EMERGENCY PLAN

FOR THE

UNIVERSITY OF NEW MEXICO AGN-201M REACTOR FACILITY

Docket No. 50-252
License No. R-102

Department of Nuclear Engineering
MSC 01-1120
The University of New Mexico
Albuquerque, New Mexico 87131-0001

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August 15, 2024

TABLE OF CONTENTS

1.0 INTRODUCTION

The University of New Mexico (UNM) Reactor, model AGN-201M, is located in the Reactor Laboratory Room in the Nuclear Engineering Laboratory (NEL) Building. That building is located in the engineering complex on the southwest corner of the central campus of UNM in Albuquerque, New Mexico. Figure 1 shows the campus layout, including the location of the NEL building on the campus. Reactor operation activities are conducted under the UNM Facility operating License #R-102, NRC Docket No. 50-252. The UNM reactor is used in training and research programs in various fields of nuclear engineering.

The reactor is a solid, homogeneous thermal reactor which is operated in a sealed container at a maximum licensed power of 5.0 watts. The fuel is nominally 19.5 ± 0.5 percent enriched UO_2 powder embedded in radiation-stabilized polyethylene (and polystyrene in the thermal fuse). The reactor is conductively cooled, rejecting heat to ambient, and requires no liquid or auxiliary cooling system. The core contains 667 grams of U-235, and by virtue of the small fissile material content and low operation power level, the fission product inventory is negligible.

This Emergency Plan has the following purposes:

a) to describe provisions made through advanced planning to cope with an emergency situation not normally expected from routine reactor operations; and

b) to provide assurances that appropriate measures can and will be taken to mitigate the consequences of such an emergency, should it occur, and thereby further assure the protection of the public health and safety, as well as the safety of radiation workers at the facility.

This Emergency Plan was prepared to be in compliance with ANSI/ANS-15.16-2015 (R2020) "Emergency Planning for Research Reactors," and NUREG-0849, "Standard Review Plan for the Review and Evaluation of Emergency Plans for Research and Test Reactors." Differences and variations of this document from those which are used for other reactor facilities realistically reflect the characteristics unique to the UNM Reactor Facility.

2.0 DEFINITIONS

2.1 Emergency - An emergency is a condition which calls for immediate action, beyond the scope of normal operating procedures, to avoid an accident or mitigate the consequences of one.

2.2 Operations Boundary - That area within the Site Boundary where the Director of Emergency Operations has direct authority over all activities. This consists of the Nuclear Engineering Laboratory Building, as shown on Figure 1.

2.3 Site Boundary - That boundary, not necessarily having restrictive barriers, surrounding the Operations Boundary wherein the Director of Emergency Operations may directly initiate emergency activities. The area within the Site Boundary may be frequented by people unacquainted with the reactor operations. For the UNM Reactor, the Site Boundary is the same as the Operations Boundary, which is the Nuclear Engineering Laboratory.

2.4 Emergency Planning Zone (EPZ) - The area for which emergency planning is performed to assure that prompt and effective actions can be taken to protect the public in the event of an accident. The Nuclear Engineering Laboratory Building, which is defined as the Operations Boundary is also designated as the EPZ.

2.5 Onsite - The geographical area that is within the Site Boundary.

2.6 Offsite - The geographical area that is beyond the Site Boundary.

2.7 Director of Emergency Operations (DEO) - The DEO is the individual who has the responsibility of coordinating the response of the Emergency Organization to any Emergency within the EPZ.

2.8 Emergency Organization - The Emergency Organization consists of a Director and a team of technical coordinators who possess the detailed knowledge of the Reactor Facility and radiation safety to respond appropriately to any Emergency within the EPZ.

2.9 Reactor Safety Advisory Committee (RSAC) - The RSAC consists of a group of engineers and scientists, knowledgeable in nuclear reactor matters. The RSAC periodically reviews and approves all procedures related to the safe operation of the UNM reactor facility, including this Emergency Plan document.

2.10 NE Radiation Supervisors - Members of the faculty and staff of the University of New Mexico and students (primarily graduate and occasionally, undergraduate) who have been certified as Supervisors of Use. NE Radiation Supervisors have unescorted access to the Nuclear Engineering Laboratory Building.

2.11 Radiation Control Committee (RCC) - The RCC is established to act on behalf of the President of the University for control of all University of New Mexico activities involving sources of ionizing radiation. The RCC consists of at least five members from the UNM Faculty or Staff.

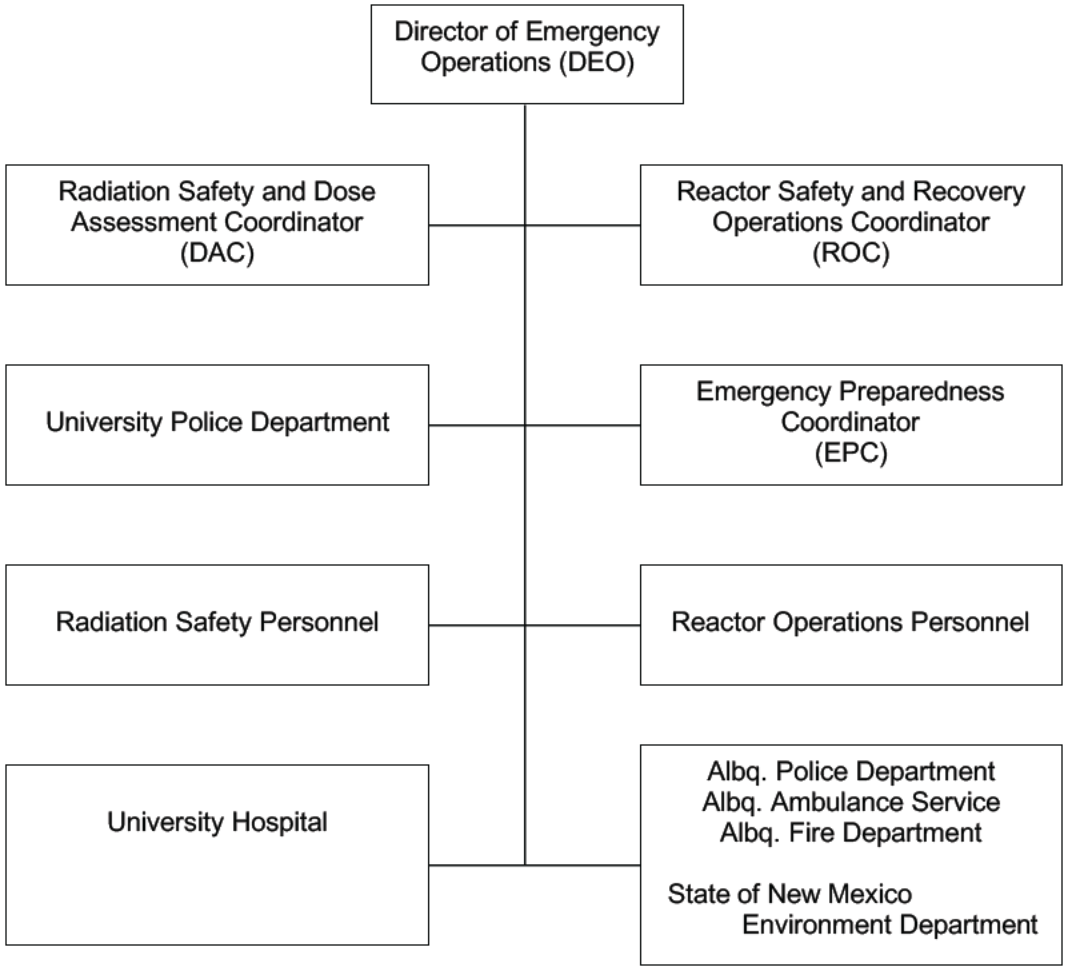
2.12 Chief Reactor Supervisor - The Chief Reactor Supervisor shall hold a Senior Reactor Operator's license issued by the NRC. He/she is responsible for the distribution and enforcement of rules, regulations and procedures concerning operation of the facility. The Chief Reactor Supervisor is directly responsible for enforcing operating procedures and ensuring that the facility is operated in a safe, competent and authorized manner.

2.13 Reactor Supervisors - The Reactor Supervisors shall hold valid Senior Reactor Operator's licenses issued by the Nuclear Regulatory Commission. A Reactor Supervisor shall be in charge of the facility at all times during reactor operation and shall witness the startup and intentional shutdown procedures. The Reactor Supervisors are directly responsible to the Chief Reactor Supervisor.

3.0 ORGANIZATION AND RESPONSIBILITIES

3.1 Emergency Organization

The Emergency Organization consists of a Director and a team of technical coordinators who possess a detailed knowledge of the Reactor Facility. This team is augmented with selected off-campus agencies which provide response actions normally beyond the capabilities of UNM personnel. Following is a block diagram illustrating the structure of the EMERGENCY ORGANIZATION. Appendix A shows the Emergency Organization and its line of succession along with a current listing of personnel.



3.2 Director of Emergency Operations (DEO)

3.2.1 The Chief Reactor Supervisor for the UNM AGN-201M Reactor Facility shall be the Director of Emergency Operations. In the event that the Chief Reactor Supervisor is unavailable or otherwise incapacitated, the DEO shall be assumed according to the following line of succession:

Chief Reactor Supervisor

Reactor Administrator

Reactor Supervisor onsite

3.2.2 The DEO shall be responsible for characterizing the emergency and if necessary, declaring a Notification of an Unusual Event (NOUE). The DEO shall be responsible for directing all elements of the Emergency Organization to effectively bring the emergency under control. This responsibility shall include the following key decisions:

a) that specific elements of the Emergency Organization should or should not be activated based upon circumstances of the emergency, existing or imminent;

b) that sufficient control exists such that an emergency, once declared, may be terminated;

c) that recovery actions shall commence; and

d) that changes to the planned organization and organizational actions, based upon existing circumstances of the emergency, may be made.

In addition, the DEO shall be responsible for proper notification of and initial liaison with the US NRC and the State of New Mexico Environment Department. The DEO shall authorize, upon the recommendation of the Radiation Safety and Dose Assessment Coordinator (DAC), emergency workers to incur voluntary doses in excess of normal occupational limits. The DEO shall authorize, upon recommendations from the DAC and the Reactor Safety and Recovery Operations Coordinator (ROC), reentry into areas of the facility that required evacuation following an accident. A representative designated by the DEO, shall relate information about the emergency situation to the news media and to the public.

3.3 Radiation Safety and Dose Assessment Coordinator (DAC)

3.3.1 The UNM Radiation Safety Officer (RSO) shall be the DAC. In the event that the RSO is unavailable or otherwise incapacitated, the DAC shall be assumed according to the following line of succession:

UNM Radiation Safety Officer

Health Physicist Onsite

Chief Reactor Supervisor

3.3.2 The DAC shall be responsible for onsite and offsite dose assessments, including maintenance of records. The DAC shall make recommendations to the DEO for actions that would mitigate the consequences of radiological hazards resulting from the emergency. The DAC shall directly supervise decontamination actions, including the decontamination and/or preparation of contaminated injured personnel using measures to minimize radiation exposures for personnel engaged in corrective and recovery actions. The responsibilities of the DAC can only be delegated to those in the line of succession.

3.4 Reactor Safety and Recovery Operations Coordinator (ROC)

3.4.1 The Chief Reactor Supervisor for the UNM AGN-201M facility shall be the ROC. In the event that the Chief Reactor Supervisor is unavailable or otherwise incapacitated, the ROC shall be assumed according to the following line of succession:

Chief Reactor Supervisor

Reactor Supervisor onsite

3.4.2 The ROC shall make recommendations to the DEO for actions that would mitigate the consequences of and resolve emergencies directly involving reactor safety. The ROC shall supervise any such actions. The ROC shall assess reactor core damage, existing or imminent. The ROC shall initiate actions required to assure reactor shutdown, as defined in the UNM AGN-201M Facility Operating License. The ROC shall make recommendations for actions to improve the posture of any security measures that may have been degraded as a result of an accident. The ROC shall supervise onsite recovery actions as directed by the DEO. The responsibilities of the ROC can only be delegated to those in the line of succession.

3.5 Emergency Preparedness Coordinator (EPC)

The Chief Reactor Supervisor of the UNM AGN-201M Facility shall be the EPC. The EPC shall be responsible for emergency preparedness planning, including the updating of this plan, notification of members of the Emergency Organization and the implementation of procedures. The EPC shall distribute the Emergency Plan, including approved changes and revisions to appropriate elements of the Emergency Organization. The EPC shall initiate action to obtain, where necessary, written agreement with offsite support agencies to augment and extend the capabilities of the Emergency Organization. The EPC shall ensure that onsite equipment and facilities are available and maintained in the proper state of readiness to support this plan. The EPC shall obtain review and approval of revisions to the Emergency Plan by the UNM AGN Reactor Safety Advisory Committee.

3.6 On-Campus Emergency Support Agencies - Appendix A contains the phone numbers for Emergency Support Agencies both On-Campus and Off-Campus. The Letters of Support should be updated as often as necessary, but at least every four years.

3.6.1 UNM POLICE DEPARTMENT (UNMPD) The UNM Police Department is an on-campus organization that maintains a permanent detachment of armed police officers on the UNM campus. It also has a full-time director and is responsible for the enforcement of physical security and personnel access regulations. Communications between UNM Police Department Headquarters and patrolling officers is maintained by the use of two-way radios. The UNM Police Department maintains a liaison with other law enforcement agencies, including city, county and state police, to ensure effective traffic control and crowd control in emergency situations. UNM Police Department will coordinate with the DEO to initiate actions which would improve the posture of any security measures that may have been degraded as a result of an accident.

3.6.2 UNM RADIATION SAFETY This UNM agency has the specific function of evaluating and controlling radiological hazards related to UNM activities. Included in the normal operation of the agency is the monitoring of personnel dose rates and routine radiological emissions at UNM. The UNM Radiation Safety Officer serves as DAC in a reactor facility emergency. The agency provides monitoring and control of radioisotope emission through a staff of trained health physicists. This includes personnel dose assessment, air sampling, surface contamination sampling and bioassay where designated by the DAC. This agency follows procedures that meet federal guidelines and that have been approved by the State of New Mexico Environment Department.

3.6.3 UNM HOSPITAL The UNM Hospital provides emergency medical service to radioactively contaminated patients. That service is coordinated by UNMPD with transportation provided by the Albuquerque Ambulance Service. Details on written agreements and procedures are included in Appendix B.

3.7 Off-Campus Emergency Support Agencies

3.7.1 ALBUQUERQUE CITY POLICE DEPARTMENT The city of Albuquerque police department provides assistance, coordinated by UNMPD, in the event of a bomb threat or civil disturbance directed against the reactor facility. In addition they provide assistance in traffic and crowd control.

3.7.2 ALBUQUERQUE CITY FIRE DEPARTMENT The Albuquerque Fire Department provides fire fighting services and rescue squad services in the event of an emergency. Details of written agreements with the Albuquerque Fire Department are included in Appendix B.

3.7.3 ALBUQUERQUE AMBULANCE SERVICE Albuquerque Ambulance Service provides transportation services in the event of an emergency. Injured and/or radioactivity contaminated personnel will be transported to the UNM Hospital. Details of written agreements with the Albuquerque Ambulance Service are included in Appendix B.

3.7.4 NM ENVIRONMENT DEPARTMENT RADIATION CONTROL BUREAU The Radiation Control Bureau of the State of New Mexico Environment Department (NMED) provides support services for radiological emergencies. They are notified of the emergency by the DEO, and their support is coordinated by the DEO and the DAC.

4.0 EMERGENCY CLASSIFICATIONS

By virtue of the small quantity of fissile material and the negligible fission product inventory associated with operation of the AGN-201M reactor, a release of radioactive material that would require offsite responses is not expected from any potential emergency involving the UNM reactor facility. Radiological emergencies that may be possible are within the control capabilities of onsite personnel and predetermined responses are specified in the reactor facility operating procedures. Emergencies for which predetermined responses may be necessary by the Emergency Organization outlined in the plan are described in the following classification.

4.1 Notification of Unusual Events (NOUE)

Unusual Events shall include man-made events or natural phenomena, existing or imminent, that can be recognized as creating a significant hazard potential that was previously nonexistent and that may be beyond the scope of normal operating procedures. Notification or mobilization of one or more of the elements of the Emergency Organization may be necessary to increase the state of readiness, to prevent escalation of the emergency or to mitigate the consequence of an accident should it occur. Notification of Unusual Events is the responsibility of the DEO as per Section 3.2.2 of this plan.

5.0 EMERGENCY ACTION LEVELS

By virtue of the minimum fission product inventory, all conditions which might initiate or signal a radiological incident fall into the Notification of Unusual Event Emergency Class. Within this class, two categories of action levels are established for the UNM AGN-201M Reactor Facility:

A. Those situations that require immediate notification of the UNM Police. These include:

1. Fire within the Nuclear Engineering Laboratory Building not extinguished within 10 minutes.

2. Bomb threat or other credible security threat or civil disturbance directed toward the UNM AGN-201M Reactor Facility.

3. Report or observation of severe natural phenomena, imminent or existing, such as tornadoes or earthquakes that could strike the facility with the potential for degradation of the physical barriers that compose the Operations Boundary.

B. Those situations that involve abnormal levels of radiation. These include:

1. Radiological Safety Incidents for which actual or projected radiological effluent at the site boundary results in either of the following conditions, both of which are based on an exposure of 24 hours or less:
    a. A deep dose equivalent of 15 mrem OR
    b. A committed effective dose equivalent of 15 mrem based on the following considerations, in which effluent concentration EC corresponds to the Derived Air Concentration or Annual Limit on Intake listed in 10 CFR 20, Appendix B, Table 2:
        i. 100 EC × 24 hours = 2400 EC-hour ≈ 15 mrem for radionuclides other than noble gases
        ii. 50 EC × 24 hours = 1200 EC-hour ≈ 15 mrem for noble gases

6.0 EMERGENCY PLANNING ZONE

The Nuclear Engineering Laboratory (NEL) Building boundary is established as the Emergency Planning Zone (EPZ) for the UNM Reactor Facility. The area within this building is large enough to support emergency actions beyond this boundary as needed.

7.0 EMERGENCY RESPONSE

7.1 Activation of the Emergency Organization

7.1.1 Mobilization - The DEO shall be immediately notified of any situation, existing or imminent, equivalent to the Emergency Action Levels specified for Notification of Unusual Events. Notification will normally be initiated by reactor facility operators

during working hours and by UNMPD officers during off-working hours. However, notification may be initiated by any individual recognizing the emergency. The DEO shall determine the extent to which other elements of the Emergency Organization should be activated, commensurate with circumstances of the situation, and shall direct the most efficient method for further notification and/or mobilization.

7.1.2 Notification Rosters - Notification Rosters (see Appendix A) that identify the Emergency Organization, the names and phone numbers of personnel in the line of succession for the DEO, ROC, and DAC, and the phone numbers of contacts for police, fire, medical and ambulance support services shall be posted at conspicuous locations in the following areas:

a) Reactor Control Room, Room 065 of NE Laboratory Building

b) Entrance Hallway, NE Laboratory Building

c) Nuclear Engineering Departmental Office Mailroom, Room 1280, Farris Engineering Center

d) UNM Police Department, near central communications dispatcher

e) UNM Radiation Safety Office

7.1.3 Availability of Support Services - Local support by UNM Police Department is available through a 24-hours-per-day/ 7 days-per-week communications dispatcher. Routine surveillance of the Nuclear Engineering Laboratory Building is provided by a roving patrol of UNMPD officers during periods when the facility is unoccupied. During usual operating hours, approximately from 8:00 AM until 5:00 PM, the building is monitored by approved NE Radiation Supervisors in normal performance of their work in the building. Offsite support services such as city police, fire and ambulance services are also provided on a 24-hours-per-day/ 7 days-per-week basis through a communications dispatcher. Thus the DEO chain of succession can be contacted in the event of an emergency at any time.

7.2 Assessment Actions

The DEO shall assess the severity of an emergency situation from first-hand knowledge (e.g., on-site review of the situation). Decisions to escalate or de-escalate emergency response actions shall be made by the DEO based upon personal evaluation of the situation, existing or imminent, and after consideration of recommendations from facility staff, emergency Organization coordinators, and/or offsite support teams that may be present.

7.3 Protective Actions

7.3.1 Shutdown of Reactor. For each of the Emergency Action Levels specified in this plan, the reactor shall be placed in the shutdown condition as defined in the Facility Operating License. If the operator determines that an abnormal level of radiation exists within the Operations Boundary, then the reactor shall be placed in the shutdown condition as defined in the Facility Operating License.

7.3.2 Evacuation Procedure. For those Emergency Action Levels where the safety of personnel remaining within the Operations Boundary is of concern (5.A.1, 5.B.1, or when radiation levels at the console are greater than 100 mR/hr), the Nuclear Engineering Laboratory Building shall be evacuated after the reactor is shutdown. The evacuation procedure shall be as follows:

a) The reactor operator has the responsibility of evacuating the building and carrying operation logs in use and radiation monitors. The operator shall:

i) Sound the Evacuation Alarm. The switch is located by the north exit from the Reactor Laboratory.

ii) Take a portable survey meter (or meters) and the log book and console keys with you if this does not cause a delay.

iii) *in case of fire*, call 911 using the telephone near the east door of the Laboratory Building (or other campus phone) and use the alarm box near the east door of the Laboratory. If a non-campus phone is used, the call should be made to (505) 277-2241.

iv) for those events involving high radiation levels, turn on the exhaust fans, located near the east door of the Laboratory Building, to maintain a negative pressure in the building; and

v) leave the Building by the east door, making sure that all other personnel are evacuated.

b) The reactor operator and other personnel from the Building shall proceed to the Hold Station located in the *open area immediately to the north of the Nuclear Engineering Laboratory Building*. All personnel shall proceed by the most direct route to that Hold Station and await further instructions. Accountability of personnel shall be maintained at the Hold Station by the reactor operator. Wait at the "Hold Station" for the Reactor Supervisor and Radiation Safety Officer. (It is the responsibility of the Reactor Supervisor to notify the Radiation Safety Officer immediately after being notified.)

c) The DEO shall respond to the Emergency, and individuals shall be allowed to leave the Hold Station or given appropriate attention, based upon the specific circumstances of the Emergency and potential dangers to the safety of the personnel. Those individuals who, because of their radiological contamination, pose a health risk to others shall be isolated as possible in the circumstances of the accident. Do not attempt to leave the Hold Area or allow anyone else to leave and do not attempt to re-enter the building until authorization is given by the DEO.

For those Emergency Action Levels where building integrity may be threatened OR threats are made against the facility (5.A.2, 5.A.3), the Chief Reactor Supervisor, in consultation with the UNM Police, shall determine the best course of action with respect

to ensuring the safety of personnel within the Operations Boundary.

7.3.3 TLD or OSL badges and/or self-reading dosimeters shall be worn by all personnel who enter restricted areas. Additional measures such as protective clothing and breathing apparatus may be required as specified by the DAC or DEO. Emergency personnel shall be advised of the extent and locations of any known radiological hazards that may be present in the facility prior to entry into such areas.

Radiation exposures shall be limited to the occupational dose limits specified in 10 CFR 20. If warranted by the situation, Planned Special Exposures in accordance with 10 CFR 20.1206 may be authorized by the DEO for volunteers but shall be consistent with the Environmental Protection Agency (EPA) Emergency Workers and Lifesaving Activity Protective Action Guides.

7.3.4 Doors leading to and from the Operations Boundary and other onsite areas shall remain shut and locked to minimize exposures to radiation and the spread of contamination. Restricted areas shall be posted and access shall be controlled as directed by the DEO consistent with the nature of the emergency.

7.3.5 Radiation dose rates shall be frequently monitored with survey meters and airborne particulate samplers. Those monitors permanently installed within the Operations Boundary shall be used, if accessible, otherwise portable units available to radiation safety personnel shall be used.

7.3.6 Personnel exposures shall be monitored by TLD or OSL badge and/or self-reading pocket dosimeters. In the event that unmonitored personnel may have been exposed to radiation, an estimate of exposures shall be made by the DAC based upon surveys and air particulate samples for areas that were occupied, the potential for exposure from the emergency situation that existed during the time such areas were occupied, and standard dose assessment practices.

7.4 Corrective Actions

The type of actions that could mitigate or correct the problems for each emergency class listed in this plan shall be specified in the Implementing Procedures in section 11.

8.0 EMERGENCY FACILITIES AND EQUIPMENT

8.1 Emergency Support Center (ESC)

The ESC shall normally be established in Room 060 (main lab) of the Nuclear Engineering Laboratory Building and will be the center from which emergency control directions will be given. In the event that this location is inaccessible or otherwise considered inadequate for the emergency at hand, an alternate location should be established in Farris Engineering Center, as directed by the DEO. Selection of the normal and alternate ESC is based upon the proximity of locations for portable radiation monitoring and sampling equipment, fixed systems

for determining specific radionuclide identification and analyses, decontamination equipment, and availability of telephone communications.

8.2 Assessment Facilities

8.2.1 Portable survey instruments of sufficient range to determine alpha, beta, gamma and neutron radiation levels commensurate with potential radiological consequences of credible emergency situations shall normally be stored, except when in use, in Room 060 (main lab) of the NE Laboratory Building.

8.2.2 Fixed area gamma monitors are permanently installed in Rooms 065 (reactor laboratory room) and 060 (main lab), inside the Operations Boundary. Both instruments have visual readout and are affixed with light alarms, which are activated above 100 mrem/hr and 5 mrem/hr respectively.

8.2.3 Multichannel Pulse Height Analyzers with photon detectors and shielded GM counting systems with calibrated absorber foils are located in Room 069 (Environmental Radiation Measurements Laboratory) and Room 083 (counting room) of the NE Laboratory Building.

8.2.4 Self-reading personnel dosimeters for emergency use are normally stored in Room 085 (Supervisors Office) of the NE Laboratory Building. TLD or OSL badges are provided for all radiation workers by the UNM Radiation Safety Office.

8.2.5 A seismic displacement sensor is permanently attached to the reactor shield water tank and is fully described in the Reactor Facility Operating License.

8.2.6 Fire alarm pullboxes, which are monitored by the UNMPD dispatcher, are permanently attached to the wall near the north and east exits of the NE Laboratory Building and the north door of Room 065 (reactor laboratory room).

8.3 Facilities and Methods for Assisting Injured and Contaminated Personnel

8.3.1 Decontamination Facilities - Washing facilities, soaps and detergents, first aid supplies, anti-contamination clothing and waste disposal bags shall be available in Room 081 (restroom) of the NE Laboratory Building. There is also a decontamination shower there, which drains into an underground storage tank. Decontamination of personnel and/or equipment shall be performed under the direction of the DAC.

8.3.2 Transport of Injured Personnel and Emergency Treatment - The Albuquerque Fire Department's rescue ambulance service shall provide emergency treatment and transportation for injured personnel, including those who may be radioactively contaminated, to the UNM Hospital. The UNM Hospital has an approved procedure for handling injured personnel who may be radioactively contaminated (see Appendix B).

8.3.3 Methods of Handling Contaminated, Injured Personnel - The nature and severity of an injury will determine if first-aid and/or decontamination is possible prior to transporting a patient to the medical facility. Action shall be taken to prevent the spread of contamination into open wounds. Contaminated clothing should be removed by the best practical means and, if possible, contaminated areas of the skin should be rinsed with a small amount of water prior to transport.

If decontamination is not practical, then the extent to which a patient is contaminated shall be noted on a tag attached to the injured person and, as appropriate, measures shall be taken to prevent the spread of contamination to the ambulance and ambulance personnel in accordance with clean transfer procedure. The DAC shall assign a member of the facility staff to accompany the victim to the medical facility to ensure that the attending physician is fully advised of the extent and type of contamination.

8.4 Emergency Communications System

An Emergency Communications System consisting of two-way radios between the UNMPD officers and their headquarters is staffed by UNMPD officers on a continuous basis. That system will be used by the Emergency Organization in the event of an emergency.

Standard commercial telephones are available in various rooms of the NE Laboratory Building, including Rooms 065 (reactor laboratory room), 085 (staff office), and 060 (main lab area).

9.0 RECOVERY

Recovery operations to restore the facility to a safe status shall be determined after an assessment of the existing radiation and contamination levels has been made by the DAC and the ROC. Written procedures shall be prepared by the ROC, as needed, and submitted to the DEO for approval.

Recovery operations shall commence and/or NE Laboratory Building reentry shall be permitted only after written plans for such action, have been approved by the DEO and reviewed with the facility staff.

If physical damage to the Operations Boundary has occurred, action shall be initiated to promptly reestablish a security system that is at least equivalent, in effect, to the requirements specified in the Reactor Facility Operating License.

10.0 MAINTAINING EMERGENCY PREPAREDNESS

10.1 Reviews and Approvals

10.1.1 The Emergency Plan and Implementing Procedures shall be audited by the UNM Reactor Safety Advisory Committee (RSAC) and reviewed by the EPC at least once each 24 months and updated as necessary. Changes that would alter the scope of the plan or otherwise result in a reduction of Emergency Organization capabilities shall not be made without prior approval of the U.S. Nuclear Regulatory Commission (NRC). Changes that are made without prior approval shall be submitted to the NRC within 30 days of the effective date.

10.1.2 The procedural system governing the writing, revising and updating of the Implementing Procedures for this Emergency Plan shall be as specified in the Facility Operating License.

10.1.3 Notification Procedures shall be updated as necessary and a visual inspection made annually, with intervals not to exceed 15 months, to verify that current Notification Rosters are posted in designated locations.

10.2. Training and Drills

10.2.1 Operators of the AGN-201M Reactor shall receive training in the Emergency Plan and the Implementing Procedures during their initial license training program and shall review the Plan and Implementing Procedures at least annually, thereafter. Initial training and subsequent reviews shall be documented in the facility training records.

10.2.2 Emergency drills shall be conducted annually, with intervals not to exceed 15 months, to test the on-site integrated capability of the Emergency Plan, or a component thereof, and may include instruction periods to develop and maintain skills in a particular operation. At least every two years, with intervals not to exceed 30 months, communication links and notification procedures with offsite support agencies shall be tested. Drills will normally be scheduled by the EPC and may be initiated as either announced or unannounced events. Actual situations which involve some or all of the Emergency Plan Components may be used in lieu of drills.

10.2.3 The EPC, or an observer designated by the EPC, will provide a critique of each Emergency Plan drill and will distribute a written report within 30 days after each drill occurrence. The EPC shall be responsible for timely corrective action of identified deficiencies.

10.3 Equipment Maintenance

10.3.1 Portable health physics instruments, including personnel dosimeters that may be used in an emergency, and fixed radiation monitors shall be calibrated at least annually. This surveillance is done as part of the Annual Maintenance.

10.3.2 The seismic displacement sensor attached to the Reactor Shield Water Tank shall be periodically tested at least annually, with the intervals not to exceed 15 months. This surveillance is done as part of the Annual Maintenance.

10.3.3 The Radiation Safety Office shall be responsible for annually conducting an inventory of the decontamination equipment, with the intervals not to exceed 15 months.

11.0 IMPLEMENTING PROCEDURES

The Implementing Procedures for the Emergency Plan shall include:

a) Notification Procedures;
b) Procedures for the evacuation of personnel from within the Operations Boundary of the facility; and
c) Procedures for response actions that could mitigate the consequences of situations matching the Emergency Action Levels specified in this Emergency Plan;
all of which are contained in this document.

APPENDIX A Emergency Organization and Personnel

Director of Emergency Operations (DEO)

		On-Site	Home
Chief Reactor Supervisor	Carl Willis	[redacted]	[redacted]
Reactor Administrator	Rowdy Davis		
Reactor Supervisor Onsite	Rowdy Davis		
	Carl Willis		[redacted]
	Robert Busch		

Radiation Safety and Dose Assessment Coordinator (DAC)

		On-Site	Home
UNM Radiation Safety Office (group pager)		[redacted]	
Radiation Safety Officer	Reed Selwyn		
Health Physicist Onsite	Mat Eden		[redacted]
Chief Reactor Supervisor	Carl Willis		

Reactor Safety and Recovery Operations Coordinator (ROC)

		On-Site	Home
Chief Reactor Supervisor	Carl Willis	[redacted]	[redacted]
Reactor Supervisor Onsite	Rowdy Davis		
	Carl Willis		[redacted]
	Robert Busch		

Emergency Preparedness Coordinator (EPC)

		On-Site	Home
Chief Reactor Supervisor	Carl Willis	[redacted]	[redacted]

Distribution to:

Reactor Room
NE Lab Entrance Hallway
NE Dept. Office
UNM Police Dept.
UNM Radiation Safety Office

Contact List

Facility Name	UNM Reactor Laboratory	Reactor Type	AGN-201M
License No.	R-102 Docket No.	50-252	Category G

Facility	Nuclear Engineering Laboratory
Address	Dept. of Nuclear Engineering; MSC 01-1120, UNM Albuquerque, NM 87131-0001
Phone	(505) 277-2829
Corporate	University of New Mexico Albuquerque NM 87131
Phone	(505) 277-5431

	Name/Title	Office	Home
Plant Contact:	C. Willis Chief Reactor Supervisor	[redacted]	[redacted]
1st Alternate:	R. Davis Reactor Administrator	(505) 277-2829	[redacted]
2nd Alternate:	C. Fledderman Prof./Chair, NE Department	(505) 277-5431	
Corp. Contact:	Reed Selwyn UNM Radiation Safety Officer	(505) 272-1252	Rad Safety Pager
1st Alternate:	Mathew Eden Health Physicist	(505) 277-0418	[redacted]

	Title/Name of Agency (or Name of Individual)	Office Phone
Licensing Agency	USNRC, Operations Center	(301) 816-5100 (301) 415-0550
Local Law Enforcement	UNM Campus Police	(505) 277-2241
Public Information Office	UNM Communications Office	(505) 277-5813
Local Hospital	UNM Hospital	(505) 272-2111
County Law Enforcement	Bernalillo County Sheriff	(505) 798-7000
State Law Enforcement	NM State Police	(505) 841-9256
Nearest FBI Office	Albuquerque FBI Office	(505) 889-1300
Local Public Health	Bernalillo County Health Dept	(505) 841-4100
State Public Health	NM State Public Health Dept	(505) 841-5860
Local EPA Office	Environmental Health Alb. Office	(505) 768-2738 (505) 768-2600
County Official Contact	None	
State Official Contact	NM Environment Dept., Rad Control Bureau, Santa Fe, NM- **Long Distance**	(505) 476-8600
Radiological Assist Contact	Department of Energy, NNSA Alb. Regional Office	(505) 845-4667

Revised August 15, 2024 Expires on: July 22, 2025

APPENDIX B

Letters from Supporting Agencies

REDACTED FOR PUBLIC RELEASE

HOSPITALS

Monday, January 30, 2023

Carl Willis, Chief Reactor Supervisor
MSC 01-1120, Department of Nuclear Engineering
The University of New Mexico
Albuquerque, New Mexico 87131- 0001

Subject: UNMH Emergency Preparedness

Dear Mr. Willis,

The University of New Mexico Hospital (UNMH) has a robust emergency management program that is designed to handle all types of hazards, particularly those involving radioactive materials. The hospital has the ability to handle one or multiple potentially contaminated patients simultaneously. A state of the art internal decontamination suite is at a continuous ready state. The suite is designed to be self-sustaining with enough equipment, supplies, and staffing to decontaminate and treat up to 30 patients per hour for at least 4 hours. Emergency Department personnel receive annual training and exercising on the handling and care of contaminated patients.

Many of these training and exercises are specific to the care and handling of radiological contaminated patients. All trainings and exercises take a joint collaborative approach with many of our community partners. Some of these community partners include Sandia National Lab, Los Alamos National Lab, Lovelace Radiological Research Institute, Kirtland Air Force Base, Intel, and multiple city, state, and federal government agencies. UNMH has entered into agreements with many of these partners to ensure proper care, treatment, and management of the patient exposed or contaminated to radiation.

Our organization is committed to being ready and able to respond to any emergency that affects our community. If you have any questions or concerns, please do not hesitate to contact me.

Sincerely

Robert Perry, MSN, RN, CEN
Director of Emergency Preparedness & Dispatch Center
Department of Emergency Services
reperry@salud.unm.edu
505-272-4315 Office
505-272-5843 Fax
505-410-7453 Mobile

Box 105 | 2211 Lomas Blvd NE | Albuquerque, NM 87106 | 505-272-2111

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HEALTH SCIENCES
OFFICE OF RESEARCH

Radiation Safety Office

July 16, 2024

Carl Willis
Chief Reactor Supervisor
Nuclear Engineering Department
University of New Mexico
Albuquerque, NM 87131

Dear Carl,

The UNM Radiation Safety Office agrees to offer a timely response to emergencies and serious events that may result from activities taking place in the Nuclear Engineering building. The UNM Radiation Safety Office has four (4) full-time employees with extensive experience in radiation measurement, decontamination, and dosimetry, and agrees to provide any and all available expertise and resources to assist the Nuclear Engineering department, local law enforcement agencies, and medical care providers in the protection of people and the environment.

Sincerely,

Reed Selwyn

Reed Selwyn, PhD, DABR
Regents Processor and Chief, Medical Physics
Radiation Safety Officer
Department of Radiology
University of New Mexico
Albuquerque, NM 87131

Albuquerque Ambulance Service
A division of
PRESBYTERIAN
4500 Montbel Place NE, Albuquerque, NM 87107
505.449.5700

July 22, 2024

Rowdy Davis, Reactor Administrator
Department of Nuclear Engineering
University of New Mexico
Albuquerque, NM 87131-001

Dear Mr. Davis,

Albuquerque Ambulance Service is an authorized EMS provider in Albuquerque and Bernalillo County. We provide continuous and uninterrupted ambulance response to emergency and non-emergency situations throughout our service area.

If an incident requiring a medical response occurs at your facility, we will respond with Albuquerque Fire Rescue to provide treatment and transport services. Any contaminated patient will be treated collaboratively with the Fire Department and other community resources to ensure safe transport.

Please feel free to contact me with any questions at jheinz@phs.org or (505) 449-5736.

Sincerely,

Julia Heinz

Julia Heinz
Chief and Vice President, Albuquerque Ambulance Service
Presbyterian Healthcare Services
(505) 449-5736
jheinz@phs.org

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Timothy M. Keller, Mayor

City of Albuquerque
Albuquerque Fire Rescue

Gene Gallegos, Fire Chief

February 13, 2023

Gene L. Gallegos
Fire Chief
Albuquerque Fire Rescue
11500 Sunset Gardens Rd SW
Albuquerque, NM 87121
505-934-8717

Rowdy Davis, MSNE
Reactor Supervisor Onsite, AGN-201 M
NE Lab Supervisor & Research Engineer II
Department of Nuclear Engineering
University of New Mexico
Cell: 909 890 8966
Office: 505 277 2829

This letter is to confirm the readiness of the Albuquerque Fire Rescue to respond to an emergency at the University of New Mexico, specifically the Nuclear Engineering Laboratory. On February 26, 2014, the City of Albuquerque and the University of New Mexico entered into a Memorandum of Understanding for fire suppression, emergency medical, and other related services. This agreement states the incident command system will be utilized so that an emergency incident will be managed through the integration of personnel, equipment and communications. The University of New Mexico police shall maintain command and control authority over all incidents. Additional services Albuquerque Fire Rescue can provide include support of law enforcement operations, technical rescue, and hazardous materials response. These resources include fire suppression and EMS personnel from station 3, technical rescue from station 4 and hazardous materials responses from station 13 and 17. The agreement also states the University of New Mexico agrees to provide the Albuquerque Fire Rescue with pre-incident planning information. In order to ensure our responders are sufficiently prepared to respond to an emergency at the Nuclear Engineering Laboratory, I ask our agencies continue to coordinate annual facility walkthroughs. Our Special Operations Division can be reached at 505-768-9300 and our Special Operations Battalion Chief can be reached at 505-934-8715.

By following the terms of the Memorandum of Understanding and continuing our current preparedness practices, Albuquerque Fire Rescue stands ready to respond as needed to your facility.

Sincerely,

Gene L. Gallegos
Fire Chief

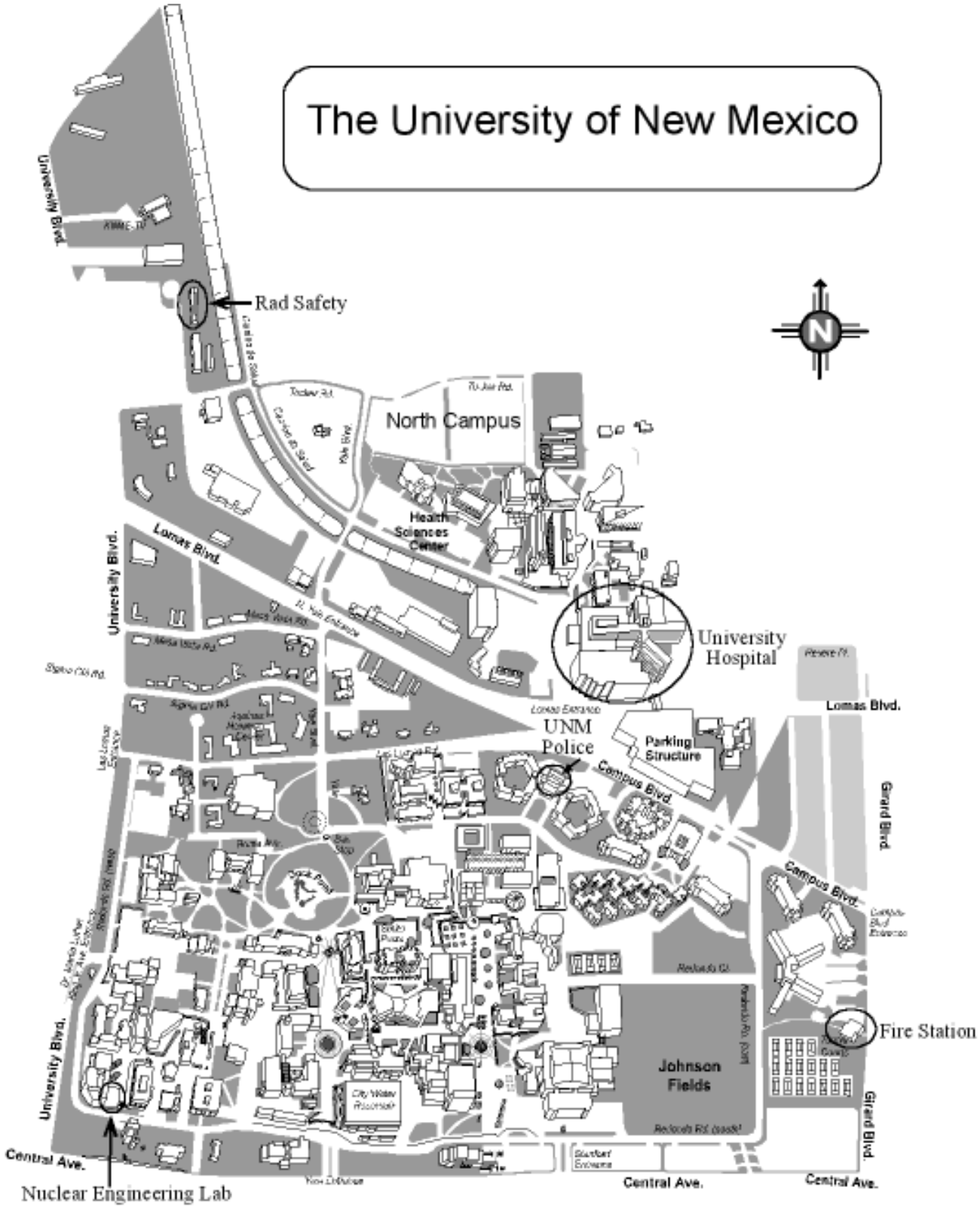

Figure 1 - University of New Mexico Campus

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Changelog

1. Updated letters of support for those that expired as of the end of FY23-24. (8/15/2024)

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