APPENDIX A

TECHNICAL SPECIFICATIONS

FOR THE

LICENSE NO. TR-3, Amendment 13
AND
LICENSE NO. R-93, Amendment 9

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

PLUM BROOK STATION

SANDUSKY, OHIO

DOCKET NOS. 50-30 AND 50-185

TECHNICAL SPECIFICATIONS

1.0 INTRODUCTION

These Technical Specifications apply to all activities conducted at the Plum Brook Reactor Facility (PBRF) under the provisions of NRC License TR-3 for the Plum Brook Research Reactor, and License R-93 for the Plum Brook Mock-up Reactor. Both reactors were shut down in 1973. They were de-fueled and all new and irradiated fuel was removed from the site. Both of these reactors and their associated systems are located in the same controlled area at the PBRF on Plum Brook Station, and both are undergoing decommissioning.

1.1 DEFINITIONS

1.1.1 Authorized Entry: Entry to the PBRF which is sanctioned by the PBRF physical security plan (section 6 of the Decommissioning Plan), for those persons having a legitimate need to enter and who have knowledge of the conditions, hazards, and procedures at the facility, or who are accompanied by an authorized person with this knowledge.

1.1.2 Containment: A closure on a volume within the facility, which prevents the uncontrolled spread of contamination and controls the movement of air (inward and outward) through a controlled path.

1.1.3 Containment Device: A Containment Device is an engineered barrier that does not necessarily constitute total enclosure, and is used to prevent the spread of radioactive contamination and airborne radioactivity.

1.1.4 Containment Vessel: The Containment Vessel is the structure that provides containment for the main reactor plant components.

1.1.5 Decommissioning Activities: Decommissioning activities means all administrative and industrial efforts employed in order to achieve decommissioning. Some examples of such activities include decontamination, demolition, deconstruction, radiological surveys, and the shipping and receiving of radioactive materials, apparatus and equipment.

1.1.6 Operable: Operable means that a system, structure, or component is capable of performing its intended function in the intended manner.

1.1.7 Operating: Operating means that a structure, system, or component is performing its intended function in the intended manner.

1.1.8 Source Term: The magnitude and mix of radionuclides present in PBRF systems, structures and components, which are the result of PBRF reactor operations. The major portions of the source term are comprised of the Reactor Tank and internals, associated reactor piping and system components, and activated materials stored in the PBRF Hot Laboratory facilities.

1.1.9 Surveillance Frequency: Surveillance frequency is the interval at which surveillances are to be performed. In cases where the elapsed interval has exceeded 100% of the specified interval, the next surveillance interval shall commence at the end of the original specified interval. Allowable surveillance interval, as defined in ANSI/ANS 15.1 (1990) shall not exceed the following:

1. Annual (interval not to exceed 15 months).
2. Semiannual (interval not to exceed seven and one-half months).
3. Quarterly (interval not to exceed four months).
4. Monthly (interval not to exceed six weeks).

2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

The Plum Brook Reactor Facility is in a decommissioning status. Since the reactors cannot be operated and there is no new or irradiated fuel present on site, there are no remaining activities that could lead to breach of a fission product barrier or could lead to an inadvertent or uncontrolled criticality. Therefore, there are no Safety Limits or Limiting Safety System Settings.

3.0 LIMITING CONDITIONS FOR DECOMMISSIONING OPERATIONS

3.1 Control of Access

Applicability

This specification is applicable to all activities related to the control of personnel and vehicle ingress to and egress from the restricted area.

Objective

The objective of this specification is to assure that controls are established for safe access and egress of personnel, vehicles, and materials at PBRF, and to minimize the potential for unauthorized access that could lead to inadvertent exposure to radiological hazards, and to prevent inadvertent or uncontrolled release of radiological hazards from the facility.

Specification

(1) Personnel shall receive radiological monitoring prior to egress from the fenced area making up the PBRF site.

(2) Whenever decommissioning activities are in progress, properly trained personnel shall be stationed to control personnel, vehicle and material entry into, and egress out of the fenced area making up the PBRF site. Only Authorized Entries shall be permitted.

(3) An effective method of continuously accounting for the presence of all personnel who are within the fenced PBRF site shall be implemented.

(4) When no decommissioning activities are in progress, the PBRF fenced perimeter shall be locked. Access to keys for the PBRF fence gates shall be limited to personnel authorized by the NASA Decommissioning Project Manager.

(5) Written procedures shall be implemented for control of issuance of keys. If key control is lost, perimeter fence locks shall be changed and security reestablished as soon as practicable.

Bases

The restrictions and limitations of Specification 3.1 are necessary to provide assurance that effective PBRF site security and control of personnel exposure to radiological and industrial hazards is maintained. Additionally, the monitored egress of personnel from the site is necessary to assure that no uncontrolled radiological hazards inadvertently leave PBRF.

3.2 Alarm Response

Applicability

This specification applies to the alarm functions needed to identify the presence of intrusion of ground water into areas of the facility where such intrusion could result in the flow of radioactive contamination into the plant liquid discharge pathways.

Objective

The objective of this specification is to minimize the potential for ground water intrusion causing the movement of radioactive contamination into the facility storm drain discharge paths.

Specification

(1) Any area of the reactor facility that contains an operable sump pump and has removable surface contamination on the surrounding floor area in excess of 1000 disintegrations per minute per 100 cm^2 beta-gamma or in excess of 20 disintegrations per minute per 100 cm^2 alpha, shall be equipped with an alarm that will detect the presence of a high water level in the sump. The alarm shall provide an indication of a high water level at the Reactor Security Building and at a remote manned location (typically the Plum Brook Station Communication Center). The alarms shall be operable at any time the site is not manned. If a required alarm is inoperable, restore the alarm to operable status prior to leaving the site at the end of the workday, or, prevent the associated sump pumps from automatically starting, and take action to

prevent the flow of water that overflows the sump from being discharged to the plant drain systems prior to sampling as required in 3.2(4) below.

(2) Upon receipt of an alarm, the PBRF Management shall be immediately notified. PBRF Management shall, upon notification, have a visual inspection performed of the affected area within four hours.

(3) If a high water level exists and the sump pump can be restored to a condition that will control the water level prior to overflow of the sump, then restore the pump to operation and reduce the water level.

(4) If the sump has overflowed onto an area with loose surface contamination in excess of that specified in 3.2(1), or if the pump cannot be restored to an operable condition, secure the pump so that it cannot be started, secure the area, and do not pump out the water until it has been sampled and its radionuclide content verified to within the limits specified in 3.4(2).

Bases

This specification provides assurance that radioactive contaminants in liquid effluents from the facility are maintained within the limits of specification 3.4(2). The facility sumps have been in operation since shutdown of the facility to remove groundwater that has historically intruded through the building foundation structures. These sumps discharge out where they are combined with storm water and storm drain runoff to the Pentolite Ditch. The facility has no installed radiation monitoring systems on the liquid discharge pathway; however historical sampling has demonstrated that the normal flows of water are ground water and storm water that has not been contaminated from licensed activities. If a sump overflowed in an area that is contaminated with radioactive material, the water could become contaminated. These specifications provide controls such that the potential for contamination is minimized, and if the overflow does occur the discharge of the water to the environment will be prevented until sample and analysis show that it meets the discharge criteria.

3.3 Containment

Applicability

This specification is applicable to the structures and devices used to prevent the uncontrolled spread of airborne radioactivity to areas of the facility and to the environment during all decommissioning activities.

Objective

The objective of this specification is to impose controls on the performance of decommissioning activities that will provide assurance that the site work force is afforded adequate protection from airborne radioactivity and the exposures to the public from

airborne radioactivity are in conformance with the requirements of 10 CFR 20.1101 (d) and 10 CFR 20.1302.

Specification

(1) Activities that have the potential to produce an airborne radioactivity concentration of greater than one DAC in the surrounding atmosphere shall be controlled at the source with appropriate engineering controls to maintain the surrounding airborne concentrations below one DAC, or shall be performed inside of a containment device equipped with an operating HEPA filtered temporary ventilation system configured so the flow of unfiltered air is from the area outside of the containment enclosure into the enclosure.

(2) The temporary ventilation systems specified in (1) above shall be constructed of fire resistant material, shall include a device for monitoring the filter's resistance to air flow, and the filter or pre-filter shall be of a fire resistant type unless the suction line is protected with a spark arrestor.

(3) Activities that have the potential to produce an airborne radioactivity concentration of greater than one DAC in the surrounding atmosphere may be performed within the Containment Vessel without the devices specified in (1) and (2) above provided the following are met:

(a) Except for brief periods to facilitate personnel and equipment transfer, the air-lock doors and the roll-up door shall be closed or covered with barrier materials such as plywood or plastic sheeting in such a manner that the free flow of air out of the Containment Vessel is inhibited, and

(b) Personnel access to the Containment Vessel shall be controlled by either operation of the air lock inner and outer door interlocks and interlock alarms, or by stationing personnel at each entry who will control ingress and egress from the Containment Vessel, and

(c) The condition of the Containment Vessel is maintained such that all other openings, including pipe penetrations, are closed with sheet material or closure devices that will prevent the unfiltered exchange of air from inside the Containment Vessel to the outside.

Bases

This specification provides assurance that appropriate controls are imposed on activities that have the potential to produce airborne radioactivity to prevent uncontrolled releases to the environment. The Plum Brook Reactor Facility has no operable permanently installed ventilation systems, ventilation filters, or ventilation monitoring systems. However, the facility has no fuel so there is no potential for the release of fission products to the atmosphere as a result of fuel cladding failures. The majority of the radioactive source term

available for release to the environment was contained within the reactor vessel and associate primary systems and in storage in the Hot Dry Storage area. Decommissioning has progressed to the point that the material in Hot Dry Storage has been packaged and shipped off site and the reactor vessel internals and the reactor vessel have been nearly removed and packaged for disposal. The remaining activity is contained in the form of activated piping, activation and residual contamination products in the concrete structures (including the biological shield), and in system piping and drains contained with in the facility. Continued decontamination and removal of the structures, systems, and components containing the remaining radioactivity has the potential to produce airborne radioactivity that if uncontrolled could result in unnecessary exposure to the work force and to the off-site public. These specifications, in conjunction with compliance with the radiological controls program requirements specified in the NRC regulations in 10 CFR 20 will provide assurance that the worker and public exposure regulatory limits are met. The one DAC criteria specified for requiring containment devices is set as a conservative limit to assure that when localized airborne radioactivity is produced, the rate of exposure to this activity at the site boundary will be well below the regulatory exposure limits specified in 10 CFR 20. The criteria of paragraph (2) are provided to minimize the potential for a fire when work activities specified include flame or spark producing activities.

3.4 Radiation and Effluent Monitoring Program

Applicability

This specification applies to the plans and programs that are established for the control of radiation protection activities and environmental radiation monitoring activities throughout the Decommissioning Project.

Objective

The objective of this specification is to assure that adequate controls are in place to assure that occupational exposure to the work force, exposures to the public from licensed activities, and radioactive materials released to the environment are maintained within the limits specified in 10 CFR 20 and are As Low As Reasonably Achievable.

Specification

(1) A radiation protection program shall be established that meets the requirements of 10 CFR20.1101 and shall be implemented through written plans and procedures.

(2) Liquid effluents from the facility shall be sampled prior to release and verified to meet the radionuclide concentration limits specified in 10 CFR 20, Appendix B, Table 2, Column 2.

(3) An environmental media sampling and analysis program shall be established and implemented through written plans and procedures that achieve the following:

(a) Establish lower limits of detection for expected contaminants in environmental water, soil, sediment, and air samples.

(b) Establish environmental sampling protocols that will provide assurance that average concentrations in liquid effluents have met the criteria in Specification (2) above and that effluents to the air have met the limits of 10 CFR 20.1302 and 10 CFR 20.1101(d).

(4) An air particulate sampler shall be operated continuously near each side of the perimeter fence around the 27-acre fenced area at any time decommissioning activities are in progress. If the installed sampler is inoperable, a portable sampler shall be situated in the same general area until the installed monitor is returned to operable status.

Bases

The specifications in section 3.4 assure that all licensed activities carried out at the Plum Brook Reactor Facility are controlled in such a manner that radiation exposure to the work force and the members of the public and the radiological impact on the surrounding environment are kept within the regulatory limits specified in 10 CFR 20.

Specification (1) invokes the requirements of 10 CFR 20.1101 to establish and implement a documented plan for the control of radiation protection activities. It includes implementation of the regulatory requirement to maintain radiation exposures As Low As Reasonably Achievable (ALARA). The scope of a plan meeting the requirements of 10 CFR 20.1101 will include implementing the applicable requirements for controlling access, posting of areas, surveys and survey documentation, control of exposure, monitoring of exposure, control of radioactive materials, monitoring and control of effluents, and record keeping.

Specifications (2) and (3) provide assurance that limits are established on effluents from the facility to assure that the public exposure regulatory limits are met, including the ALARA criteria, and that effluents are properly monitored for compliance.

4.0 SURVEILLANCE REQUIREMENTS

4.1 Control of Access

Applicability

This specification applies to the surveillance requirements for the access control program.

Objective

The objective of this specification is to assure that that the specifications of Section 3.1 are satisfied.

Specification

(1) At the end of each working day, all perimeter fence gates shall be checked and verified to be locked.

(2) At the end of each working day, all keys that were issued during the day to allow controlled access through perimeter gates shall be verified to be returned to the issue control point and logged back into the issue record.

Bases

The surveillance requirements of section 4.1 provide assurance that common industrial security measures are established around the Plum Brook Reactor Facility such that unauthorized entry that could lead to inadvertent exposure to radiological hazards do not occur. These surveillances performed in conjunction with the requirements of the radiation protection program specified in section 3.4 will assure that the access control and radiological monitoring requirements of section 3.1 are satisfied.

4.2 Alarm Response

Applicability

This specification applies to the surveillance of alarms that are required to be functional.

Objective

The objective of this section is to establish surveillance requirements that will assure the operability of alarms needed to provide warnings of abnormal conditions.

Specification

(1) Each alarm required by section 3.2 shall be verified to be operable at least monthly.

Bases

The surveillance requirements of section 4.2 provide assurance that alarms are functional and capable of detecting the intrusion of ground water into areas of the facility that would present the potential for release of radioactive material into the liquid discharges to the environment.

4.3 Containment

Applicability

This specification applies to the surveillance of containments, containment devices, and the containment vessel when these are required for the control of airborne radioactivity.

Objective

The objective of this section is to establish surveillance requirements that will assure the operability of structures and devices needed to assure that airborne radioactivity is controlled within the limits specified.

Specification

(1) Each containment device required in accordance with section 3.3 (1) and (2) shall be inspected upon startup and at least daily when in use to verify the following:

a. The enclosure is intact and the flow of unfiltered air is from the outside of the containment into the enclosure

b. The temporary ventilation device is operable or operating with filter differential pressures within the manufacturer's specified parameters.

(2) When the Containment Vessel serves as containment for the control of airborne radioactivity in accordance with section 3.3 (3), perform the following:

a. At least daily, verify that air-lock doors and roll-up door are closed or covered with barrier materials.

b. At least daily, perform a visual inspection of the Containment Vessel to verify that there are no pathways open to the environment other than those open for brief periods of time to allow transfer of material and personnel.

c. At least daily, verify the operability of the airlock door interlock alarms unless personnel are stationed to control access through the doors.

Bases

The surveillance requirements of section 4.3 provide assurance that containments are capable of performing their intended function of controlling the release of airborne radioactivity generated by decommissioning activities.

4.4 Radiation and Effluent Monitoring Program

Applicability

This specification applies to the surveillances necessary to assure that the components required for implementation of the radiation protection and environmental effluent monitoring program are functional.

Objective

The objective of this specification is to assure that adequate controls are in place to assure that occupational exposure to the work force, exposures to the public from licensed activities, and radioactive materials released to the environment are maintained within the limits specified in 10 CFR 20 and are As Low As Reasonably Achievable.

Specification

(1) At least weekly, verify the operability of the fence line air particulate samplers.

(2) The environmental sampling protocols of the environmental media sampling and analysis program shall be implemented.

Bases

The surveillance program required by section 4.4 in conjunction with the radiological protection program requirements of 10 CFR 20 invoked by section 3.4 provide assurance that adequate controls are in place to assure that the exposure controls and effluent restrictions of 10 CFR 20 are satisfied.

5.0 SITE FEATURES

The Plum Brook Reactor Facility consists of a 27-acre fenced in facility that when in operation contained a 60 Mega-Watt test Reactor and a 100 Kilo-Watt swimming pool type research reactor. The 27-acre fenced in area constitutes the Restricted Area as defined in 10 CFR 20.1003. The restricted area is surrounded by the Plum Brook Station, a 5400-acre fenced in test site owned by the National Aeronautics and Space Administration (NASA). NASA maintains and controls access to the Plum Brook Station. The reactors are undergoing decommissioning and the site is in the process of radiological remediation. The reactors are defueled and no reactor fuel, neither new nor irradiated, remains on site. The reactors have been shutdown since 1973.

The Containment Vessel is a structure that covers the main test reactor. It serves as a barrier to prevent the uncontrolled migration of radioactive material from the reactor systems to the environment. There are no active permanently installed ventilation systems or ventilation system filters or monitoring systems remaining at the facility. The reactor vessel has been

nearly completely removed and the majority of the plant systems that supported the reactor have been removed. Equipment that has been removed was sectioned, packaged, and has been shipped offsite for disposal or is packaged and awaiting shipment off site. The radioactive material that was stored in the Hot Laboratory and the Hot Dry Storage Area have also been removed and packaged for offsite disposal.

There are no systems, structures, or components remaining that perform a safety related function of maintaining fission product barriers or criticality control. In its present condition, there is no potential for an inadvertent or uncontrolled criticality.

A radiological controls program is implemented through written plans and procedures that provide for effective control of radiological hazards and for monitoring for the potential for offsite exposure of the public and environment from radiological hazards.

The decommissioning program is fully described in the NRC approved "Decommissioning Plan for the Plum Brook Reactor Facility". The program for final radiological surveys to demonstrate compliance with the 10 CFR 20 License Termination Criteria is fully described in the "Final Status Survey Plan for the Plum Brook Reactor Facility".

6.0 ADMINISTRATIVE CONTROLS

6.1 Organization

The organization responsible for the management and decommissioning of the Plum Brook Reactor Facility is the National Aeronautics and Space Administration (NASA). NASA shall use the organizational management structure for these activities as stipulated in the PBRF Decommissioning Plan. Other organizational levels/staff may be added to meet specific facility needs. NASA shall provide the necessary resources required to ensure that the decommissioning is performed in a manner that poses no hazard to the general public or to the environment.

Figure 1 shows the decommissioning project organization chart.

(1) Level 1 – Glenn Research Center directorate is responsible for assuring compliance with the reactor facility license and providing regulatory reports and correspondence. The Director shall have overall responsibility for the license and the subsequent decommissioning and license termination.

(2) Level 2 - The Decommissioning Project Manager shall be responsible for overall on-site operation in safe storage and through license termination. This includes administering programs that assure the proper operation, control, and safeguards are maintained for PBRF. The PBRF Decommissioning Project Manager or his designee shall approve, prior to implementation, each phase of decommissioning or license termination that affect nuclear safety.

(3) Level 3 - The Decommissioning Senior Project Engineer shall be responsible for day-to-day supervision of PBRF activities.

6.1.1 Responsibilities

Responsibility for the reactor facility shall be with the chain of command as specified above in 6.1. Individuals at the various management levels, in addition to having responsibility for policies and activities conducted at the PBRF, shall be responsible for safeguarding facility personnel, the public and the environment from undue radiation exposures, including releases to the environment and for adhering to all requirements of the facility license and technical specifications of the same.

In all instances, responsibilities of one level may be assumed by designated alternates or by higher levels, conditional upon appropriate qualifications.

6.2 Level 1 Directorate

The GRC Director shall be responsible for assuring compliance with the reactor facility's license and providing regulatory reports and correspondence. He or she shall have overall responsibility for the decommissioning of the facility. The Directorate shall provide the resources to complete the decommissioning.

6.3 Decommissioning Program Manager

The NASA Decommissioning Program Manager (PgM) will assure and direct the safe decontamination and decommissioning of the PBRF and has ultimate responsibility for the decommissioning project. The PgM will track the overall project schedule and budget and will interface directly with GRC management and NASA Headquarters.

6.4 Decommissioning Project Manager

The Decommissioning Project Manager shall be responsible for planning and directing all decommissioning activities and will maintain the ultimate responsibility for safely completing the decommissioning.

6.5 Senior Project Engineer

NASA's Senior Project Engineer will provide direct oversight of PBRF decommissioning activities for Glenn Research Center Management and will serve as NASA's management representative for activities on site. The Senior Project Engineer will have direct authority over all activities that take place at the PBRF and will be the primary interface with on-site Contractors supporting the Decommissioning project.

6.6 Project Radiation Safety Officer (Project RSO)

The Project RSO shall be responsible for organization, administration, and direction of the radiological control and monitoring program, and shall assure that the program is adequately performed. The Project RSO shall be responsible for providing on-site advice, technical assistance, and review in all areas related to radiological safety.

6.7 Decommissioning Safety Committee (DSC)

The DSC is established to conduct reviews of all matters with safety implications relative to activities at PBRF, and will provide an executive level overview of PBRF activities. The DSC will have the authority to review any and all programs, plans, and procedures that may have an impact on the safety and health of workers and the public to ensure compliance with all applicable federal, state, and local regulations. The DSC will also be available to provide advice, technical expertise, and guidance to minimize health hazards associated with PBRF activities. The authority to fulfill this responsibility and perform these functions will be granted by Chairman of the NASA Safety, Health, and Environmental Board.

A prime consideration of the Committee's activities will be to ensure that all public and employee radiation exposures are maintained as low as reasonably achievable.

DSC activities shall be performed under a written charter or directive containing the following information as a minimum:

(1) Members of the Decommissioning Safety Committee will include:

a. Decommissioning Program Manager (NASA)

b. Radiation Safety Officer (NASA)

c. Chief, Construction Management Branch (NASA)

d. GRC Safety Officer (NASA)

e. GRC Environmental Management Office Chief (NASA)

f. 2-NASA Engineers - Nuclear, Environmental, Safety, Civil, Structural, Mechanical, Electrical

(2) One of the above committee members will serve as chair for the committee.

(3) The Chairman of the Decommissioning Safety Committee shall have a bachelor's degree in engineering or a related physical science.

(4) The DSC quorum shall be composed of not less than three members who collectively provide experience in radiation safety and protection, industrial safety, environmental safety, waste management and program management. In specific instances the Committee will designate the Chairman to act in its

stead, and the Chairman will report his or her actions to the Committee at its next regular meeting.

(5) The DSC shall meet semi-annually, and at other times when circumstances warrant. Minutes of DSC proceedings, including recommendations or occurrences, shall be distributed to all DSC members and the Director.

(6) The DSC shall be responsible for the review of the following activities. This review may be part of the scheduled meetings of the DSC and need not be an "in line" review for approval of activities that are reviewed and approved by the Project Safety Committee:

a. Proposed activities that could affect personnel or facility safety or result in an uncontrolled release of radioactivity in excess of 10 CFR 20 limits, and that are conducted without NRC approval to verify that the proposed activity is allowable in accordance with the criteria of 10 CFR 50.59.

b. Proposed changes to the facility or organizational processes that could affect radiation safety and that are to be completed without prior NRC approval in order to verify the activity is allowable in accordance with the criteria of 10 CFR 50.59.

c. Organizational processes, which are used to develop the conduct of decommissioning functions, or that are determined to have a significant effect on radiation safety.

d. Proposed changes to the Technical Specifications or the facility license.

e. Violations of the Federal regulations, Technical Specifications, or facility license requirements.

f. Unusual or abnormal occurrences which are reportable to the NRC under provisions of the Federal regulations.

g. Internal and external audit results and the adequacy of corrective actions. Such reviews shall be performed at least once per calendar year. Intervals between such reviews are not to exceed 15 calendar months.

(7) Records of all DSC activities and decisions shall be retained for the duration of the decommissioning project.

6.8 Project Safety Committee (PSC)

The PSC is comprised of on-site project management. The PSC shall exercise review and approval authority over any and all programs, plans, decisions and procedures that may have impact on the safety and health of workers and the public. The PSC shall assure activities at PBRF comply with all applicable federal, state and local regulations, and these Technical Specifications. The PSC shall be subject to the authority of the DSC on matters associated with licensed activities.

PSC activities shall be performed under a written charter or directive containing the following information as a minimum:

(1) The PSC shall be composed of the following on-site project management team:

a. NASA Decommissioning Project Manager (Chairman)

b. NASA Senior Project Engineer (Chairman Alternate)

c. NASA Environmental Manager

d. Project Radiation Safety Officer

e. Project Health and Safety Officer

f. Other Environmental, Health and Safety professionals as required

(2) The PSC shall meet monthly, and at other times when circumstances warrant. A quorum shall consist of not less than three members of the PSC membership and shall include the chairman or his designated alternate. Minutes of PSC proceedings, including recommendations or occurrences, shall be distributed to all PSC and DSC members, and the Director.

(3) The PSC shall be responsible for the following:

a. Review and approval of proposed activities that could affect personnel or facility safety or result in an uncontrolled release of radioactivity in excess of 10 CFR 20 limits, and that are conducted without NRC approval. The PSC shall verify that the proposed activity is allowable in accordance with the criteria of 10 CFR 50.59.

b. Review and approval of proposed changes to the facility or to procedures that could affect radiation safety and that are to be completed without prior NRC approval. The PSC shall verify the activity is allowable in accordance with the criteria of 10 CFR 50.59.

c. Review and approval of all new procedures and revisions thereto, which direct the conduct of decommissioning functions or that are determined to have a significant effect on radiation safety.

d. Review, approve, and forward to the DSC any proposed changes to the Technical Specifications or the facility license.

e. Assess and report violations of the Federal regulations, Technical Specifications, or facility license requirements.

f. Assess and report unusual or abnormal occurrences which are reportable to the NRC under provisions of the Federal regulations.

g. Perform internal audits on decommissioning records and the performance of the decommissioning contractor's compliance with applicable Federal regulations, Technical Specifications, and facility license requirements. Such audits shall be performed at least once per calendar year. Intervals between such reviews are not to exceed 15 calendar months.

h. Records of all PSC activities and decisions shall be reported to the DSC, and shall be retained for the duration of the decommissioning project.

(4) The PSC shall be responsible for the review of the following:

a. Proposed activities that could affect personnel or facility safety or that could result in an uncontrolled release of radioactivity in excess of 10 CFR 20 limits, and that are conducted without NRC approval to verify that the proposed activity does not constitute a change in Technical Specifications or any un-reviewed safety question.

b. Proposed changes to the facility or to procedures that could affect radiation safety and that are to be completed without prior NRC approval in order to verify the activity does not constitute a change in the Technical Specifications or any un-reviewed safety question.

c. All new procedures and revisions thereto that direct the conduct of decommissioning functions or that are determined to have a significant effect on radiation safety.

d. Review of violations of the Federal regulations, Technical Specifications, or facility license requirements.

e. Review of unusual or abnormal occurrences which are reportable to the NRC under provisions of the Federal regulations.

6.9 AUDIT REQUIREMENTS

6.9.1 Internal Audits

Internal audits of decommissioning activities shall be performed as part of a Quality Assurance Program that meets the requirements of 10 CFR 50 Appendix B and ANSI/ANS 15.1 (1994). Audits shall include selective, but comprehensive, examinations of activities, records and documents with cognizant personnel, and observation of operations as appropriate. Audit personnel shall be technically qualified and should not have been involved in the performance of the activity being audited. Audits shall include the following:

(1) Facility activities for conformance to the Technical Specifications and license, at least once per calendar year (interval between examinations not to exceed 15 months).

(2) The qualifications of the staff, at least once every other calendar year (interval between examinations not to exceed 30 months).

(3) The results of actions taken to correct those deficiencies that may occur in the reactor facility equipment, systems, structures, or methods of operations that affect facility safety, at least once per calendar year (interval between examinations not to exceed 15 months).

Deficiencies that affect facility radiation safety shall immediately be reported to Level 2 management. A written report of the findings of each audit shall be submitted to Level 2 management and the manager of the radiation safety function within one month after the audit has been completed.

6.9.2 Independent Reviews

Independent reviews of decommissioning activities and records shall be performed at least annually. Personnel performing these reviews shall be appropriately qualified and experienced, and shall be members of, or appointed by the NASA Safety, Health, and Environmental Board. These reviews shall determine compliance with internal rules, procedures, and regulations and with licensed provisions in the Technical Specifications. In addition, these reviews shall include an assessment of the PSC and the project Quality Assurance and Audit programs' ability to identify and correct deficiencies. Results of these independent reviews shall be provided to the Level 1 Directorate as well as to the DSC and PSC.

6.10 PROCEDURES

Written procedures, including ALARA, shall be prepared and approved prior to initiating any decommissioning activities listed in this section. Procedures for the following activities

may be included in a single manual or set of procedures or divided among various manuals or procedures:

(1) Routine maintenance on major components or systems that could have an effect on radiation safety.

(2) Surveillance tests and calibrations required by the Technical Specifications or those that have an effect on radiation safety.

(3) Personnel radiation protection consistent with applicable regulations.

(4) Administrative controls for maintenance and for the conduct of activities that could affect facility radiation safety.

(5) Shipping and receipt of radioactive material.

(6) Waste Management

(7) Quality Assurance

(8) Environmental Protection Management

(9) Health and Safety Management

Changes to the above procedures shall be made effective only after approval by the PSC. Minor modifications to the original procedures, which do not change their original intent may be made as a temporary change and shall be documented. The Project Radiation Safety Officer must review all temporary changes that affect radiation safety.

6.11 REQUIRED ACTIONS

The following actions shall be taken in the event of an occurrence of the type identified in 6.12.2(1)(a) or (b):

(1) Reactor facility conditions shall be returned to normal or the activities in progress stopped. If it is necessary to stop the activities in progress to correct the occurrence, operations shall not resume unless authorized by Level 2 or the designated alternates.

(2) Occurrences shall be reported to the Level 2 or designated alternates and to the NRC as required.

(3) Occurrences shall be reviewed by the Project Safety Committee.

6.12 REPORTS

All reports shall be addressed to the U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Document Control Desk, with a copy to the U.S. Nuclear Regulatory Commission, Regional Administrator, Region 3.

6.12.1 Annual Report

Annually submit to the NRC a report containing the following:

(1) A narrative summary of facility activities.

(2) Tabulation of the major preventative and corrective maintenance operations having safety significance.

(3) A brief description of the major changes in the reactor facility and procedures and activities significantly different from those performed previously and not described in the facility safety analysis report, and a summary of the safety evaluation that shows no un-reviewed safety questions were involved.

(4) A summary of the nature and amount of radioactive effluents released or discharged to the environs beyond the effective control of the licensee as determined at or before the point of such releases or discharge. The summary shall include to the extent practical an estimate of the major individual nuclides present in the effluent.

(5) A summarized result of the environmental survey performed outside the facility.

6.12.2 Special Reports

Special reports used to report unplanned events as well as planned major facility or administrative changes shall be submitted in accordance with the following schedule.

(1) There shall be a report no later than the following working day by telephone and confirmed in writing by telegraph or similar conveyance to the NRC to be followed by a written report that describes the circumstances of the event within 14 days of any of the following:

   (a) Release of radioactivity from the site above allowed limits

   (b) Any of the following:

   Activities in violation of limiting conditions for the conduct of activities established in the technical specification unless prompt remedial action is taken.

An observed inadequacy in the implementation of administrative or procedural controls such that the inadequacy causes or could have caused the existence or development of an unsafe condition with regard to facility operations.

(2) A written report within 30 days to the NRC of:

(a) Permanent changes in the facility organization management personnel (Level 1 or 2).

(b) Significant changes in the accident analysis as described in the decommissioning plan safety analysis.

6.13 RECORDS

Records may be in the form of correspondence, reports, logs, data sheets, or other suitable forms. The required information may be contained in single or multiple records or a combination thereof.

6.13.1 Retention of Records

The following records are to be maintained for a period of at least five years or for the life of the component involved if less than five years:

(1) Facility decommissioning operations (but not including supporting documents such as check lists, log sheets, etc which shall be maintained for a period of at least one year.)

(2) Principal maintenance and project activities

(3) Reportable occurrences

(4) Surveillance activities required by the technical specifications

(5) Reactor facility radiation and contamination surveys where required by applicable regulations

(6) Approved changes in operating procedures

(7) Records of meetings and independent examination reports of the review and independent examination group

6.13.2 Records to be Retained for the Lifetime of the Facility:

NOTE: Applicable annual reports, if they contain all of the required information, may be used as records in this section.

(1) Air and liquid radioactive effluents released to the environment.

(2) Off-site environmental monitoring surveys required by the Technical Specification

(3) Radiation exposure for all personnel monitored.

(4) Drawings of the reactor facility.

(5) Records of disposal of licensed material.

6.14 HIGH RADIATION AREA

6.14.1 Access Controls

Pursuant to 10 CFR 20, in lieu of the 'control device' or 'alarm signal', each high radiation area as defined in 10 CFR 20, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g. Health Physics personnel) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates equal to or less than 1000 mR/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas. Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

(1) A radiation monitoring device which continuously indicates the radiation dose rate in the area, or

(2) A radiation-monitoring device, which continuously integrates the radiation dose rate in the area and alarms when a pre-set integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made knowledgeable of them, or

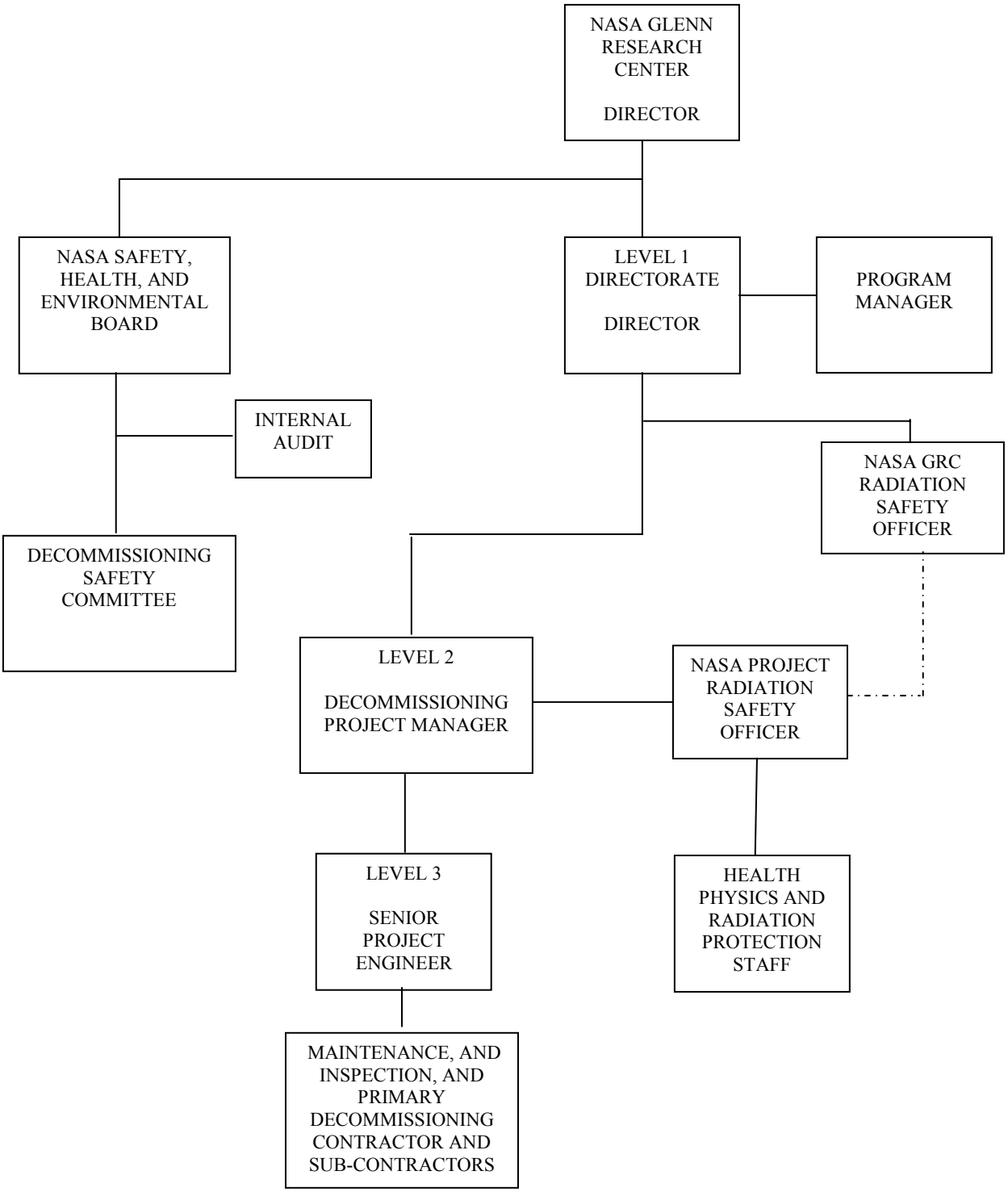
(3) A health physics qualified individual (i.e. qualified in radiation protection procedures) with a radiation dose rate monitoring device who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the facility Health Physics staff in the RWP.

6.14.2 Control of High Radiation Areas

In addition to the requirements of 6.14.1, areas accessible to personnel with radiation levels greater than 1000mR/hr at 45 cm (18 inches) from the radiation source or from any surface, which the radiation penetrates, shall be provided with locked enclosures to prevent unauthorized entry, and the keys shall be maintained under the administrative control of health physics. Enclosures shall remain locked except during periods of access by personnel under an approved RWP, which shall specify the dose rate levels in the immediate work area and the maximum allowable stay times for individuals in the area. Direct or remote continuous surveillance (such as the use of closed circuit TV cameras) may be used by personnel qualified in radiation protection procedures in lieu of the stay-time specification of the RWP in order to provide positive exposure control over the activities within the area.

For individual areas accessible to personnel with radiation levels of greater than 1000 mR/hr that are located within large areas, where no enclosure exists for purposes of locking, and no enclosure can be reasonably constructed around the individual areas, then that area shall be barricaded, conspicuously posted, and a flashing light shall be activated as a warning device whenever the dose rate in the area exceeds or will shortly exceed 1000 mR/hr.

ORGANIZATION CHART



Technical Specifications
Figure 1