV2-139EE-1
Work Release 95-0013 (761157)
September 1995

Closure Certification Report for the Closure of the Oxygen Sparging Unit at Technical Area 55, Building 4

Revision 0.0

Prepared for:
Los Alamos National Laboratory
Hazardous and Solid Waste Group (ESH-19)
Los Alamos, New Mexico 87545

Prepared by:
IT Corporation
557 Oppenheimer Drive
Suite 200
Los Alamos, New Mexico 87544

CLOSURE CERTIFICATION REPORT FOR THE CLOSURE OF THE OXYGEN SPARGING UNIT AT TECHNICAL AREA 55, BUILDING 4

Facility ID No.:	NM0890010515
Facility Name:	Los Alamos National Laboratory
Legal Owner:	United States Department of Energy
Legal Operators:	United States Department of Energy Los Alamos Area Office 528 35th Street Los Alamos, New Mexico 87545
	University of California P.O. Box 1663 Los Alamos, New Mexico 87545
Contact Person:	Mr. Larry D. Kirkman Acting Area Manager U.S. Department of Energy Los Alamos Area Office
Phone:	(505) 667-5105
Date:	September 1995

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EXECUTIVE SUMMARY

This report summarizes the actions performed in order to meet closure requirements for a Resource Conservation and Recovery Act (RCRA) interim status treatment unit, the oxygen sparging unit at Technical Area (TA) 55, Building 4 (TA-55-4) at Los Alamos National Laboratory (LANL). A RCRA interim status closure plan for the oxygen sparging unit was prepared by LANL and is included as Appendix A of this document. The closure plan addressed the nature of the waste and the treatment process, the decontamination and decommissioning procedures to be followed during closure, the closure schedule, and intent for closure certification.

Closure of the oxygen sparging unit was performed in accordance with the closure plan. Due to the nature of the treatment, no RCRA constituents were present in the unit. The oxygen sparging unit and the glovebox in which the unit was housed were wiped down with water-wet rags to reduce and/or remove radioactive contamination. The unit was then disassembled within the glovebox and the components of the unit individually wiped with water-wet rags. The components of the unit were then removed from the glovebox and packaged in 55-gallon drums and managed as non-RCRA-regulated transuranic (TRU) waste. The drums were transported to TA-54 for retrievable storage.

CLOSURE CERTIFICATION REPORT FOR THE CLOSURE OF THE OXYGEN SPARGING UNIT AT TECHNICAL AREA 55, BUILDING 4

1.0 INTRODUCTION

1.1 Background

This report summarizes the activities performed in order to meet closure requirements for the oxygen sparging unit located in Room 429 at Technical Area (TA) 55, Building 4, at Los Alamos National Laboratory (LANL) (see Figures 1 through 4 of Appendix A). The unit was operated under the interim status requirements of the Resource Conservation and Recovery Act (RCRA) for treatment of the RCRA hazardous portion of mixed (i.e., hazardous and radioactive) waste. The unit was used from January 1993 until October 1993 to treat waste salts generated by a calcium metal stripping process at TA-55. The treatment process involved the oxidation of reactive (U.S. Environmental Protection Agency [EPA] Hazardous Waste Number D003) and/or ignitable (EPA Hazardous Waste Number D001) characteristic metals that may have been present in the waste salts, rendering them nonhazardous. The calcium metal stripping process has since been discontinued.

The oxygen sparging unit is a RCRA treatment process for mixed waste, and as such, is subject to the regulations of the New Mexico Administrative Code Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart VI, which incorporates, with limited exceptions, Title 40 of the Code of Federal Regulations (40 CFR), Part 265, Subpart G, Closure and Post-Closure, and Subpart Q, Chemical, Physical, and Biological Treatment. The closure plan has been included as Appendix A of this document.

1.2 Purpose

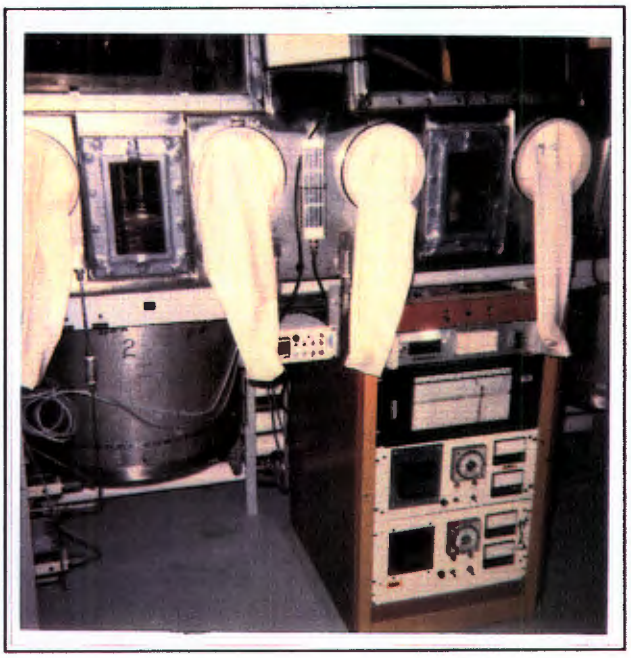
The purpose of this report is to present the activities conducted during the closure of the oxygen sparging unit at TA-55-4 and to demonstrate that closure was performed in accordance with the closure plan. Additionally, this report presents the independent professional engineering closure certification, as required in 20 NMAC 4.1, Subpart VI, 265.115.

1.3 Report Organization

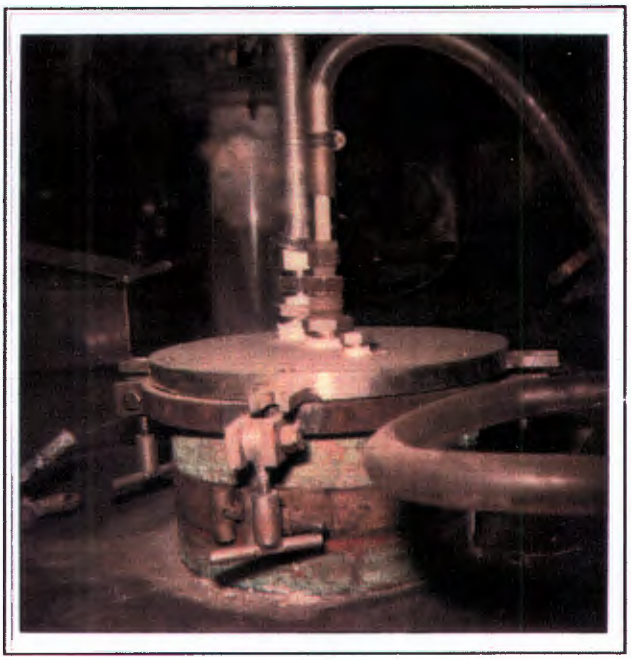
Section 1.0 presents the purpose of the closure certification report, and provides a description of the oxygen sparging unit, the sparging process, and the waste treated in the unit. Section 2.0 details the closure activities performed including the decontamination of the equipment, decommissioning of the oxygen sparging unit, and disposition of the decommissioned materials. Section 3.0 presents the certification of accuracy of this report and the independent professional engineering closure certification, as required in 20 NMAC 4.1, Subpart VI, 265.115. The closure plan for the oxygen sparging unit is included as Appendix A.

1.4 Oxygen Sparging Unit Description

The oxygen sparging unit at TA-55-4 consisted of a magnesium oxide crucible encased in a stainless steel, ceramic insulated shell measuring approximately 1.5 feet high by 1.0 foot in diameter. A magnesium oxygen sparge tube was installed into a flanged port in the upper end of the unit. The oxygen sparging unit was housed in a glovebox located in Room 429 of TA-55-4. The following are photographs of the oxygen sparging unit and glovebox at TA-55-4.



Technical Area 55, Building 4, Room 429, Process Code T04, Oxygen Sparging Unit Glovebox



Technical Area 55, Building 4, Room 429, Process Code T04, Oxygen Sparging Unit

1.5 Process Description

The oxygen sparging unit was utilized to treat mixed waste consisting of waste salt matrices. Prior to treatment, waste salts were lowered into the unit and the lid secured. The waste salts were then resistance heated at standard operating temperatures for a minimum of 3 hours. During this process, an oxygen sparge tube would be lowered into the molten salt releasing approximately 1 liter per minute of an oxygen/argon gas mixture. The extreme temperatures and oxygen-rich atmosphere ensure complete oxidation of the sodium or potassium metals potentially present in the waste salt matrices. A maximum of 6 kilograms (kg) of waste salts were treated during any one operation. A total of 19 waste salts, weighing 86.9 kg, were treated in the oxygen sparging unit during its operational life. The treatment capacity of the unit was 0.26 pounds per hour (LANL, 1995a). Emissions from this process were vented through a scrubber and a high-efficiency particulate air (HEPA) filter. As a result of this treatment, the waste salts were rendered nonhazardous (i.e., the RCRA hazardous characteristic of the waste was removed) and contained only a radioactive component. Additional information on the methodology and operating parameters applied to oxygen sparging operations is contained within a limited access (i.e., not for public dissemination) report, entitled "Oxygen Sparging of Spent Electrorefining Salts for Plutonium Recovery" (LANL, 1991).

1.6 Waste Description

Mixed waste treated in the oxygen sparging unit consisted of radioactive chloride salts generated from a calcium metal salt stripping process at TA-55-4. The salts were considered mixed waste due to the potential presence of sodium and/or potassium metals (EPA Hazardous Waste Number D001 for the ignitability characteristic and D003 for the reactivity characteristic). In total, 86.9 kg of the mixed waste salts were treated in the oxygen sparging unit. The post-treatment wastes were non-RCRA-regulated TRU wastes and were managed accordingly.

2.0 PERFORMANCE OF CLOSURE

2.1 Closure Activities

Closure activities for the oxygen sparging unit at TA-55-4 began in October 1993 and concluded in December 1993. These activities consisted of decontaminating the oxygen sparging unit and the glovebox in which it was housed, disassembling and removing the unit, and packaging the equipment as transuranic (TRU) radioactive waste in 55-gallon drums.

2.1.1 Decontamination

The initial step in the closure of the oxygen sparging unit involved thoroughly cleaning and wiping down the interior of the glovebox, the oxygen sparging unit, and any associated equipment in the glovebox with water-wet polypropylene rags to reduce and/or remove any radioactive contamination present. Due to the effectiveness of the treatment conducted in the oxygen sparging unit, the only residues present were radioactive (non-RCRA-regulated) oxides.

2.1.2 Oxygen Sparging Unit Decommissioning

Following the initial wipedown of the glovebox and associated equipment, the oxygen sparging unit was disassembled in the glovebox and the components were wiped down with water-wet rags to further reduce and/or remove any radioactive contamination present. The unit components were then removed from the glovebox and packaged in 55-gallon drums along with other nonhazardous process waste generated at TA-55. The drums containing the decommissioned unit components were taken to TA-54 for management as non-RCRA-regulated TRU waste. The glovebox remains at TA-55-4 and will be used for other operations at TA-55.

2.2 Disposition of Decommissioned Materials

The decommissioned components of the oxygen sparging unit were contained in one or more of 5 drums that were transported to TA-54 for retrievable storage as non-RCRA-regulated TRU waste. The rags used during the decontamination activities were disposed of along with similar nonhazardous process waste materials generated throughout TA-55. These drums will ultimately be taken to the Waste Isolation Pilot Plant (WIPP) facility for final disposal. A summary of waste disposition information including drum identification numbers, drum contents, and interim and long-term disposition of the waste resulting from closure of the unit is provided in Table 1.

2.3 Location of Supporting Documentation

Supporting documentation is available at LANL, TA-55, Building 2 with the Transuranic Operations Team Leader (NMT-7).

Table 1

Disposition of Waste Materials Generated from the Closure of the Oxygen Sparging Unit at Technical Area (TA) 55, Building 4

Waste Material	Drum ID #	Current Storage Location	Description of Drum Contents	Final Disposition
Oxygen Sparging Unit Components[a]	LA00000055175	TA-54, Area G	Non-RCRA[b]-hazardous metal waste	Awaiting disposal at the Waste Isolation Pilot Plant (WIPP) Facility
	LA00000055188	TA-54, Area G	Non-RCRA[b]-hazardous metal waste	Awaiting disposal at WIPP
	LA00000055190	TA-54, Area G	Non-RCRA[b]-hazardous metal waste	Awaiting disposal at WIPP
	LA00000055242	TA-54, Area G	Non-RCRA[b]-hazardous ceramic waste	Awaiting disposal at WIPP
	LA00000055255	TA-54, Area G	Non-RCRA[b]-hazardous glass waste	Awaiting disposal at WIPP
Decontamination Rags[c]	N/A	TA-54, Area G	Non-RCRA[b]-hazardous plastic waste	Awaiting disposal at WIPP

[a] The oxygen sparging unit at TA-55-4 was dismantled and the various components placed in one or more of the drums listed along with similar process waste materials generated throughout TA-55.

[b] Resource Conservation and Recovery Act.

[c] The plastic (polypropylene) rags used during closure were disposed of as transuranic (TRU) plastic waste along with similar process waste materials generated throughout TA-55.

3.0 CERTIFICATIONS

3.1 Certification of Accuracy

I certify under penalty of law that these documents 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 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 violation.

Document title:

Closure Certification Report for the Closure of
the Oxygen Sparging Unit at Technical Area 55, Building 4

Name: _____ Date: _____
Dennis J. Erickson, Division Director
Environment, Safety, and Health Division
Los Alamos National Laboratory

Name: _____ Date: _____
Larry D. Kirkman
Acting Area Manager
U.S. Department of Energy-Los Alamos Area Office

3.2 Independent Professional Engineering Certification

This certification was prepared in accordance with generally accepted professional engineering principles and practice pursuant to the requirements of 20 NMAC 4.1, Subpart VI, 265.115 for an independent professional engineering certification. These services have been performed with the care and skill ordinarily exercised by members of the profession practicing under similar conditions at the same time and in the same or in a similar locality. We make no other warranty either expressed or implied. The finding and certification are based on 1) reviewing the closure plan written for this unit, 2) reviewing data and documentation of the closure, 3) conversations with Ms. Sammi Owens, LANL, NMT-3 regarding closure activities, and 4) a site visit after closure for confirmation.

With the signature and seal below, I certify that the closure of the oxygen sparging unit at TA-55-4 was conducted in accordance with the closure plan written for the unit and that the information presented in this report is, to the best of my knowledge and belief, true, accurate, and complete.

Respectfully,

IT CORPORATION

P. Scott Den-Baars
NEW MEXICO
10653
REGISTERED PROFESSIONAL ENGINEER

P. Scott Den-Baars, P.E.
New Mexico Registered Professional Engineer No. 10653
Expires December 31, 1995

Date: September 27, 1995

4.0 REFERENCES

Los Alamos National Laboratory (LANL), 1995a, "Technical Area 55 RCRA Part A Permit Application," Rev. 0.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

Los Alamos National Laboratory (LANL), 1995b, "RCRA Interim Status Closure Plan for TA-55-4 Oxygen Sparging Unit," Los Alamos National Laboratory, Los Alamos, New Mexico.

Los Alamos National Laboratory (LANL), 1991, "Oxygen Sparging of Spent Electrorefining Salts for Plutonium Recovery," LA-12092, Los Alamos National Laboratory, Los Alamos, New Mexico.

New Mexico Environmental Improvement Board, 1994, New Mexico Administrative Code, Title 20, Chapter 4, Part 1, "Environmental Protection/Hazardous Waste/Hazardous Waste Management," Santa Fe, New Mexico.

U.S. Environmental Protection Agency (EPA), 1994, Code of Federal Regulations, Title 40, Parts 260 to 299, "Protection of Environment," Washington, D.C.

APPENDIX A
RCRA INTERIM STATUS CLOSURE PLAN FOR TA-55-4 OXYGEN SPARGING UNIT

Resource Conservation and Recovery Act Interim Status Closure Plan for TA-55-4 Oxygen Sparging Unit

Prepared for:

Los Alamos National Laboratory
Hazardous and Solid Waste Group (ESH-19)
Los Alamos, New Mexico 87545

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RCRA INTERIM STATUS CLOSURE PLAN FOR TA-55-4 OXYGEN SPARGING UNIT

1.0 INTRODUCTION

This closure plan has been prepared for the oxygen sparging unit at Los Alamos National Laboratory (LANL), Technical Area 55, Building 4 (TA-55-4). The oxygen sparging unit is a Resource Conservation and Recovery Act (RCRA) treatment process for mixed waste. Mixed waste contains a hazardous waste, as defined by and regulated under RCRA, and a radioactive waste. The closure activities presented in this document are written in accordance with the New Mexico Administrative Code Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart VI, which incorporates Title 40 of the Code of Federal Regulations (40 CFR) Part 265, Subpart G, Closure and Post-Closure. This unit is regulated under 20 NMAC 4.1, Subpart VI, 265, Subpart Q - Chemical, Physical, and Biological Treatment. Table 1 provides a cross reference between sections of this closure plan and the applicable regulatory requirements.

1.1 Closure Performance Standard [20 NMAC 4.1, Subpart VI, 265.111]

The closure plan for the oxygen sparging unit at TA-55-4 is designed to meet the following performance standards, pursuant to 20 NMAC 4.1, Subpart VI, 265.111:

- Minimize the need for further maintenance
- Control, minimize or eliminate, to the extent necessary, to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the groundwater, surface waters, or atmosphere
- Comply with requirements of 20 NMAC 4.1, Subpart VI, 265.404 for closure of chemical, physical, and biological treatment units.

1.2 Notification of Partial Closure [20 NMAC 4.1, Subpart VI, 265.112(a) & (d)]

The plan has been written for implementation of a partial closure (i.e., closure of one unit), rather than final closure of the LANL facility. Final closure of all hazardous and mixed waste units at LANL is not planned in the near future. LANL will notify the Secretary, New Mexico Environment Department (NMED), upon the completion of the partial closure activities. A copy of this closure plan will be furnished upon request to the Secretary, NMED. Copies will also be provided to NMED inspectors upon request, pursuant to 20 NMAC 4.1, Subpart VI, 265.112(a).

Copies of this document are maintained by LANL's Hazardous and Solid Waste Management Group (ESH-19) and by the U.S. Department of Energy (DOE), Los Alamos Area Office (LAAO).

1.3 Amendment of Plan [20 NMAC 4.1, Subpart VI, 265.112(c)]

This closure plan may be amended pursuant to 20 NMAC 4.1, Subpart VI, 265.112(c) prior to initiation of closure of the oxygen sparging unit; however, no changes in operations are anticipated that will affect this plan. The plan will be modified if, while conducting closure activities, unexpected events require a modification.

Table 1

Closure Plan Section/Regulatory Requirement Cross Reference

New Mexico Regulation Citation[a]	RCRA Regulation Citation[b]	Regulatory Requirement	Closure Plan Section
Subpart VI, 265.110	265.110	Applicability	--
Subpart VI, 265.111	265.111	Closure Performance Standard	1.1
Subpart VI, 265.112 Subpart VI, 265.112(a) Subpart VI, 265.112(b) Subpart VI, 265.112(c) Subpart VI, 265.112(d)	265.112 265.112(a) 265.112(b) 265.112(c) 265.112(d)	Closure Plan; Amendment of Plan Written Plan Content of Plan Amendment of Plan Notification of Partial Closure and Final Closure	1.1 4.1 3.2, 3.3, 4.1, 4.2, 5.0 1.3 1.2
Subpart VI, 265.113	265.113	Closure; Time Allowed for Closure	5.2, 5.3
Subpart VI, 265.114	265.114	Disposal or Decontamination of Equipment, Structures, and Soils	4.2
Subpart VI, 265.115	265.115	Certification of Closure	6.0
Subpart VI, 265.116	265.116	Survey Plat	Figures
Subpart VI, 265.117	265.117	Post-Closure Care and Use of Property	7.0
Subpart VI, 265.118	265.118	Post-Closure Plan; Amendment of Plan	7.0
Subpart VI, 265.119	265.119	Post-Closure Notices	7.0
Subpart VI, 265.120	265.120	Certification of Completion of Post-Closure Care	7.0
Subpart VI, 265.140	265.140	Financial Requirements	8.0
Subpart VI, 265.404	265.404	Closure Requirement for Chemical, Physical, and Biological Treatment Units	4.3

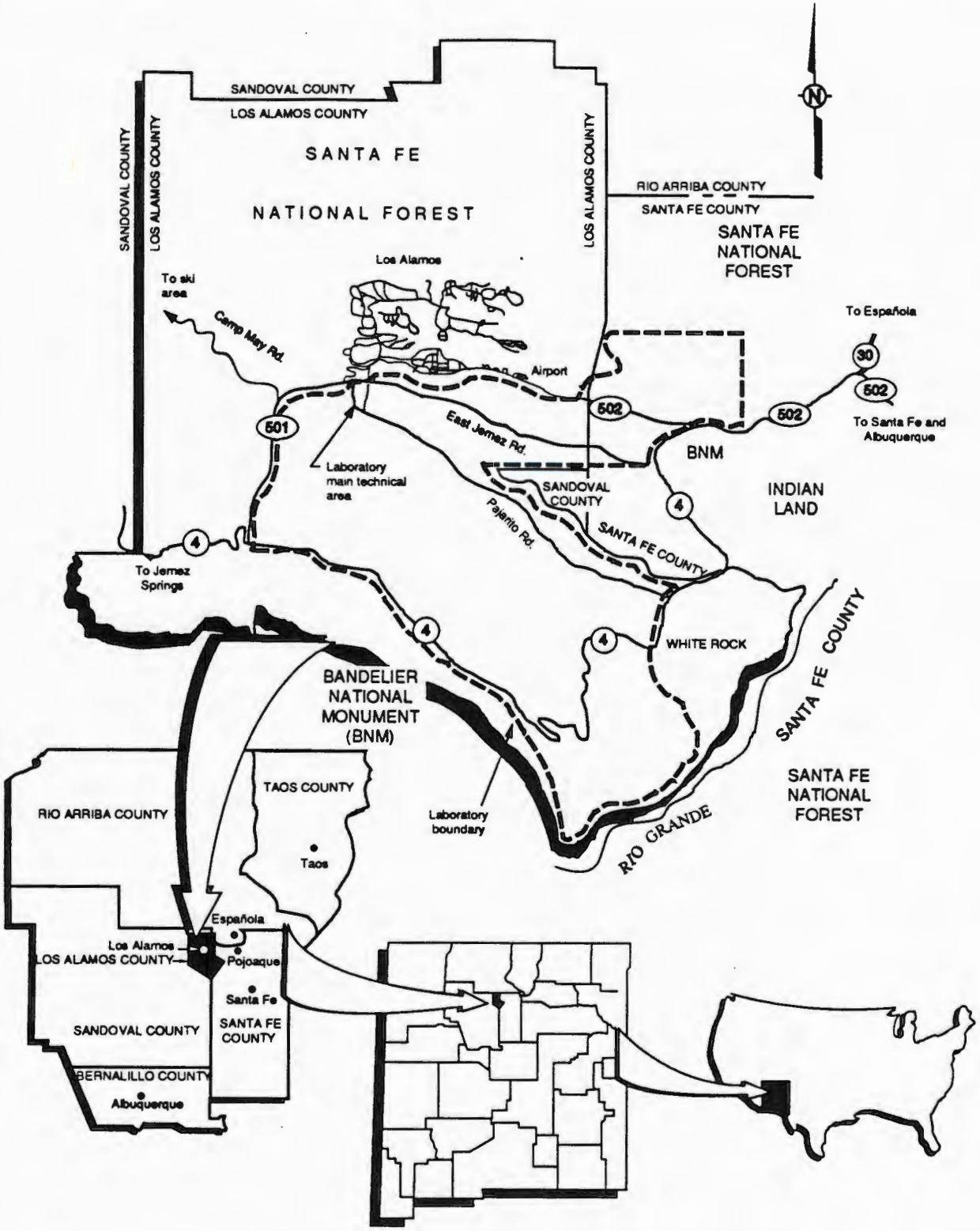
[a] From New Mexico Administrative Code Title 20, Chapter 4, Part 1, 1994.
[b] From Code of Federal Regulations Title 40, 1994.

2.0 FACILITY DESCRIPTION

LANL is a multidisciplinary laboratory (EPA No. NM0890010515) owned by DOE, and operated jointly by DOE and the University of California. The principal mission of LANL is the design and development of weapons for the nation's nuclear arsenal; however, considerable research and development is directed toward the development of the peaceful uses of nuclear energy including research on controlled thermonuclear reactions, fission reactors, nuclear safeguards, laser fusion, and medium-energy physics. Extensive basic research in physics, chemistry, metallurgy, mathematics and computers, earth sciences, and electronics supports these efforts. Biomedical and environmental research includes programs in molecular biology, radiobiology, cancer therapy, radiology, and industrial hygiene.

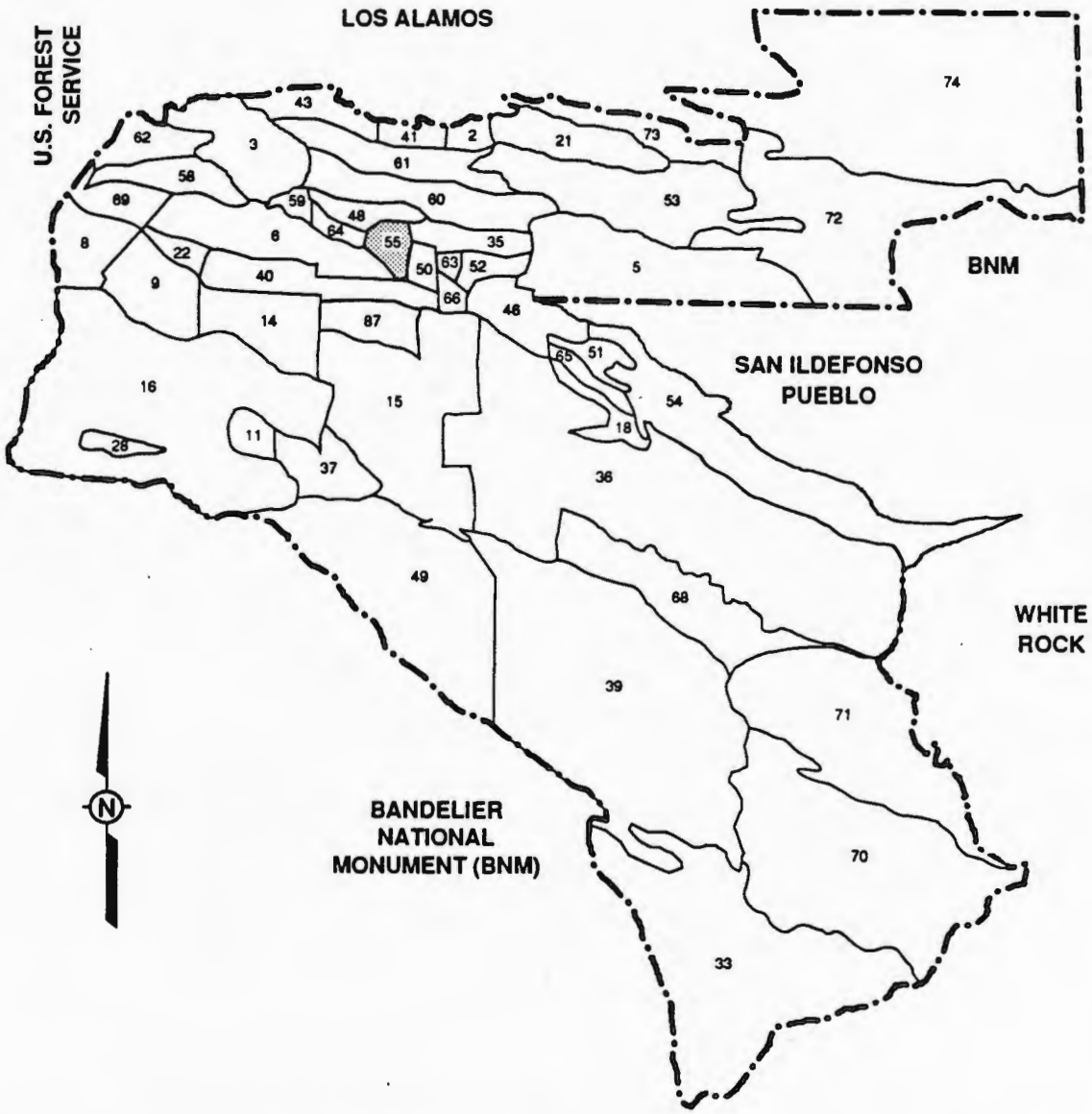
LANL is located in north-central New Mexico, approximately 60 miles north-northeast of Albuquerque, and 25 miles northwest of Santa Fe (Figure 1). LANL, which occupies an area of 43 square miles, and the associated residential areas of Los Alamos and White Rock are situated on the Pajarito Plateau. The plateau consists of a series of finger-like mesas separated by deep east-west trending canyons; intermittent streams lie at the bottom of all of the canyons. The mesa tops range in elevation from approximately 7,800 feet at the flank of the Jemez Mountains, located west of Los Alamos, to about 6,200 feet at their eastern extent, where they terminate above the Rio Grande Valley.

LANL is divided into 51 Technical Areas (TA); 34 of these TAs are developed. The location of TA-55 in relation to the other TAs at LANL is shown in Figure 2. The treatment unit (a clamshell type of electric furnace and not a Boiler or Industrial Unit [BIF] as defined by 20 NMAC 4.1, Subpart I, 260) for which this plan is written is located in Room 429 at TA-55-4, the Plutonium Facility. The location of TA-55-4, and a floor plan showing the location of the oxygen sparging unit, are provided in Figure 3 and Figure 4, respectively. TA-55 lies at an elevation of 7,300 to 7,100 feet. The facility is located on a narrow mesa between Mortandad Canyon on the north and Pajarito Canyon on the south. The oxygen sparging unit is operated and maintained by LANL's Nuclear Materials Technology (NMT) Division.



Reference: "Environmental Surveillance at Los Alamos During 1992," 1994, LA-12764-ENV, Los Alamos National Laboratory, Los Alamos, New Mexico.

Figure 1
Regional Location Map of Los Alamos National Laboratory



Shading indicates technical area in which the oxygen sparging unit is located.

4800 0 4800
Scale in Feet

Modified from: "Environmental Surveillance at Los Alamos During 1992," 1994, LA-12764-ENV, Los Alamos National Laboratory, Los Alamos, New Mexico.

Figure 2
Location Map of Los Alamos National Laboratory Technical Areas

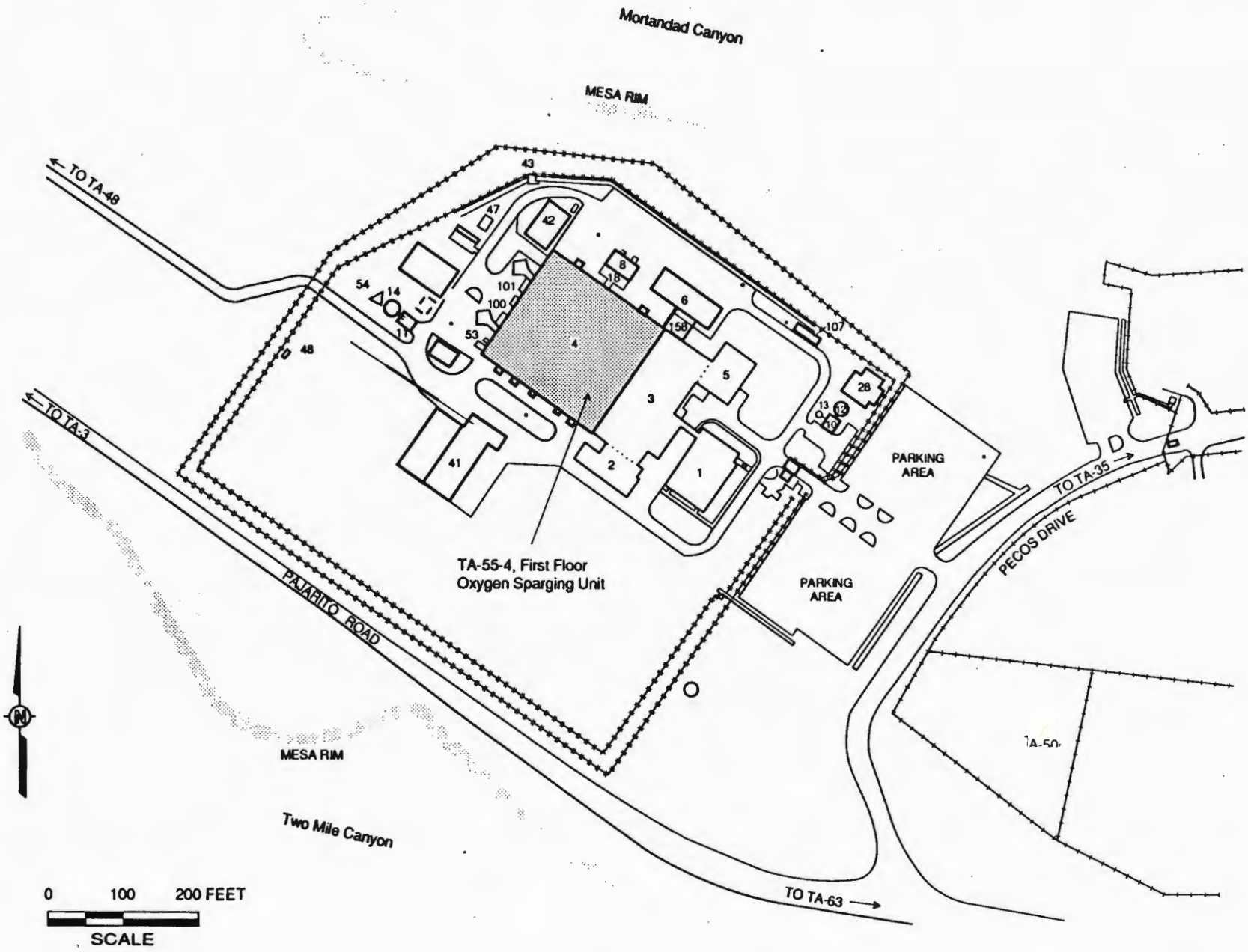


Figure 3
Technical Area (TA) 55 Site Location Map

TA-55-4, First Floor

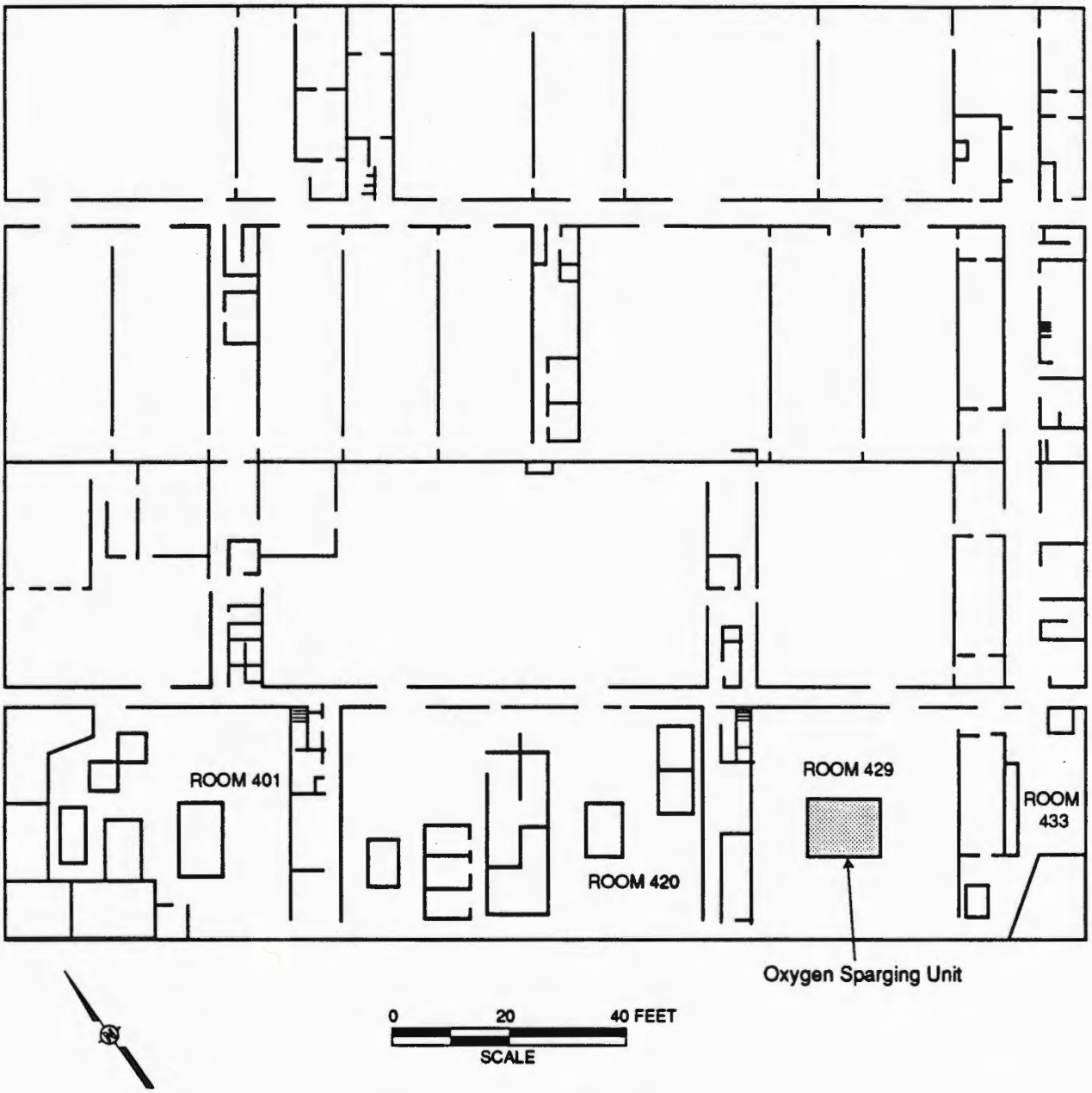


Figure 4
Technical Area (TA) 55, Building 4, First Floor - Floor Plan Showing Location of Oxygen Sparging Unit

3.0 WASTE INFORMATION

3.1 Waste Description and Process Information

The waste treated in the oxygen sparging unit consists of used chloride salts generated from the calcium metal salt stripping process activities conducted at TA-55-4. The salt waste is considered mixed waste due to the potential presence of sodium and/or potassium metals (EPA Hazardous Waste Number D001 for the ignitability characteristic and D003 for the reactivity characteristic). The primary purpose of the treatment is to oxidize the metals to nonhazardous compounds thereby removing the hazardous characteristic from the salt waste. The treatment unit is housed inside a glovebox in Room 429 at TA-55-4, and vented to a closed ventilation system in TA-55. Emissions from the glovebox are passed through a scrubber and a high efficiency particulate air (HEPA) filtration system.

The treatment process operates as follows. A maximum of six kilograms (kg) of waste salts are loaded into a magnesium oxide crucible and resistance heated in the oxygen sparging unit at standard operating temperatures for a minimum of three hours. During that time, a magnesium oxide sparge tube is lowered into the melt and approximately one standard liter per minute of an oxygen/argon gas mixture is bubbled through the salt waste. The high temperature in the oxygen sparging unit and the reactivity of the sodium and/or potassium metal potentially present in the waste result in the complete oxidation of the metals.

The wastes introduced into the oxygen sparging unit consist of solidified salt masses with potentially entrained pieces of sodium or potassium metals. These pieces would be fine enough to be oxidized during the process; therefore, the only component remaining in the unit after treatment would be radioactive (non-RCRA) oxides in a salt matrix. If the glovebox were to become contaminated as a result of this operation, the only contaminant present would be radioactive (non-RCRA) oxides.

3.2 Identification of Maximum Extent of Operations [20 NMAC 4.1, Subpart VI, 265.112(b)(2)]

The treatment capacity for the oxygen sparging unit is 0.26 pounds of material per hour, as specified in LANL's "RCRA Part A Permit Application for Mixed Waste," (January 1991). The waste salts are stored in a RCRA interim status storage area in the basement vault of TA-55-4 prior to treatment. It is anticipated that by October 1, 1993, all of the waste intended to undergo the oxygen sparging process will have been treated; the calcium metal salt stripping process that

generated this waste stream is no longer in operation and there is no intention to conduct this process in the future.

3.3 Estimate of Maximum Inventory of Waste [20 NMAC 4.1, Subpart VI, 265.112(b)(3)]

Nineteen salts with suspected quantities of metal were stored in the basement vault at TA-55-4. The net weight of these nineteen salts was 86.9 kg. As of June 28, 1993, seven salts with a net weight of 27.7 kg remained in storage. The treatment of the seven remaining salts is expected to be completed before October 31, 1993.

The salt waste inventory will be managed and treated on site in the oxygen sparging unit. No additional waste that would require this treatment is expected to be generated after closure of this unit. The oxygen sparging unit itself does not generate residues that require treatment.

4.0 CLOSURE OF THE OXYGEN SPARGING UNIT

4.1 Closure Procedure [20 NMAC 4.1, Subpart VI, 265.112(b)(1)]

Closure of the oxygen sparging unit will begin when the last batch of salt waste has been processed. No mixed waste treatment will be conducted in the unit once all wastes have been treated to remove the D001 and/or D003 characteristic. Because the oxygen sparging unit is housed within a glovebox, closure of this unit will commence by decontaminating and disassembling the unit, following guidance provided by NMT Division and other appropriate groups at LANL.

Initially, the residues (non-RCRA) inside the glovebox will be reduced by sweeping or washing the glovebox and equipment in-place at TA-55-4. The oxygen sparging unit will be disassembled and wiped with water-wet rags within the cleaned glovebox. The glovebox will then be wiped down again with water-wet rags and left at its current location. The components of the oxygen sparging unit will be packed in radioactive waste boxes or 55-gallon drums. The treatment process leaves no RCRA residues on the unit components; consequently, they will be placed in retrievable storage and managed as transuranic (TRU) waste at TA-54. Ultimately the waste will be disposed of at the Waste Isolation Pilot Plant (WIPP) as TRU waste.

The closure procedure described in this section is protective of human health and the environment, and complies with requirements of the closure performance standard of 20 NMAC 4.1, Subpart VI, 265.111 by minimizing the need for further maintenance and the possibility of post-closure escape of hazardous wastes and hazardous constituents.

4.2 Unit Decontamination and Disposal or Decontamination of Equipment, Structures, and Soils [20 NMAC 4.1, Subpart VI, 265.112(b)(4); 265.114]

At closure, no mixed waste will remain and radioactively-contaminated system components and equipment from the decommissioning of the oxygen sparging unit will be placed in retrievable storage at TA-54. All of the waste generated at closure will be managed as TRU waste and packaged and stored in accordance with LANL and DOE requirements (i.e., Administrative Requirement (AR) 10-1, AR 10-5, and DOE Order 5820.2A) for storage and disposal. Because the oxygen sparging unit is housed in a glovebox, inside a room at TA-55-4, soils will not be affected at closure. Therefore, soil sampling will not be conducted.

4.3 Closure Requirements for Chemical, Physical, and Biological Treatment Units [20 NMAC 4.1, Subpart VI, 265.404]

The closure requirements contained in 20 NMAC 4.1, Subpart VI, 265.404, for chemical, physical, and biological treatment units specify that at closure all hazardous waste and hazardous waste residue must be removed from the treatment process equipment, discharge control equipment, and discharge confinement structures. The nature of the treatment process is such that no RCRA residues remain after treatment. The oxygen sparging unit components will be managed as TRU waste.

5.0 CLOSURE SCHEDULE [20 NMAC 4.1, Subpart VI, 265.113(a)]

5.1 Schedule for Final Waste Treatment [20 NMAC 4.1, Subpart VI, 265.113(a)]

Treatment of the final volume of hazardous waste is scheduled to be completed by October 31, 1993. The treatment unit will be decommissioned and, with the exception of the glovebox, will be removed from TA-55-4 within 90 days from the receipt of the final waste. The glovebox will be decontaminated and employed in another process at TA-55.

5.2 Schedule for Completion of Closure Activities [20 NMAC 4.1, Subpart VI, 265.113(b)]

Upon final treatment and removal of waste from the oxygen sparging unit, NMED will be notified as to closure procedures, followed by a closure certification report. Closure is currently scheduled to be completed by December 31, 1993.

6.0 CLOSURE CERTIFICATION [20 NMAC 4.1, Subpart VI, 265.115]

An independent, registered professional engineer and a facility representative shall ensure that closure follows this plan. Upon completion of closure, the engineer and the facility representative shall prepare a closure certification report certifying that the oxygen sparging unit has been closed in accordance with this plan. The closure certification report will contain, at a minimum, the following:

- The certification described in Section 6.0
- The disposition of all regulated and nonregulated residues
- The location of supporting documentation
- A certification of accuracy of the report.

The report shall be dated and signed by each party, stamped by the registered engineer, and the original copy submitted by the DOE to the Secretary, NMED. One copy will be maintained at DOE LAAO and one copy will be maintained by LANL ESH-19.

7.0 POST-CLOSURE CARE REQUIREMENTS [20 NMAC 4.1, Subpart VI, 265.116–120]

Post-closure care requirements will not apply because no hazardous waste or hazardous constituents will be left in place upon closure of the treatment unit. Applicability criteria specified in 20 NMAC 4.1, Subpart VI, 265.110 do not apply to this closure.

8.0 FINANCIAL REQUIREMENTS [20 NMAC 4.1, Subpart VI, 265.140(c)]

In accordance with 20 NMAC 4.1, Subpart VI, 265.140(c), as a facility owned by the Federal government, LANL is exempt from the financial requirements of 20 NMAC 4.1, Subpart VI, 265, Subpart H.