Advanced Medical Systems, Inc.

QUALITY ASSURANCE AUDITS	Procedure: RSP-020	Revision No.: 000
	Page: 1 of 24	Date: September 18, 1996
	Approved by (Engineering Manager):	
	Approved by (RSO):	
	Approved by (RSC Chair):	

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1 PURPOSE

This procedure establishes the methods and responsibilities for planning, scheduling, and performing Field Service audits and internal or independent audits of the Advanced Medical Systems, Inc. (AMS) Radiation Protection Program.

2 SCOPE

This Radiation Safety Procedure (RSP) applies to all operations and activities performed at the London Road facility for radiation protection purposes. Operations and activities that are performed for reasons other than radiation protection purposes are exempt from the requirements of this procedure.

3 REFERENCES

3.1 Title 10, Code of Federal Regulations, Part 20, "Standards for Protection Against Radiation".

3.2 U. S. Nuclear Regulatory Commission Radioactive Material License Number 34-19089-01.

3.3 Advanced Medical Systems, Inc., Radiation Safety Procedure No. RSP-001, "Radiation Protection Program Plan"

3.4 Advanced Medical Systems, Inc., Radiation Safety Procedure No. RSP-004, "Radiation Protection Records"

3.5 Advanced Medical Systems, Inc., Radiation Safety Procedure No. RSP-006, "Training and Qualifications of Radiation Protection Personnel"

3.6 Advanced Medical Systems, Inc., Radiation Safety Procedure No. RSP-008, "Instrumentation and Surveillance"

4 DEFINITIONS

The definition of terms used in this RSP that may not be commonly understood shall be found in RSP-002, "Definitions".

5 PROCEDURE

5.1 Responsibilities

5.1.1 The Engineering Manager shall ensure sufficient resources are made available to comply with the requirements of this RSP.

5.1.2 The RSO shall:

5.1.2.1 Perform internal (focused) audits of specific program elements

5.1.2.2 Select an Audit Team Leader for independent audits

5.1.2.3 Ensure closure of audit findings

5.1.2.4 Perform, or designate performance of, Field Service Audits of the performance of Field Service Technicians.

5.1.3 The RSC shall review audit findings and confirm closure of outstanding items.

5.2 Audit Schedule

5.2.1 The RSO shall develop a general schedule for performing audits.

Note: The actual date(s) for performing a particular audit is determined by the Audit Team Leader.

5.2.2 The following elements of the program shall be audited at the frequency specified in RSP-008:

5.2.2.1 Title 10, Code of Federal Regulations, Parts 19 and 20

5.2.2.2 USNRC Radioactive Materials License No. 34-19089-01

5.2.2.3 Control of Radiation Safety Procedures

5.2.2.4 Radiation Protection Records

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5.2.2.14 Receipt, Handling, and Identification of Radioactive Materials

5.2.2.15 Packaging and Transportation of Radioactive Materials

5.2.2.16 Emergency Response and Notifications

5.2.2.17 Stop Work Authority

5.2.3 The RSO shall designate the scope of each audit by checking the applicable topics on an audit checklist (Attachment 2).

5.2.4 The audit schedule shall be based on previous audit results and the results of inspections (as applicable).

5.2.5 The audit schedule should be reviewed periodically and revised as necessary to assure continued effectiveness.

5.2.6 Unscheduled audits should be used to supplement scheduled audits when conditions warrant.

5.3 Audit Teams

5.3.1 Depending upon the scope of the audit, the RSO should designate an Audit Team Leader.

Note: Focused audits (e.g., specific RSP provisions) may be performed by a single individual, such as the RSO.

5.3.2 As necessary, the Audit Team Leader shall select and assign qualified auditors who are independent of any direct responsibility for performing the activities which they will audit.

Note: The Audit Team Leader should confirm that personnel having direct responsibilities for performing the activities being audited are not involved in the selection of the Audit Team.

5.3.3 The Audit Team Leader shall orient the team and coordinate specific audit activities.

5.4 Audit Planning and Preparation

5.4.1 The Audit Team Leader shall complete an audit plan (Attachment 1).

Note: If the audit is performed by the RSO, preparation of an audit plan is recommended but not required.

5.4.2 The audit plan should include the following:

5.4.2.1 Audit Number

5.4.2.2 Facility Location and AMS Contact

5.4.2.3 Audit Scope as indicated on an audit checklist (Attachment 2)

5.4.2.4 Audit Purpose

5.4.2.5 Audit Team Members

5.4.2.6 Reference Documents

5.4.2.7 Audit Schedule

5.4.2.8 Special Concerns

5.4.3 The Audit Team Leader should assure that the Audit Team is:

5.4.3.1 Prepared prior to performance of the audit by providing applicable policies, standards, instructions, codes, regulations, and prior audit reports for information and review by the auditors, and by providing each auditor with the audit plan and audit checklist.

5.4.3.2 Familiar with the AMS facility and key individuals.

5.4.4 The Audit Team Leader should provide timely notification to the RSO of the scheduled audit date(s).

5.5 Audit Performance

5.5.1 The Audit Team Leader should conduct a brief pre-audit meeting with management or supervisory personnel of AMS to confirm the audit scope, introduce the Audit Team, discuss the audit sequence, establish a tentative time for the post-audit meeting, and establish channels of communication.

5.5.2 Audits should be performed in accordance with an audit checklist (Attachment 2).

5.5.3 Auditor(s) should discuss audit findings freely with individuals being audited to ensure accuracy and applicability of findings.

5.5.4 The Audit Team Leader should, at the conclusion of the audit, conduct a post-audit meeting with the RSO and/or the Engineering Manager to present the preliminary audit findings and observations, and to discuss comments.

5.6 Audit Report

5.6.1 The Audit Team, upon completion of the audit, shall prepare an audit report using a format similar to the one shown in Attachment 3.

5.6.2 The audit report shall contain the following information, as a minimum:

5.6.2.1 Audit Number

5.6.2.2 Facility Description and Location

5.6.2.3 Listing of Personnel Interviewed

5.6.2.4 Listing of Documents Reviewed

5.6.2.5 Scope of Audit

5.6.2.6 Listing of Auditors and their Qualifications (indicating the Audit Team Leader)

5.6.2.7 Audit Date(s)

5.6.2.8 Finding Reports

5.6.3 The Audit Team Leader may prepare a cover letter and executive summary for the audit report.

5.6.4 Audit Reports containing observations should clearly describe the condition(s) which led to the observation.

5.6.5 Audit Reports containing Finding Reports (Attachment 4) shall require a written response by the RSO in regard to:

5.6.5.1 The root cause that lead to the condition reported in the finding;

5.6.5.2 The steps which have or should be taken to correct the condition reported in the finding;

5.6.5.3 The steps which have or should be taken to prelude recurrence (if appropriate);

5.6.5.4 The dates when indicated action was or should be completed.

5.6.6 If a written response is required, the cover letter shall recommend a 30-day response period after receipt of the audit report.

5.7 Follow-Up Actions

5.7.1 The RSO may assign responsibilities for responding to Finding Reports and tracking the status of responses.

5.7.1.1 When responses are five (5) days overdue, the RSO shall notify the responsible individual by telephone.

5.7.1.2 When responses are ten (10) days overdue, the RSO shall notify the responsible individual by memorandum or letter, with a copy to the Engineering Manager.

5.7.2 The RSO, upon receipt of completed Finding Reports, shall secure an evaluation of the responses from the Audit Team Leader.

Note: If the audit was performed by the RSO, the RSO should evaluate the adequacy of responses before proceeding further.

5.7.2.1 The results of the evaluation shall be documented on the Finding Report.

5.7.2.2 Unacceptable responses should be noted on the Finding Report, along with the specific reason for rejection.

5.7.3 The RSO shall verify and document on the Finding Report that corrective actions have been implemented.

5.7.4 Upon completion (close-out) of all Finding Reports, the RSO shall inform the RSC by memorandum or letter that all actions were completed and approved.

5.8 Field Service Audits

5.8.1 Field service procedures performed by a Field Service Technician that is qualified pursuant to RSP-006 shall be audited once per year.

5.8.2 Audits shall be performed by the RSO (or designee) in accordance with an audit checklist (Attachment 2).

5.8.3 Audits may be performed during a service call, during a simulated service call, or during a source exchange.

5.8.4 The RSO should discuss audit findings freely with the Field Service Technician being audited to ensure accuracy and applicability of findings.

5.8.5 The RSO may, at the conclusion of the audit, conduct a post-audit meeting with the RSC and/or the Engineering Manager to present the preliminary audit findings and observations.

5.8.6 The RSO, upon completion of the audit, shall prepare an audit report using a format similar to the one shown in Attachment 5.

6 EXEMPTION PROVISIONS

Variances and exceptions to the requirements of this Radiation Safety Procedure shall be permitted pursuant to the written authorization of the RSO and the Engineering Manager.

7 DOCUMENTATION

7.1 Audit records and reports shall be maintained pursuant to RSP-004.

7.2 The following records shall be maintained as a result of this procedure:

7.2.1 Audit Plans

7.2.2 Audit Reports

7.2.3 Finding Reports

7.2.4 Audit Closure Letter

7.2.5 Correspondence related to the audit.

7.2.6 Field Audit Report

7.3 All cover letters, executive summaries, Audit Reports and Finding Reports, whether draft or final, shall be addressed and transmitted to the AMS legal counsel.

Note: Audit information and correspondence that contains observations or findings shall not be transmitted directly to the RSO, the RSC, the Engineering Manager, or any operations personnel.

8 ATTACHMENTS

8.1 Attachment 1 - Audit Plan

8.2 Attachment 2 - Audit Checklist

8.3 Attachment 3 - Example Audit Report Format

8.4 Attachment 4 - Finding Report

8.5 Attachment 5 - Field Audit Report

ATTACHMENT 1 - AUDIT PLAN

Audit Number:	Facility:
Contact:	Location:
Audit Scope:	
Audit Personnel: Lead Auditor: _____ Auditor: _____ Auditor: _____ Reference Documents: _____ _____ _____ _____ _____	Audit Schedule: Audit Dates: _____ Pre-Audit Conference: _____ Post-Audit Conference: _____ Special Concerns/Items: _____ _____ _____ _____ _____
Audit Team Assignments: Lead Auditor: _____ Auditor: _____ Auditor: _____	
Review and Concurrence Prior to Audit: Lead Auditor Signature/Date: _____ Auditor Signature/Date: _____ Auditor Signature/Date: _____	
Review and Approval of Audit Check List: Lead Auditor Signature/Date: _____	
Audit Plan Developed by: Signature/Date: _____	

ATTACHMENT 2 - AUDIT CHECKLIST

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	**Criterion**	**Conformance/Nonconformance**
1.0 Surveys.		
	Each licensee shall make or cause to be made, surveys that may be necessary for the licensee to comply with the regulations in 10 CFR 20 Sec. 1501, and are reasonable under the circumstances to evaluate: A. The extent of radiation levels; and B. Concentrations or quantities of radioactive material; and C. The potential radiological hazards that could be present	
	The licensee shall ensure that instruments and equipment used for quantitative radiation measurements (e.g.,dose rate and effluent monitoring) are calibrated periodically for the radiation measured.	
2.0 Personnel Monitoring.		
	Each licensee shall supply appropriate personnel monitoring equipment to, and shall require the use of such equipment by: A. Each individual who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in any calendar year in excess of the applicable value specified in 10 CFR 20. B. Each individual under 18 years of age who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in any calendar year in excess of the value specified in 10 CFR 20. C. Each individual who enters a high radiation area.	
	All personnel dosimeters (except for direct and indirect reading pocket ionization chambers and those dosimeters used to measure the dose to hands and forearms, feet and ankles) that require processing to determine the radiation dose and that are utilized by licensees to comply with 10 CFR 20, or with conditions specified in a licensee's license must be processed and evaluated by a dosimetry processor: A. Holding current personnel dosimetry accreditation from the National Voluntary Laboratory Accreditation Program (NVLAP), and B. Approved in this accreditation process for the type of radiation or radiations included in the NVLAP program that most closely approximate the type of radiation or radiations for which the individual wearing the dosimeter is monitored.	
2.1 Use Of Individual Respiratory Protection Equipment		
	If the licensee uses respiratory protection equipment to limit intakes pursuant to 10 CFR Sec. 20.1702 the licensee shall use only respiratory protection equipment that is tested and certified or had certification extended by the National Institute for Occupational Safety and Health/Mine Safety and Health Administration (NIOSH/MSHA).	
	If the licensee wishes to use equipment that has not been tested or certified by NIOSH/MSHA, has not had certification extended by NIOSH/MSHA, or for which there is no schedule for testing or certification, the licensee shall submit an application for authorized use of that equipment, including a demonstration by testing, or a demonstration on the basis of reliable test information, that the material and performance characteristics of the equipment are capable of providing the proposed degree of protection under anticipated conditions of use.	
	The licensee shall implement and maintain a respiratory protection program that includes: A. Air sampling sufficient to identify the potential hazard, permit proper equipment selection, and estimate exposures; B. Surveys and bioassays, as appropriate, to evaluate actual intakes; C. Testing of respirators for operability immediately prior to each use; D. Written procedures regarding selection, fitting, issuance, maintenance, and testing of respirators, including testing for operability	
	The licensee shall use as emergency devices only respiratory protection equipment that has been specifically certified or had certification extended for emergency use by NIOSH/MSHA.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
	The licensee shall notify, in writing, the Director of the appropriate NRC Regional Office at least 30 days before the date that respiratory protection equipment is first used under the provisions of either 10 CFR Sec. 20.1703(a) or (b), able to use the respiratory protection equipment.	
	The licensee shall issue a written policy statement on respirator usage covering: A. The use of process or other engineering controls, instead of respirators; B. The routine, nonroutine, and emergency use of respirators; and C. The periods of respirator use and relief from respirator use.	
	The licensee shall advise each respirator user that the user may leave the area at any time for relief from respirator use in the event of equipment malfunction, physical or psychological distress, procedural or communication failure, significant deterioration of operating conditions, or any other conditions that might require such relief. The licensee shall use equipment within limitations for type and mode of use and shall provide proper visual, communication, and other special capabilities (such as adequate skin protection) when needed.	
	In estimating exposure of individuals to airborne radioactive materials, the licensee may make allowance for respiratory protection equipment used to limit intakes pursuant to 10 CFR Sec. 20.1702, provided that the following conditions, in addition to those in Sec. 20.1703(a), are satisfied: A. The licensee selects respiratory protection equipment that provides a protection factor (see 10 CFR 20 appendix A to Sect. 20.1001-20.2401) greater than the multiple by which peak concentrations of airborne radioactive materials in the working area are expected to exceed the values specified in 10 CFR 20 appendix B to Sect. 20.1001-20.2401, table 1, column 3 B. If the selection of a respiratory protection device with a protection factor greater than the peak concentration is inconsistent with the goal specified in 10 CFR Sec. 20.1702 of keeping the total effective dose equivalent ALARA. C. The licensee may select respiratory protection equipment with a lower protection factor only if such a selection would result in keeping the total effective dose equivalent ALARA. D. The concentration of radioactive material in the air that is inhaled when respirators are worn may be initially estimated by dividing the average concentration in air, during each period of uninterrupted use, by a protection factor. If the exposure is later found to be greater or less than estimated, the corrected value must be used. E. Determination by a physician prior to initial fitting of respirators, and at least every 12 months thereafter, that the individual user is physically able to use respiratory protection equipment.	
3.1 Caution Signs		
	Except as otherwise authorized, symbols shall use the conventional radiation caution colors (magenta or purple on yellow background). The symbol prescribed by this section is the conventional three-bladed design "Radiation Symbol" with a cross-hatched area that is magenta or purple with a yellow background.	
	In addition to the contents of signs and labels, information may be provided on or near such signs and labels which may be appropriate in aiding individuals to minimize exposure to radiation or to radioactive material.	
3.2 Radiation Areas.		
	Posting of radiation areas. The licensee shall post each radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIATION AREA."	
3.3 High Radiation Areas.		
	The licensee shall post each high radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, HIGH RADIATION AREA" or "DANGER, HIGH RADIATION AREA."	
3.4 Posting Of Very High Radiation Areas		
	The licensee shall post each very high radiation area with a conspicuous sign or signs bearing the radiation symbol and words "GRAVE DANGER, VERY HIGH RADIATION AREA."	
3.5 Control Of Access To Very High Radiation Areas		

Name(s) of Auditor(s):		Date of Audit:
Included In Audit (yes/no)	**Criterion**	**Conformance/Nonconformance**
	In addition to the requirements in 10 CFR Sec. 20.1601, the licensee shall institute additional measures to ensure that an individual is not able to gain unauthorized or inadvertent access to areas in which radiation levels could be encountered at 500 rads (5 grays) or more in 1 hour at 1 meter from a radistion source or any surface through which the radiation penetrates.	
3.6 Control Of Access To Very High Radiation Areas--Irradiators		
	Each area in which there may exist radiation levels in excess of 500 rads (5 grays) in 1 hour at 1 meter from a sealed radioactive source that is used to irradiate materials must meet the following requirements.	
	Each entrance or access point must be equipped with entry control devices which: A. Function automatically to prevent any individual from inadvertently entering the area when very high radiation levels exist; B. Permit deliberate entry into the area only after a control device is actuated that causes the radiation level within the area, from the sealed source, to be reduced below that at which it would be possible for an individual to receive a deep-dose equivalent in excess of 0.1 rem (1 mSv) in 1 hour; and C. Prevent operation of the source if the source would produce radiation levels in the area that could result in a deep-dose equivalent to an individual in excess of 0.1 rem (1 mSv) in 1 hour.	
	Additional control devices must be provided so that, upon failure of the entry control devices to function as required by 10 CFR 20.1603(a)(1): A. The radiation level within the area, from the sealed source, is reduced below that at which it would be possible for an individual to receive a deep-dose equivalent in excess of 0.1 rem (1 mSv) in 1 hour; and B. Conspicuous visible and audible alarm signals are generated to make an individual attempting to enter the area aware of the hazard and at least one other authorized individual, who is physically present, familiar with the activity, and prepared to render or summon assistance, aware of the failure of the entry control devices.	
	The licensee shall provide control devices so that, upon failure or removal of physical radiation barriers other than the source's shielded storage container: A. The radiation level from the source is reduced below that at which it would be possible for an individual to receive a deep-dose equivalent in excess of 0.1 rem (1 mSv) in 1 hour; and B. Conspicuous visible and audible alarm signals are generated to make potentially affected individuals aware of the hazard and the licensee or at least one other individual, who is familiar with the activity and prepared to render or summon assistance, aware of the failure or removal of the physical barrier.	
	When the shield for the stored source is a liquid, the licensee shall provide means to monitor the integrity of the shield and to signal, automatically, loss of adequate shielding.	
	Physical radiation barriers that comprise permanent structural components, such as walls, that have no credible probability of failure or removal in ordinary circumstances need not meet the requirements of 10 CFR 20.1603(a)(3)(4).	
	Each area must be equipped with devices that will automatically generate conspicuous visible and audible alarm signals to alert personnel in the area before the source can be put into operation and in sufficient time for any individual in the area to operate a clearly identified control device, which must be installed in the area and which can prevent the source from being put into operation.	
	Each area must be controlled by use of such administrative procedures and such devices as are necessary to ensure that the area is cleared of personnel prior to each use of the source.	
	Each area must be checked by a radiation measurement to ensure that, prior to the first individual's entry into the area after any use of the source, the radiation level from the source in the area is below that at which it would be possible for an individual to receive a deep-dose equivalent in excess of 0.1 rem (1 mSv) in 1 hour.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
	The entry control devices required in 10 CFR Sec. 20.1603(a)(1) must have been tested for proper functioning: A. Testing must be conducted prior to initial operation with the source of radiation on any day (unless operations were continued uninterrupted from the previous day). B. Testing must be conducted prior to resumption of operation of the source of radiation after any unintended interruption. C. The licensee shall submit and adhere to a schedule for periodic tests of the entry control and warning systems.	
	The licensee may not conduct operations, other than those necessary to place the source in safe condition or to effect repairs on controls, unless control devices are functioning properly.	
	Entry and exit portals that are used in transporting materials to and from the irradiation area, and that are not intended for use by individuals, must be controlled by such devices and administrative procedures as are necessary to physically protect and warn against inadvertent entry by any individual through these portals. Exit portals for processed materials must be equipped to detect and signal the presence of any loose radiation sources that are carried toward such an exit and to automatically prevent loose radiation sources from being carried out of the area.	
	Persons holding licenses or applicants for licenses for radiation sources that are within the purview of 10 CFR 20.1603(a) and that will be used in a variety of positions or in locations, such as open fields or forests, that make it impracticable to comply with certain requirements of 10 CFR 20.1603(a), such as those for the automatic control of radiation levels, may apply to the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, for approval of the use of alternative safety measures. Any alternative safety measures must provide a degree of personnel protection at least equivalent to those specified in 10 CFR 20.1603(a). At least one of the alternative measures must include an entry-preventing interlock control based on a measurement of the radiation that ensures the absence of high radiation levels before an individual can gain access to the area where such radiation sources are used.	
	The entry control devices required by 10 CFR 20.1603(a)(b) must be established in such a way that no individual will be prevented from leaving the area.	
3.6 Airborne Radioactivity Areas.		
	"Airborne Radioactivity Area" means any room, enclosure, or operating area in which airborne radioactive materials composed wholly or partly of licensed material, exist in concentrations in excess of the amounts specified in Appendix B, Table I, Column 1 of 10 CFR 20,	
	The licensee shall post each airborne radioactivity area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, AIRBORNE RADIOACTIVITY AREA" or "DANGER, AIRBORNE RADIOACTIVITY AREA."	
	When it is not practicable to apply process or other engineering controls to control the concentrations of radioactive material in air to values below those that define an airborne radioactivity area, the licensee shall, consistent with maintaining the total effective dose equivalent ALARA, increase monitoring and limit intakes by one or more of the following means: Control of access; Limitation of exposure times; Use of respiratory protection equipment; or Other controls.	
3.7 Posting Of Areas Or Rooms In Which Licensed Material Is Used Or Stored		
	Additional requirements include that each area or room in which licensed material is used or stored, which contains any radioactive material (other than natural uranium or thorium) in an amount exceeding 10 times the quantity of such material specified shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words "CAUTION RADIOACTIVE MATERIAL(S)".	
	Areas or rooms in which natural uranium or thorium is used or stored in any amount exceeding one hundred times the quantity specified shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words "CAUTION RADIOACTIVE MATERIAL(S)".	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
3.8 Containers.		
	The licensee shall ensure that each container of licensed material bears a durable, clearly visible label bearing the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL." or "DANGER, RADIOACTIVE MATERIAL." The label must also provide sufficient information (such as the radionuclide(s) present, an estimate of the quantity of radioactivity, the date for which the activity is estimated, radiation levels, kinds of materials) to permit individuals handling or using the containers, or working in the vicinity of the containers, to take precautions to avoid or minimize exposures.	
	Each licensee shall, prior to removal or disposal of empty uncontaminated containers to unrestricted areas, remove or deface the radioactive material label or otherwise clearly indicate that the container no longer contains radioactive materials.	
3.9 Exceptions to Posting/Labeling		
	A room or area is not required to be posted with a caution sign because of the presence of a sealed source provided the radiation level twelve inches from the surface of the source container or housing does not exceed five millirem per hour.	
	Caution signs are not required to be posted at areas or rooms containing radioactive materials for periods of less than eight hours provided that the materials are constantly attended during such periods by an individual, who shall take the precautions necessary to prevent the exposure of any individual to radiation or radioactive materials in excess of the limits established in the regulations such area or room is subject to the licensee's control.	
	A room or other area is not required to be posted with a caution sign, and control is not required for each entrance or access point to a room or other area which is a high radiation area solely because of the presence of radioactive materials prepared for transport and packaged and labeled in accordance with regulations of the Department of Transportation.	
4.0 Procedures For Picking Up, Receiving, And Opening Packages.		
	Each licensee who expects to receive a package containing quantities of radioactive material in excess of the Type A quantities specified in 10 CFR Sec. 20.205(b) shall: A. If the package is to be delivered to the licensee's facility by the carrier, make arrangements to receive the package when it is offered for delivery by the carrier; or B. If the package is to be picked up by the licensee at the carrier's terminal, make arrangements to receive notification from the carrier of the arrival of the package, at the time of arrival.	
	Each licensee who picks up a package of radioactive material from a carrier's terminal shall pick up the package expeditiously upon receipt of notification from the carrier of its arrival.	
	Each licensee, upon receipt of a package of radioactive material, shall monitor the external surfaces of the package for radioactive contamination caused by leakage of the radioactive contents, except: A. Packages containing no more than the exempt quantity specified in 10 CFR 20. B. Packages containing only radioactive material as gases or in special form; C. Packages containing only radioactive material in other than liquid form (including Mo-99/Tc-99m generators) and not exceeding the Type A quantity limit specified in the table in this paragraph; and D. Packages containing only radionuclides with half-lives less than 30 days and a total quantity of no more than 100 millicuries.	
	The monitoring shall be performed as soon as practicable after receipt, but no later than three hours after the package is received at the licensee's facility if received during the licensee's normal working hours, or eighteen hours if received after normal working hours.	
	If removable radioactive contamination in excess of 0.01 microcuries (22,000 disintegrations per minute) per 100 square centimeters of package surface is found on the external surface of the package the licensee shall immediately notify the final delivering carrier and, by telephone and telegraph, mailgram or facsimile, the appropriate USNRC Regional Office.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	**Criterion**	**Conformance/Nonconformance**
	Each licensee, upon receipt of a package containing quantities of radioactive material in excess of the Type A quantities specified in 10 CFR 20, other than those transported by exclusive use vehicle, shall monitor the radiation levels external to the package.	
	If radiation levels are found on the external surface of the package in excess of 200 millirem per hour, or at three feet from the external surface of the package in excess of 10 millirem per hour, the licensee shall immediately notify by telephone and telegraph, mialgram, or facsimile, the director of the appropriate USNRC Regional Office and the final delivering carrier.	
	Each licensee shall establish and maintain procedures for safely opening packages in which licensed material is received, and shall assure that such procedures are followed and that due consideration is given to special instructions for the type of package being opened.	
5.0 Storage And Control Of Licensed Materials In Unrestricted Areas		
	Licensed materials stored in an unrestricted area shall be secured from unauthorized removal from the place of storage.	
	Licensed materials in an unrestricted area and not in storage shall be tended under the constant surveillance and immediate control of the licensee.	
J Waste Disposal		
	The licensee shall dispose of licensed material only; A. By transfer to an authorized recipient as provided in 10 CFR Sec. 20.2006 or in the regulations in parts 30, 40, 60, 61, 70, or 72; or B. By decay in storage; or C. By release in effluents within the limits in 10 CFR Sec. 20.1301; or D. As authorized under 10 CFR Secs. 20.2002, 20.2003, 20.2004, or Sec. 20.2005.	
	A person must be specifically licensed to receive waste containing licensed material from other persons for: A. Treatment prior to disposal; or B. Treatment or disposal by incineration; or C. Decay in storage; or D. Disposal at a land disposal facility licensed under 10 CFR 20 part 61 chapter; or E. Disposal at a geologic repository under 10 CFR 20 part 60.	
6.1 Disposal By Release Into Sanitary Sewerage Systems		
	A licensee may discharge licensed material into sanitary sewerage if each of the following conditions is satisfied:	
	The material is readily soluble (or is readily dispersible biological material) in water.	
	The quantity of licensed or other radioactive material that the licensee releases into the sewer in 1 month divided by the average monthly volume of water released into the sewer by the licensee does not exceed the concentration listed in 10 CFR 20 table 3 of appendix B to Secs. 20.1001-20.2401	
	If more than one radionuclide is released, the following conditions must also be satisfied: A. The licensee shall determine the fraction of the limit in 10 CFR 20 table 3 of appendix B to Secs. 20.1001-20.2401 represented by discharges into sanitary sewerage by dividing the actual monthly average concentration of each radionuclide released by the licensee into the sewer by the concentration of that radionuclide listed in table 3 of appendix B to Secs. 20.1001-20.2401; and B. The sum of the fractions for each radionuclide required by 10 CFR Sec. 20.003(a)(3)(i) does not exceed unity; and hydrogen-3, 1 curie (37 GBq) of carbon-14, and 1 curie (37 GBq) of all other radioactive materials combined. C. The total quantity of licensed and other radioactive material that the licensee releases into the sanitary sewerage system in a year does not exceed 5 curies (185 GBq) of hydrogen-3, one curie (37 Gbq) of carbon-14 and one curie (37 Gbq) of all other radioactive materials combined.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
6.2 Transfer For Disposal And Manifests		
	Each shipment of radioactive waste intended for disposal at a licensed land disposal facility must be accompanied by a shipment manifest.	
	Each shipment manifest must include a certification by the waste generator as specified in 10 CFR 20 section II of appendix F to 20.1001-20.2401.	
	Each person involved in the transfer for disposal and disposal of waste, including the waste generator, waste collector, waste processor, and disposal facility operator, shall comply with the requirements specified in 10 CFR 20 section III of appendix F.	
7.0 Records Of Surveys, Radiation Monitoring, And Disposal		
	The licensee shall maintain records showing the radiation exposures of all individuals for whom personnel monitoring is required under 10 CFR 20.	
	Such records shall be kept on Form NRC-5, in accordance with the instructions contained in the form or on clear and legible records containing all the information required by Form NRC-5.	
	The doses entered on the forms or records shall be for periods of time not exceeding one calendar quarter.	
	The licensee shall maintain records in the same units, showing the results of surveys, monitoring, and disposal as required under 10 CFR 20 and 61.	
	Records of individual exposure to radiation and to radioactive material which must be maintained and records of bioassays, including results of whole body counting examinations shall be preserved until the Commission authorizes disposition.	
	Records of the results of surveys and monitoring which must be maintained shall be preserved for two years after completion of the survey except that the following records shall be maintained until the Commission authorizes their disposition: A. Records of the results of surveys to determine compliance with 10 CFR 20 B. in the absence of personnel monitoring data, records of the results of surveys to determine external radiation dose; and C. records of the results of surveys used to evaluate the release of radioactive effluents to the environment.	
	Records of disposal of licensed materials made pursuant to 10 CFR 20 61 are to be maintained until the Commission authorizes their disposition.	
	Records which must be maintained pursuant to this part may be the original or a reproduced copy or microform if such reproduced copy or microform is duly authenticated by authorized personnel and the microform is capable of producing a clear and legible copy after storage for the period specified by Commission regulations.	
8.0 Reports Of Theft Or Loss Of Licensed Material		
	Each licensee shall report to the Commission, by telephone, immediately after it determines that a loss or theft of licensed material has occurred in such quantities and under such circumstances that it appears to the licensee that a substantial hazard may result to persons in unrestricted areas.	
	Reports must be made as follows: A. Licensees having an installed Emergency Notification System shall make the reports to the NRC Operations Center in accordance with 10 CFR Sec. 50.72. B. All other licensees shall make reports to the Administrator of the appropriate NRC Regional Office.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
	Each licensee who makes a report under 10 CFR Sec. 20 shall, within 30 days after learning of the loss or theft, make a report in writing to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, DC 20555, with a copy to the appropriate NRC Regional Office. The report shall include the following information: A. A description of the licensed material involved, including kind, quantity, chemical, and physical form; B. A description of the circumstances under which the loss or theft occurred; C. A statement of disposition or probable disposition of the licensed material involved; D. Radiation exposures to individuals, circumstances under which the exposures occurred, and the extent of possible hazard to persons in unrestricted areas; E. Actions which have been taken, or will be taken, to recover the material; and F. Procedures or measures which have been or will be adopted to prevent a recurrence of the loss or theft of licensed material.	
	Subsequent to filing the written report the licensee shall also report any substantive additional information on the loss or theft which becomes available to the licensee, within 30 days after he learns of such information.	
	Any report filed with the Commission pursuant to this section shall be so prepared that names of individuals who may have received exposure to radiation are stated in a separate part of the report.	
0 Notifications Of Incidents		
	Licensees shall immediately report any events involving byproduct, source, or special nuclear material possessed by the licensee that may have caused or threatens to cause: A. Exposure of the whole body of any individual to 25 rems or more of radiation; exposure of the skin of the whole body of any individual of 150 rems or more or radiation; or exposure of the feet, ankles, hands or forearms of any individual to 375 rems or more of radiation; or B. The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 5,000 times the limits specified for such materials in 10 CFR 20 Appendix B, Table II; or C. A loss of one working week or more of the operation of any facilities affected; or D. Damage to property in excess of $200,000.	
	Each licensee shall within 24 hours of discovery of the event, report any event involving licensed material possessed by the licensee that may have caused or threatens to cause: A. Exposure of the whole body of any individual to 5 rems or more of radiation; exposure of the skin of the whole body of any individual to 30 rems or more of radiation; or exposure of the feet, ankles, hands, or forearms to 75 rems or more of radiation; or B. The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 500 times the limits specified for such materials in 10 CFR 20 Appendix B; or C. A loss of one day or more of the operation of any facilities affected; or D. Damage to property in excess of $2,000.	
	Any report filed with the Commission pursuant to this section shall be prepared so that names of individuals who have received exposure to radiation will be stated in a separate part of the report.	
	Reports made by licensees in response to the requirements of this section must be made as follows: A. Licensees that have an installed Emergency Notification System shall make the reports required by 10 CFR 20 to the NRC Operations Center in accordance with 10 CFR Sec. 50.72. B. All other licensees shall make the reports required by 10 CFR 20 by telephone to the NRC Operations Center[1] and by telegram, mailgram, or facsimile to the Administrator of the appropriate NRC Regional Office.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
9.1 Reports Of Overexposure And Excessive Levels And Concentrations		
	In addition to any notification required by 10 CFR 20, each licensee shall make a report in writing concerning any one of the following types of incidents within 30 days of its occurrence: A. Each exposure of an individual to radiation in excess of the applicable limits in 10 CFR 20 or the license; B. Each exposure of an individual to radioactive material in excess of the applicable limits in 10 CFR 20 or the license; C. Levels of radiation or concentrations of radioactive material in a restricted area in excess of any other applicable limit in the license; D. Any incident for which notification is required by 10 CFR 20; or E. Levels of radiation or concentrations of radioactive material (whether or not involving excessive exposure of any individual) in an unrestricted area in excess of ten times any applicable limit set forth in 10 CFR Sec. 20 or in the license.	
	Each report required under 10 CFR Sec. 20 must describe the extent of exposure of individuals to radiation or to radioactive material, including: A. Estimates of each individual's exposure B. Levels of radiation and concentrations of radioactive material involved; C. The cause of the exposure, levels or concentrations; and D. Corrective steps taken or planned to prevent a recurrence.	
	Reports filed with the Commission shall include for each individual exposed the name, social security number, and date of birth, and an estimate of the individual's exposure. The report shall be prepared so that this information is stated in a separate part of the report.	
	In addition to any notification required by 10 CFR 20, each licensee shall make a report in writing of levels of radiation or releases of radioactive material in excess of limits specified by 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," or in excess of license conditions related to compliance with 40 CFR Part 190.	
	Each report submitted under 10 CFR 20 must describe: A. The extent of exposure of individuals to radiation or to radioactive material; B. Levels of radiation and concentrations of radioactive material involved; C. The cause of the exposure, levels, or concentrations; and D. Corrective steps taken or planned to assure against a recurrence, including the schedule for achieving conformance with 40 CFR Part 190 and with associated license conditions.	
	Licensees who make reports under 10 CFR 20 within 30 days after learning of the overexposure or excessive level or concentration, make a report in writing to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, D.C. 20555, with a copy to the appropriate NRC Regional Office.	
9.2 Personnel Monitoring Reports		
	Each person described in 10 CFR 20 shall, within the first quarter of each calendar year, submit to the Director, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, the reports specified in 10 CFR 20, covering the preceding calendar year.	
	A report of either (1) the total number of individuals for whom personnel monitoring was required during the calendar year; or (2) the total number of individuals for whom personnel monitoring was provided during the calendar year. Provided, however, that such total includes at least the number of individuals required to be reported under 10 CFR 20. If personnel monitoring was not required to be provided to any individual by the licensee during the calendar year, the licensee shall submit a negative report indicating that such personnel monitoring was not required.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformence
	A statistical summary report of the personnel monitoring information recorded by the licensee for individuals for whom personnel monitorin.) was either required or provided, as described in 10 CFR 20, indicating the number of individuals whose total whole body exposure recorded during the previous calendar year was in each of estimated exposure ranges listed in 10 CFR 20.	
9.3 Reports Of Personnel Monitoring On Termination Of Employment Or Work		
	When an individual terminates employment with a licensee, or an individual assigned to work in such a licensee's facility, but not employed by the licensee, completes the work assignment in the licensee's facility, the licensee shall furnish to the Director, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, a report of the individual's exposures to radiation and radioactive material, incurred during the period of employment or work assignment in the licensee's facility, containing information recorded by the licensee. Such report shall be furnished within 30 days after the exposure of the individual has been determined by the licensee or 90 days after the date of termination of employment or work assignment, whichever is earlier.	
9.4 Notifications And Reports To Individuals		
	Requirements for notifications and reports to individuals of exposure to radiation or radioactive material are as specified in 10 CFR Sec. 19.	
	When a licensee is required pursuant to 10 CFR 20 to report to the Commission any exposure of an individual to radiation or radioactive material, the licensee shall also notify the individual. Such notice shall be transmitted at a time not later than the transmittal to the Commission, and shall comply with the provisions of 10 CFR 19.	
10.0 Radiation Safety Procedures		
	Records and commitments associated with RSP-003, "Control of Radiation Safety Procedures" are current and in order.	
	Records and commitments associated with RSP-004, "Radiation Protection Records" are current and in order.	
	Records and commitments associated with RSP-005, "ALARA Program" are current and in order.	
	Records and commitments associated with RSP-006, "Training and Qualifications of Radiation Protection Personnel" are current and in order.	
	Records and commitments associated with RSP-007, "Training in Radiation Protection" are current and in order.	
	Records and commitments associated with RSP-008, "Instrumentation and Surveillance" are current and in order.	
	Records and commitments associated with RSP-009, "Contamination Control" are current and in order.	
	Records and commitments associated with RSP-010, "Exposure Control" are current and in order.	
	Records and commitments associated with RSP-011, "Radiological Areas and Posting" are current and in order.	
	Records and commitments associated with RSP-012, "Control of Work" are current and in order.	
	Records and commitments associated with RSP-013, "Control of Radioactive Waste" are current and in order.	
	Records and commitments associated with RSP-014, "Receipt, Handling, and Identification of Radioactive Materials" are current and in order.	
	Records and commitments associated with RSP-015, "Packaging and Transportation of Radioactive Materials" are current and in order.	
	Records and commitments associated with RSP-016, "Emergency Response and Notifications" are current and in order.	
	Records and commitments associated with RSP-019, "Stop Work Authority" are current and in order.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
11.0 Shipping Container Inspections		
	Inspections are consistent with the requirements in ISP-33	
12.0 Field Service Procedures		
	Field Service Technician training pursuant to RSP-006 is current.	
	A personnel dosimeter (TLD) and self-reading dosimeter (SRD) is worn.	
	A functional, calibrated survey instrument with an audible response indicator is strategically positioned and remains "on" throughout the period of work.	
	Proper tools and equipment are staged prior to the start of work.	
	Ropes, signs and labels are positioned prior to the start of work.	
	Radiation safety procedures specified in RSP-006 and the Field Service Technician Training Manual are implemented.	
	All forms (e.g., "Service Report", "Teletherapy Unit Five Year Inspection & Preventative Maintenance Report", "PM Checklist", "Customer Unit Function and Service Evaluation Report", "Unauthorized Field Modification") are completed correctly.	
	All entries on forms are clear and concise.	
	All required signatures on forms have been obtained.	
	Comments from hospital personnel have been obtained.	
	The work area remained neat and orderly throughout the period of work.	
	The Field Service Technician's appearance, attitude, and relationship with the customer representative(s) are appropriate.	

ATTACHMENT 3 - EXAMPLE AUDIT REPORT FORMAT

1.0 Introduction

1.1 Purpose

The Purpose section shall state the reason for the audit, and any extenuating circumstances which may have caused the audit to be conducted. If the audit is a regularly-scheduled audit, this shall be stated clearly.

1.2 Audit Team

List the auditors, identify the audit team leader, and provide a summary of the qualifications of each.

1.3 Personnel Contacted

List the personnel contacted during the audit. Personnel attending the pre-audit and post audit meetings should be identified by a plus sign (+) and asterisk sign (*), respectively.

2.0 Summary

2.1 Describe the method of audit for each area audited (i.e. review of procedure; records, interviews, etc.)

2.2 Document areas audited and found satisfactory.

2.3 Provide any additional comments related to the audit and attach the completed checklist.

2.4 List the discrepancies by Finding Report number. This summary should be a direct quote from the Finding Report.

2.5 List the items of concern (as observations)

2.6 List action taken by the licensee on previous Finding Reports (i.e. follow-up verification, close-out, reissue).

3.0 Finding Reports

Finding Reports, as shown in Attachment 4, shall be prepared. They shall be self-explanatory and contain the required pertinent information. One report shall be prepared for each finding.

ATTACHMENT 4 - FINDING REPORT

Audit Number:	Date:
Facility/Location:	Contact:
Finding (Include specific citation or license requirement if a non-compliance is noted):	
Auditor's signature:	Response Due Date:
Root cause which lead to non-compliance:	
Corrective action taken/proposed to correct deficiency:	
Corrective action taken to prevent re-occurrence:	
Corrective action taken by: (signature and title)	Date corrective action implemented:
Corrective action evaluated by (evaluator's signature and date):	Implementation verified by (verifier's signature and date):

ATTACHMENT 5 - FIELD AUDIT REPORT

Audit No.	Date:
Field Service Technician:	Date of Last Training:
Work Location:	
Description of Activities Performed:	
Observations (Attach completed checklist):	
ndings (Include specific citation or license requirement if a non-compliance is noted):	
Auditor's signature:	Response due date:
Corrective action taken/proposed to correct deficiency:	
Corrective action taken to prevent re-occurrence:	
Corrective action taken by: (signature and title)	Date corrective action implemented:
Corrective action evaluated by (evaluator's signature d date):	Implementation verified by (verifier's signature and date):

5.4.3.2 Familiar with the AMS facility and key individuals.

5.4.4 The Audit Team Leader should provide timely notification to the RSO of the scheduled audit date(s).

5.5 Audit Performance

5.5.1 The Audit Team Leader should conduct a brief pre-audit meeting with management or supervisory personnel of AMS to confirm the audit scope, introduce the Audit Team, discuss the audit sequence, establish a tentative time for the post-audit meeting, and establish channels of communication.

5.5.2 Audits should be performed in accordance with an audit checklist (Attachment 2).

5.5.3 Auditor(s) should discuss audit findings freely with individuals being audited to ensure accuracy and applicability of findings.

5.5.4 The Audit Team Leader should, at the conclusion of the audit, conduct a post-audit meeting with the RSO and/or the Engineering Manager to present the preliminary audit findings and observations, and to discuss comments.

5.6 Audit Report

5.6.1 The Audit Team, upon completion of the audit, shall prepare an audit report using a format similar to the one shown in Attachment 3.

5.6.2 The audit report shall contain the following information, as a minimum:

5.6.2.1 Audit Number

5.6.2.2 Facility Description and Location

5.6.2.3 Listing of Personnel Interviewed

5.6.2.4 Listing of Documents Reviewed

5.6.2.5 Scope of Audit

5.6.2.6 Listing of Auditors and their Qualifications (indicating the Audit Team Leader)

5.6.2.7 Audit Date(s)

5.6.2.8 Finding Reports

5.6.3 The Audit Team Leader may prepare a cover letter and executive summary for the audit report.

5.6.4 Audit Reports containing observations should clearly describe the condition(s) which led to the observation.

5.6.5 Audit Reports containing Finding Reports (Attachment 4) shall require a written response by the RSO in regard to:

5.6.5.1 The root cause that lead to the condition reported in the finding;

5.6.5.2 The steps which have or should be taken to correct the condition reported in the finding;

5.6.5.3 The steps which have or should be taken to prelude recurrence (if appropriate);

5.6.5.4 The dates when indicated action was or should be completed.

5.6.6 If a written response is required, the cover letter shall recommend a 30-day response period after receipt of the audit report.

5.7 Follow-Up Actions

5.7.1 The RSO may assign responsibilities for responding to Finding Reports and tracking the status of responses.

5.7.1.1 When responses are five (5) days overdue, the RSO shall notify the responsible individual by telephone.

5.7.1.2 When responses are ten (10) days overdue, the RSO shall notify the responsible individual by memorandum or letter, with a copy to the Engineering Manager.

5.7.2 The RSO, upon receipt of completed Finding Reports, shall secure an evaluation of the responses from the Audit Team Leader.

Note: If the audit was performed by the RSO, the RSO should evaluate the adequacy of responses before proceeding further.

5.7.2.1 The results of the evaluation shall be documented on the Finding Report.

5.7.2.2 Unacceptable responses should be noted on the Finding Report, along with the specific reason for rejection.

5.7.3 The RSO shall verify and document on the Finding Report that corrective actions have been implemented.

5.7.4 Upon completion (close-out) of all Finding Reports, the RSO shall inform the RSC by memorandum or letter that all actions were completed and approved.

5.8 Field Service Audits

5.8.1 Field service procedures performed by a Field Service Technician that is qualified pursuant to RSP-006 shall be audited once per year.

5.8.2 Audits shall be performed by the RSO (or designee) in accordance with an audit checklist (Attachment 2).

5.8.3 Audits may be performed during a service call, during a simulated service call, or during a source exchange.

5.8.4 The RSO should discuss audit findings freely with the Field Service Technician being audited to ensure accuracy and applicability of findings.

5.8.5 The RSO may, at the conclusion of the audit, conduct a post-audit meeting with the RSC and/or the Engineering Manager to present the preliminary audit findings and observations.

5.8.6 The RSO, upon completion of the audit, shall prepare an audit report using a format similar to the one shown in Attachment 5.

6 EXEMPTION PROVISIONS

Variances and exceptions to the requirements of this Radiation Safety Procedure shall be permitted pursuant to the written authorization of the RSO and the Engineering Manager.

7 DOCUMENTATION

7.1 Audit records and reports shall be maintained pursuant to RSP-004.

7.2 The following records shall be maintained as a result of this procedure:

7.2.1 Audit Plans

7.2.2 Audit Reports

7.2.3 Finding Reports

7.2.4 Audit Closure Letter

7.2.5 Correspondence related to the audit.

7.2.6 Field Audit Report

7.3 All cover letters, executive summaries, Audit Reports and Finding Reports, whether draft or final, shall be addressed and transmitted to the AMS legal counsel.

Note: Audit information and correspondence that contains observations or findings shall not be transmitted directly to the RSO, the RSC, the Engineering Manager, or any operations personnel.

8 ATTACHMENTS

8.1 Attachment 1 - Audit Plan

8.2 Attachment 2 - Audit Checklist

8.3 Attachment 3 - Example Audit Report Format

8.4 Attachment 4 - Finding Report

8.5 Attachment 5 - Field Audit Report

ATTACHMENT 1 - AUDIT PLAN

Audit Number:	Facility:
Contact:	Location:
Audit Scope:	
Audit Personnel: Lead Auditor: _____ Auditor: _____ Auditor: _____ Reference Documents: _____ _____ _____ _____ _____	Audit Schedule: Audit Dates: _____ Pre-Audit Conference: _____ Post-Audit Conference: _____ Special Concerns/Items: _____ _____ _____ _____ _____
Audit Team Assignments: Lead Auditor: _____ Auditor: _____ Auditor: _____	
Review and Concurrence Prior to Audit: Lead Auditor Signature/Date: _____ Auditor Signature/Date: _____ Auditor Signature/Date: _____	
Review and Approval of Audit Check List: Lead Auditor Signature/Date: _____	
Audit Plan Developed by: Signature/Date: _____	

ATTACHMENT 2 - AUDIT CHECKLIST

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	**Criterion**	**Conformance/Nonconformance**
1.0 Surveys.		
	Each licensee shall make or cause to be made, surveys that may be necessary for the licensee to comply with the regulations in 10 CFR 20 Sec. 1501, and are reasonable under the circumstances to evaluate: A. The extent of radiation levels; and B. Concentrations or quantities of radioactive material; and C. The potential radiological hazards that could be present	
	The licensee shall ensure that instruments and equipment used for quantitative radiation measurements (e.g.,dose rate and effluent monitoring) are calibrated periodically for the radiation measured.	
2.0 Personnel Monitoring.		
	Each licensee shall supply appropriate personnel monitoring equipment to, and shall require the use of such equipment by: A. Each individual who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in any calendar year in excess of the applicable value specified in 10 CFR 20. B. Each individual under 18 years of age who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in any calendar year in excess of the value specified in 10 CFR 20. C. Each individual who enters a high radiation area.	
	All personnel dosimeters (except for direct and indirect reading pocket ionization chambers and those dosimeters used to measure the dose to hands and forearms, feet and ankles) that require processing to determine the radiation dose and that are utilized by licensees to comply with 10 CFR 20, or with conditions specified in a licensee's license must be processed and evaluated by a dosimetry processor: A. Holding current personnel dosimetry accreditation from the National Voluntary Laboratory Accreditation Program (NVLAP), and B. Approved in this accreditation process for the type of radiation or radiations included in the NVLAP program that most closely approximate the type of radiation or radiations for which the individual wearing the dosimeter is monitored.	
2.1 Use Of Individual Respiratory Protection Equipment		
	If the licensee uses respiratory protection equipment to limit intakes pursuant to 10 CFR Sec. 20.1702 the licensee shall use only respiratory protection equipment that is tested and certified or had certification extended by the National Institute for Occupational Safety and Health/Mine Safety and Health Administration (NIOSH/MSHA).	
	If the licensee wishes to use equipment that has not been tested or certified by NIOSH/MSHA, has not had certification extended by NIOSH/MSHA, or for which there is no schedule for testing or certification, the licensee shall submit an application for authorized use of that equipment, including a demonstration by testing, or a demonstration on the basis of reliable test information, that the material and performance characteristics of the equipment are capable of providing the proposed degree of protection under anticipated conditions of use.	
	The licensee shall implement and maintain a respiratory protection program that includes: A. Air sampling sufficient to identify the potential hazard, permit proper equipment selection, and estimate exposures; B. Surveys and bioassays, as appropriate, to evaluate actual intakes; C. Testing of respirators for operability immediately prior to each use; L. Written procedures regarding selection, fitting, issuance, maintenance, and testing of respirators, including testing for operability	
	The licensee shall use as emergency devices only respiratory protection equipment that has been specifically certified or had certification extended for emergency use by NIOSH/MSHA.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
	The licensee shall notify, in writing, the Director of the appropriate NRC Regional Office at least 30 days before the date that respiratory protection equipment is first used under the provisions of either 10 CFR Sec. 20.1703(a) or (b). able to use the respiratory protection equipment.	
	The licensee shall issue a written policy statement on respirator usage covering: A. The use of process or other engineering controls, instead of respirators; B. The routine, nonroutine, and emergency use of respirators; and C. The periods of respirator use and relief from respirator use.	
	The licensee shall advise each respirator user that the user may leave the area at any time for relief from respirator use in the event of equipment malfunction, physical or psychological distress, procedural or communication failure, significant deterioration of operating conditions, or any other conditions that might require such relief. The licensee shall use equipment within limitations for type and mode of use and shall provide proper visual, communication, and other special capabilities (such as adequate skin protection) when needed.	
	In estimating exposure of individuals to airborne radioactive materials, the licensee may make allowance for respiratory protection equipment used to limit intakes pursuant to 10 CFR Sec. 20.1702, provided that the following conditions, in addition to those in Sec. 20.1703(a), are satisfied: A. The licensee selects respiratory protection equipment that provides a protection factor (see 10 CFR 20 appendix A to Sect. 20.1001-20.2401) greater than the multiple by which peak concentrations of airborne radioactive materials in the working area are expected to exceed the values specified in 10 CFR 20 appendix B to Sect. 20.1001-20.2401, table 1, column 3 B. If the selection of a respiratory protection device with a protection factor greater than the peak concentration is inconsistent with the goal specified in 10 CFR Sec. 20.1702 of keeping the total effective dose equivalent ALARA. C. The licensee may select respiratory protection equipment with a lower protection factor only if such a selection would result in keeping the total effective dose equivalent ALARA. D. The concentration of radioactive material in the air that is inhaled when respirators are worn may be initially estimated by dividing the average concentration in air, during each period of uninterrupted use, by a protection factor. If the exposure is later found to be greater or less than estimated, the corrected value must be used. E. Determination by a physician prior to initial fitting of respirators, and at least every 12 months thereafter, that the individual user is physically able to use respiratory protection equipment.	
3.1 Caution Signs		
	Except as otherwise authorized, symbols shall use the conventional radiation caution colors (magenta or purple on yellow background). The symbol prescribed by this section is the conventional three-bladed design "Radiation Symbol" with a cross-hatched area that is magenta or purple with a yellow background.	
	In addition to the contents of signs and labels, information may be provided on or near such signs and labels which may be appropriate in aiding individuals to minimize exposure to radiation or to radioactive material.	
3.2 Radiation Areas.		
	Posting of radiation areas. The licensee shall post each radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIATION AREA."	
3.3 High Radiation Areas.		
	The licensee shall post each high radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, HIGH RADIATION AREA" or "DANGER, HIGH RADIATION AREA."	
3.4 Posting Of Very High Radiation Areas		
	The licensee shall post each very high radiation area with a conspicuous sign or signs bearing the radiation symbol and words "GRAVE DANGER, VERY HIGH RADIATION AREA."	
3.5 Control Of Access To Very High Radiation Areas		

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
	In addition to the requirements in 10 CFR Sec. 20.1601, the licensee shall institute additional measures to ensure that an individual is not able to gain unauthorized or inadvertent access to areas in which radiation levels could be encountered at 500 rads (5 grays) or more in 1 hour at 1 meter from a radiation source or any surface through which the radiation penetrates.	
3.6 Control Of Access To Very High Radiation Areas--Irradiators		
	Each area in which there may exist radiation levels in excess of 500 rads (5 grays) in 1 hour at 1 meter from a sealed radioactive source that is used to irradiate materials must meet the following requirements.	
	Each entrance or access point must be equipped with entry control devices which: A. Function automatically to prevent any individual from inadvertently entering the area when very high radiation levels exist; B. Permit deliberate entry into the area only after a control device is actuated that causes the radiation level within the area, from the sealed source, to be reduced below that at which it would be possible for an individual to receive a deep-dose equivalent in excess of 0.1 rem (1 mSv) in 1 hour; and C. Prevent operation of the source if the source would produce radiation levels in the area that could result in a deep-dose equivalent to an individual in excess of 0.1 rem (1 mSv) in 1 hour.	
	Additional control devices must be provided so that, upon failure of the entry control devices to function as required by 10 CFR 20.1603(a)(1): A. The radiation level within the area, from the sealed source, is reduced below that at which it would be possible for an individual to receive a deep-dose equivalent in excess of 0.1 rem (1 mSv) in 1 hour; and B. Conspicuous visible and audible alarm signals are generated to make an individual attempting to enter the area aware of the hazard and at least one other authorized individual, who is physically present, familiar with the activity, and prepared to render or summon assistance, aware of the failure of the entry control devices.	
	The licensee shall provide control devices so that, upon failure or removal of physical radiation barriers other than the source's shielded storage container: A. The radiation level from the source is reduced below that at which it would be possible for an individual to receive a deep-dose equivalent in excess of 0.1 rem (1 mSv) in 1 hour; and B. Conspicuous visible and audible alarm signals are generated to make potentially affected individuals aware of the hazard and the licensee or at least one other individual, who is familiar with the activity and prepared to render or summon assistance, aware of the failure or removal of the physical barrier.	
	When the shield for the stored source is a liquid, the licensee shall provide means to monitor the integrity of the shield and to signal, automatically, loss of adequate shielding.	
	Physical radiation barriers that comprise permanent structural components, such as walls, that have no credible probability of failure or removal in ordinary circumstances need not meet the requirements of 10 CFR 20.1603(a)(3)(4).	
	Each area must be equipped with devices that will automatically generate conspicuous visible and audible alarm signals to alert personnel in the area before the source can be put into operation and in sufficient time for any individual in the area to operate a clearly identified control device, which must be installed in the area and which can prevent the source from being put into operation.	
	Each area must be controlled by use of such administrative procedures and such devices as are necessary to ensure that the area is cleared of personnel prior to each use of the source.	
	Each area must be checked by a radiation measurement to ensure that, prior to the first individual's entry into the area after any use of the source, the radiation level from the source in the area is below that at which it would be possible for an individual to receive a deep-dose equivalent in excess of 0.1 rem (1 mSv) in 1 hour.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
	The entry control devices required in 10 CFR Sec. 20.1603(a)(1) must have been tested for proper functioning: A. Testing must be conducted prior to initial operation with the source of radiation on any day (unless operations were continued uninterrupted from the previous day). B. Testing must be conducted prior to resumption of operation of the source of radiation after any unintended interruption. C. The licensee shall submit and adhere to a schedule for periodic tests of the entry control and warning systems.	
	The licensee may not conduct operations, other than those necessary to place the source in safe condition or to effect repairs on controls, unless control devices are functioning properly.	
	Entry and exit portals that are used in transporting materials to and from the irradiation area, and that are not intended for use by individuals, must be controlled by such devices and administrative procedures as are necessary to physically protect and warn against inadvertent entry by any individual through these portals. Exit portals for processed materials must be equipped to detect and signal the presence of any loose radiation sources that are carried toward such an exit and to automatically prevent loose radiation sources from being carried out of the area.	
	Persons holding licenses or applicants for licenses for radiation sources that are within the purview of 10 CFR 20.1603(a) and that will be used in a variety of positions or in locations, such as open fields or forests, that make it impracticable to comply with certain requirements of 10 CFR 20.1603(a), such as those for the automatic control of radiation levels, may apply to the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, for approval of the use of alternative safety measures. Any alternative safety measures must provide a degree of personnel protection at least equivalent to those specified in 10 CFR 20.1603(a). At least one of the alternative measures must include an entry-preventing interlock control based on a measurement of the radiation that ensures the absence of high radiation levels before an individual can gain access to the area where such radiation sources are used.	
	The entry control devices required by 10 CFR 20.1603(a)(b) must be established in such a way that no individual will be prevented from leaving the area.	
3.6 Airborne Radioactivity Areas.		
	"Airborne Radioactivity Area" means any room, enclosure, or operating area in which airborne radioactive materials composed wholly or partly of licensed material, exist in concentrations in excess of the amounts specified in Appendix B, Table I, Column 1 of 10 CFR 20,	
	The licensee shall post each airborne radioactivity area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, AIRBORNE RADIOACTIVITY AREA" or "DANGER, AIRBORNE RADIOACTIVITY AREA."	
	When it is not practicable to apply process or other engineering controls to control the concentrations of radioactive material in air to values below those that define an airborne radioactivity area, the licensee shall, consistent with maintaining the total effective dose equivalent ALARA, increase monitoring and limit intakes by one or more of the following means: Control of access; Limitation of exposure times; Use of respiratory protection equipment; or Other controls.	
3.7 Posting Of Areas Or Rooms In Which Licensed Material Is Used Or Stored		
	Additional requirements include that each area or room in which licensed material is used or stored, which contains any radioactive material (other than natural uranium or thorium) in an amount exceeding 10 times the quantity of such material specified shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words "CAUTION RADIOACTIVE MATERIAL(S)".	
	Areas or rooms in which natural uranium or thorium is used or stored in any amount exceeding one hundred times the quantity specified shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words "CAUTION RADIOACTIVE MATERIAL(S)".	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	**Criterion**	**Conformance/Nonconformance**
3.8 Containers.		
	The licensee shall ensure that each container of licensed material bears a durable, clearly visible label bearing the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL" or "DANGER, RADIOACTIVE MATERIAL." The label must also provide sufficient information (such as the radionuclide(s) present, an estimate of the quantity of radioactivity, the date for which the activity is estimated, radiation levels, kinds of materials) to permit individuals handling or using the containers, or working in the vicinity of the containers, to take precautions to avoid or minimize exposures.	
	Each licensee shall, prior to removal or disposal of empty uncontaminated containers to unrestricted areas, remove or deface the radioactive material label or otherwise clearly indicate that the container no longer contains radioactive materials.	
3.9 Exceptions to Posting/Labeling		
	A room or area is not required to be posted with a caution sign because of the presence of a sealed source provided the radiation level twelve inches from the surface of the source container or housing does not exceed five millirem per hour.	
	Caution signs are not required to be posted at areas or rooms containing radioactive materials for periods of less than eight hours provided that the materials are constantly attended during such periods by an individual, who shall take the precautions necessary to prevent the exposure of any individual to radiation or radioactive materials in excess of the limits established in the regulations such area or room is subject to the licensee's control.	
	A room or other area is not required to be posted with a caution sign, and control is not required for each entrance or access point to a room or other area which is a high radiation area solely because of the presence of radioactive materials prepared for transport and packaged and labeled in accordance with regulations of the Department of Transportation.	
4.0 Procedures For Picking Up, Receiving, And Opening Packages.		
	Each licensee who expects to receive a package containing quantities of radioactive material in excess of the Type A quantities specified in 10 CFR Sec. 20.205(b) shall: A. If the package is to be delivered to the licensee's facility by the carrier, make arrangements to receive the package when it is offered for delivery by the carrier; or B. If the package is to be picked up by the licensee at the carrier's terminal, make arrangements to receive notification from the carrier of the arrival of the package, at the time of arrival.	
	Each licensee who picks up a package of radioactive material from a carrier's terminal shall pick up the package expeditiously upon receipt of notification from the carrier of its arrival.	
	Each licensee, upon receipt of a package of radioactive material, shall monitor the external surfaces of the package for radioactive contamination caused by leakage of the radioactive contents, except: A. Packages containing no more than the exempt quantity specified in 10 CFR 20. B. Packages containing only radioactive material as gases or in special form; C. Packages containing only radioactive material in other than liquid form (including Mo-99/Tc-99m generators) and not exceeding the Type A quantity limit specified in the table in this paragraph; and D. Packages containing only radionuclides with half-lives less than 30 days and a total quantity of no more than 100 millicuries.	
	The monitoring shall be performed as soon as practicable after receipt, but no later than three hours after the package is received at the licensee's facility if received during the licensee's normal working hours, or eighteen hours if received after normal working hours.	
	If removable radioactive contamination in excess of 0.01 microcuries (22,000 disintegrations per minute) per 100 square centimeters of package surface is found on the external surface of the package the licensee shall immediately notify the final delivering carrier and, by telephone and telegraph, mailgram or facsimile, the appropriate USNRC Regional Office.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
	Each licensee, upon receipt of a package containing quantities of radioactive material in excess of the Type A quantities specified in 10 CFR 20, other than those transported by exclusive use vehicle, shall monitor the radiation levels external to the package.	
	If radiation levels are found on the external surface of the package in excess of 200 millirem per hour, or at three feet from the external surface of the package in excess of 10 millirem per hour, the licensee shall immediately notify by telephone and telegraph, mialgram, or facsimile, the director of the appropriate USNRC Regional Office and the final delivering carrier.	
	Each licensee shall establish and maintain procedures for safely opening packages in which licensed material is received, and shall assure that such procedures are followed and that due consideration is given to special instructions for the type of package being opened.	
5.0 Storage And Control Of Licensed Materials In Unrestricted Areas		
	Licensed materials stored in an unrestricted area shall be secured from unauthorized removal from the place of storage.	
	Licensed materials in an unrestricted area and not in storage shall be tended under the constant surveillance and immediate control of the licensee.	
J Waste Disposal		
	The licensee shall dispose of licensed material only; A. By transfer to an authorized recipient as provided in 10 CFR Sec. 20.2006 or in the regulations in parts 30, 40, 60, 61, 70, or 72; or B. By decay in storage; or C. By release in effluents within the limits in 10 CFR Sec. 20.1301; or D. As authorized under 10 CFR Secs. 20.2002, 20.2003, 20.2004, or Sec. 20.2005.	
	A person must be specifically licensed to receive waste containing licensed material from other persons for: A. Treatment prior to disposal; or B. Treatment or disposal by incineration; or C. Decay in storage; or D. Disposal at a land disposal facility licensed under 10 CFR 20 part 61 chapter; or E. Disposal at a geologic repository under 10 CFR 20 part 60.	
6.1 Disposal By Release Into Sanitary Sewerage Systems		
	A licensee may discharge licensed material into sanitary sewerage if each of the following conditions is satisfied:	
	The material is readily soluble (or is readily dispersible biological material) in water.	
	The quantity of licensed or other radioactive material that the licensee releases into the sewer in 1 month divided by the average monthly volume of water released into the sewer by the licensee does not exceed the concentration listed in 10 CFR 20 table 3 of appendix B to Secs. 20.1001-20.2401	
	If more than one radionuclide is released, the following conditions must also be satisfied: A. The licensee shall determine the fraction of the limit in 10 CFR 20 table 3 of appendix B to Secs. 20.1001-20.2401 represented by discharges into sanitary sewerage by dividing the actual monthly average concentration of each radionuclide released by the licensee into the sewer by the concentration of that radionuclide listed in table 3 of appendix B to Secs. 20.1001-20.2401; and B. The sum of the fractions for each radionuclide required by 10 CFR Sec. 20.003(a)(3)(ii) does not exceed unity; and hydrogen-3, 1 curie (37 GBq) of carbon-14, and 1 curie (37 GBq) of all other radioactive materials combined. C. The total quantity of licensed and other radioactive material that the licensee releases into the sanitary sewerage system in a year does not exceed 5 curies (185 GBq) of hydrogen-3, one curie (37 Gbq) of carbon-14 and one curie (37 Gbq) of all other radioactive materials combined.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
6.2 Transfer For Disposal And Manifests		
	Each shipment of radioactive waste intended for disposal at a licensed land disposal facility must be accompanied by a shipment manifest.	
	Each shipment manifest must include a certification by the waste generator as specified in 10 CFR 20 section II of appendix F to 20.1001-20.2401.	
	Each person involved in the transfer for disposal and disposal of waste, including the waste generator, waste collector, waste processor, and disposal facility operator, shall comply with the requirements specified in 10 CFR 20 section III of appendix F.	
7.0 Records Of Surveys, Radiation Monitoring, And Disposal		
	The licensee shall maintain records showing the radiation exposures of all individuals for whom personnel monitoring is required under 10 CFR 20.	
	Such records shall be kept on Form NRC-5, in accordance with the instructions contained in that form or on clear and legible records containing all the information required by Form NRC-5.	
	The doses entered on the forms or records shall be for periods of time not exceeding one calendar quarter.	
	The licensee shall maintain records in the same units, showing the results of surveys, monitoring, and disposal as required under 10 CFR 20 and 61.	
	Records of individual exposure to radiation and to radioactive material which must be maintained and records of bioassays, including results of whole body counting examinations shall be preserved until the Commission authorizes disposition.	
	Records of the results of surveys and monitoring which must be maintained shall be preserved for two years after completion of the survey except that the following records shall be maintained until the Commission authorizes their disposition: A. Records of the results of surveys to determine compliance with 10 CFR 20 B. in the absence of personnel monitoring data, records of the results of surveys to determine external radiation dose; and C. records of the results of surveys used to evaluate the release of radioactive effluents to the environment.	
	Records of disposal of licensed materials made pursuant to 10 CFR 20 61 are to be maintained until the Commission authorizes their disposition.	
	Records which must be maintained pursuant to this part may be the original or a reproduced copy or microform if such reproduced copy or microform is duly authenticated by authorized personnel and the microform is capable of producing a clear and legible copy after storage for the period specified by Commission regulations.	
8.0 Reports Of Theft Or Loss Of Licensed Material		
	Each licensee shall report to the Commission, by telephone, immediately after it determines that a loss or theft of licensed material has occurred in such quantities and under such circumstances that it appears to the licensee that a substantial hazard may result to persons in unrestricted areas.	
	Reports must be made as follows: A. Licensees having an installed Emergency Notification System shall make the reports to the NRC Operations Center in accordance with 10 CFR Sec. 50.72. B. All other licensees shall make reports to the Administrator of the appropriate NRC Regional Office.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	**Criterion**	**Conformance/Nonconformance**
	Each licensee who makes a report under 10 CFR Sec. 20 shall, within 30 days after learning of the loss or theft, make a report in writing to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, DC 20555, with a copy to the appropriate NRC Regional Office. The report shall include the following information: A. A description of the licensed material involved, including kind, quantity, chemical, and physical form; B. A description of the circumstances under which the loss or theft occurred; C. A statement of disposition or probable disposition of the licensed material involved; D. Radiation exposures to individuals, circumstances under which the exposures occurred, and the extent of possible hazard to persons in unrestricted areas; E. Actions which have been taken, or will be taken, to recover the material; and F. Procedures or measures which have been or will be adopted to prevent recurrence of the loss or theft of licensed material.	
	Subsequent to filing the written report the licensee shall also report any substantive additional information on the loss or theft which becomes available to the licensee, within 30 days after he learns of such information.	
	Any report filed with the Commission pursuant to this section shall be so prepared that names of individuals who may have received exposure to radiation are stated in a separate part of the report.	
0 Notifications Of Incidents		
	Licensees shall immediately report any events involving byproduct, source, or special nuclear material possessed by the licensee that may have caused or threatens to cause: A. Exposure of the whole body of any individual to 25 rems or more of radiation; exposure of the skin of the whole body of any individual of 150 rems or more or radiation; or exposure of the feet, ankles, hands or forearms of any individual to 375 rems or more of radiation; or B. The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 5,000 times the limits specified for such materials in 10 CFR 20 Appendix B, Table II; or C. A loss of one working week or more of the operation of any facilities affected; or D. Damage to property in excess of $200,000.	
	Each licensee shall within 24 hours of discovery of the event, report any event involving licensed material possessed by the licensee that may have caused or threatens to cause: A. Exposure of the whole body of any individual to 5 rems or more of radiation; exposure of the skin of the whole body of any individual to 30 rems or more of radiation; or exposure of the feet, ankles, hands, or forearms to 75 rems or more of radiation; or B. The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 500 times the limits specified for such materials in 10 CFR 20 Appendix B; or C. A loss of one day or more of the operation of any facilities affected; or D. Damage to property in excess of $2,000.	
	Any report filed with the Commission pursuant to this section shall be prepared so that names of individuals who have received exposure to radiation will be stated in a separate part of the report.	
	Reports made by licensees in response to the requirements of this section must be made as follows: A. Licensees that have an installed Emergency Notification System shall make the reports required by 10 CFR 20 to the NRC Operations Center in accordance with 10 CFR Sec. 50.72. B. All other licensees shall make the reports required by 10 CFR 20 by telephone to the NRC Operations Center and by telegram, mailgram, or facsimile to the Administrator of the appropriate NRC Regional Office.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
9.1 Reports Of Overexposure And Excessive Levels And Concentrations		
	In addition to any notification required by 10 CFR 20, each licensee shall make a report in writing concerning any one of the following types of incidents within 30 days of its occurrence: A. Each exposure of an individual to radiation in excess of the applicable limits in 10 CFR 20 or the license; B. Each exposure of an individual to radioactive material in excess of the applicable limits in 10 CFR 20 or the license; C. Levels of radiation or concentrations of radioactive material in a restricted area in excess of any other applicable limit in the license; D. Any incident for which notification is required by 10 CFR 20; or E. Levels of radiation or concentrations of radioactive material (whether or not involving excessive exposure of any individual) in an unrestricted area in excess of ten times any applicable limit set forth in 10 CFR Sec. 20 or in the license.	
	Each report required under 10 CFR Sec. 20 must describe the extent of exposure of individuals to radiation or to radioactive material, including: A. Estimates of each individual's exposure B. Levels of radiation and concentrations of radioactive material involved; C. The cause of the exposure, levels or concentrations; and D. Corrective steps taken or planned to prevent a recurrence.	
	Reports filed with the Commission shall include for each individual exposed the name, social security number, and date of birth, and an estimate of the individual's exposure. The report shall be prepared so that this information is stated in a separate part of the report.	
	In addition to any notification required by 10 CFR 20, each licensee shall make a report in writing of levels of radiation or releases of radioactive material in excess of limits specified by 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," or in excess of license conditions related to compliance with 40 CFR Part 190.	
	Each report submitted under 10 CFR 20 must describe: A. The extent of exposure of individuals to radiation or to radioactive material; B. Levels of radiation and concentrations of radioactive material involved; C. The cause of the exposure, levels, or concentrations; and D. Corrective steps taken or planned to assure against a recurrence, including the schedule for achieving conformance with 40 CFR Part 190 and with associated license conditions.	
	Licensees who make reports under 10 CFR 20 within 30 days after learning of the overexposure or excessive level or concentration, make a report in writing to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, D.C. 20555, with a copy to the appropriate NRC Regional Office.	
9.2 Personnel Monitoring Reports		
	Each person described in 10 CFR 20 shall, within the first quarter of each calendar year, submit to the Director, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, the reports specified in 10 CFR 20, covering the preceding calendar year.	
	A report of either (1) the total number of individuals for whom personnel monitoring was required during the calendar year; or (2) the total number of individuals for whom personnel monitoring was provided during the calendar year. Provided, however, that such total includes at least the number of individuals required to be reported under 10 CFR 20. If personnel monitoring was not required to be provided to any individual by the licensee during the calendar year, the licensee shall submit a negative report indicating that such personnel monitoring was not required.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
	A statistical summary report of the personnel monitoring information recorded by the licensee for individuals for whom personnel monitoring was either required or provided, as described in 10 CFR 20, indicating the number of individuals whose total whole body exposure recorded during the previous calendar year was in each of estimated exposure ranges listed in 10 CFR 20.	
9.3 Reports Of Personnel Monitoring On Termination Of Employment Or Work		
	When an individual terminates employment with a licensee, or an individual assigned to work in such a licensee's facility, but not employed by the licensee, completes the work assignment in the licensee's facility, the licensee shall furnish to the Director, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, a report of the individual's exposures to radiation and radioactive material, incurred during the period of employment or work assignment in the licensee's facility, containing information recorded by the licensee. Such report shall be furnished within 30 days after the exposure of the individual has been determined by the licensee or 90 days after the date of termination of employment or work assignment, whichever is earlier.	
9.4 Notifications And Reports To Individuals		
	Requirements for notifications and reports to individuals of exposure to radiation or radioactive material are as specified in 10 CFR Sec. 19.	
	When a licensee is required pursuant to 10 CFR 20 to report to the Commission any exposure of an individual to radiation or radioactive material, the licensee shall also notify the individual. Such notice shall be transmitted at a time not later than the transmittal to the Commission, and shall comply with the provisions of 10 CFR 19.	
10.0 Radiation Safety Procedures		
	Records and commitments associated with RSP-003, "Control of Radiation Safety Procedures" are current and in order.	
	Records and commitments associated with RSP-004, "Radiation Protection Records" are current and in order.	
	Records and commitments associated with RSP-005, "ALARA Program" are current and in order.	
	Records and commitments associated with RSP-006, "Training and Qualifications of Radiation Protection Personnel" are current and in order.	
	Records and commitments associated with RSP-007, "Training in Radiation Protection" are current and in order.	
	Records and commitments associated with RSP-008, "Instrumentation and Surveillance" are current and in order.	
	Records and commitments associated with RSP-009, "Contamination Control" are current and in order.	
	Records and commitments associated with RSP-010, "Exposure Control" are current and in order.	
	Records and commitments associated with RSP-011, "Radiological Areas and Posting" are current and in order.	
	Records and commitments associated with RSP-012, "Control of Work" are current and in order.	
	Records and commitments associated with RSP-013, "Control of Radioactive Waste" are current and in order.	
	Records and commitments associated with RSP-014, "Receipt, Handling, and Identification of Radioactive Materials" are current and in order.	
	Records and commitments associated with RSP-015, "Packaging and Transportation of Radioactive Materials" are current and in order.	
	Records and commitments associated with RSP-016, "Emergency Response and Notifications" are current and in order.	
	Records and commitments associated with RSP-019, "Stop Work Authority" are current and in order.	

Name(s) of Auditor(s):		Date of Audit:
Included in Audit (yes/no)	Criterion	Conformance/Nonconformance
11.0 Shipping Container Inspections		
	Inspections are consistent with the requirements in ISP-33	
12.0 Field Service Procedures		
	Field Service Technician training pursuant to RSP-006 is current.	
	A personnel dosimeter (TLD) and self-reading dosimeter (SRD) is worn.	
	A functional, calibrated survey instrument with an audible response indicator is strategically positioned and remains "on" throughout the period of work.	
	Proper tools and equipment are staged prior to the start of work.	
	Ropes, signs and labels are positioned prior to the start of work.	
	Radiation safety procedures specified in RSP-006 and the Field Service Technician Training Manual are implemented.	
	All forms (e.g., "Service Report", "Teletherapy Unit Five Year Inspection & Preventative Maintenance Report", "PM Checklist", "Customer Unit Function and Service Evaluation Report", "Unauthorized Field Modification") are completed correctly.	
	All entries on forms are clear and concise.	
	All required signatures on forms have been obtained.	
	Comments from hospital personnel have been obtained.	
	The work area remained neat and orderly throughout the period of work.	
	The Field Service Technician's appearance, attitude, and relationship with the customer representative(s) are appropriate.	

ATTACHMENT 3 - EXAMPLE AUDIT REPORT FORMAT

1.0 Introduction

1.1 Purpose

The Purpose section shall state the reason for the audit, and any extenuating circumstances which may have caused the audit to be conducted. If the audit is a regularly-scheduled audit, this shall be stated clearly.

1.2 Audit Team

List the auditors, identify the audit team leader, and provide a summary of the qualifications of each.

1.3 Personnel Contacted

List the personnel contacted during the audit. Personnel attending the pre-audit and post audit meetings should be identified by a plus sign (+) and asterisk sign (*), respectively.

2.0 Summary

2.1 Describe the method of audit for each area audited (i.e. review of procedure; records, interviews, etc.)

2.2 Document areas audited and found satisfactory.

2.3 Provide any additional comments related to the audit and attach the completed checklist.

2.4 List the discrepancies by Finding Report number. This summary should be a direct quote from the Finding Report.

2.5 List the items of concern (as observations)

2.6 List action taken by the licensee on previous Finding Reports (i.e. follow-up verification, close-out, reissue).

3.0 Finding Reports

Finding Reports, as shown in Attachment 4, shall be prepared. They shall be self-explanatory and contain the required pertinent information. One report shall be prepared for each finding.

ATTACHMENT 4 - FINDING REPORT

Audit Number:	Date:
Facility/Location:	Contact:
Finding (Include specific citation or license requirement if a non-compliance is noted):	
Auditor's signature:	Response Due Date:
Root cause which lead to non-compliance:	
Corrective action taken/proposed to correct deficiency:	
Corrective action taken to prevent re-occurrence:	
Corrective action taken by: (signature and title)	Date corrective action implemented:
Corrective action evaluated by (evaluator's signature and date):	Implementation verified by (verifier's signature and date):

ATTACHMENT 5 - FIELD AUDIT REPORT

Audit No.	Date:
Field Service Technician:	Date of Last Training:
Work Location:	
Description of Activities Performed:	
Observations (Attach completed checklist):	
ndings (Include specific citation or license requirement if a non-compliance is noted):	
Auditor's signature:	Response due date:
Corrective action taken/proposed to correct deficiency:	
Corrective action taken to prevent re-occurrence:	
Corrective action taken by: (signature and title)	Date corrective action implemented:
Corrective action evaluated by (evaluator's signature and date):	Implementation verified by (verifier's signature and date):

TASK LIST

SUBCONTRACTOR agrees to perform the following services subject to the assumptions and specifications provided herein and in the Agreement:

Task 1: Procedure Development and Permitting for Sealed Sources

Task Description: SUBCONTRACTOR shall provide sufficient consultation services prior to source shipping to ensure on-site activities are efficient and effective. In addition, SUBCONTRACTOR shall prepare all shipping papers and permit forms pursuant to 10 CFR 61 and 71 and all other applicable federal, state and disposal site regulations.

Assumptions:

- The SUBCONTRACTOR shall utilize this opportunity to identify means for minimizing the number of shipments to the disposal site from AMS, reducing the total disposal volume, and refining the initial cost estimates shown in Exhibit 2 for Tasks 2 and 3.
- The sealed sources to be shipped are those described in Tasks 2 and 3.
- All labor and expenses are included.
- All personnel, procedures, equipment and casks provided by SUBCONTRACTOR shall comply with applicable regulatory agency-approved Quality Assurance Programs, licenses and permits.

AMS Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.
- Provide access to all locations within the London Road facility as may be necessary for the SUBCONTRACTOR to develop site-specific procedures.

SUBCONTRACTOR Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.
- Provide at least 72 hours notice as to when a site visit is desired.
- Provide written instructions to AMS in regard to the means by which sources and shipping casks should be prepared and staged.
- Provide a variance write-up (change order) for the subcontract between SUBCONTRACTOR and AMS, including a fixed price cost for performing Tasks 2 and 3.
- Prepare all applications, permits (including notifications for route-controlled shipments) and other documentation required for shipment of the sealed sources.
- Provide written instructions to AMS on the methodology for submission execution of applications, permits and other documents that are the responsibility of the generator.
- As necessary, participate in communications between AMS and the USNRC in regard to licensing issues.

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Period of Performance:
This task shall be completed within 30 days after execution of the Agreement.

Task 2: Receipt, Packaging, Transport and Disposal of "Unpackaged" Sealed Sources

Task Description: SUBCONTRACTOR shall receive, package, transport and dispose of approximately 32,000 curies of sealed sources of ^{60}Co.

Assumptions:

- The unpackaged sealed sources of ^{60}Co shall consist of the following:

  (1) 100 sources currently located in the Source Garden with a total volume of approximately 9703 cm^3 and a curie content of 21989 as of June 14, 1996.

  (2) Seven (7) sources currently located in the Hot Cell or Source Garden with a total volume of approximately 679 cm^3 and a curie content of 3562 as of June 14, 1996.

  (3) Eight (8) sources currently located in source exchange heads or shipping containers with a total volume of approximately 776 cm^3 and a curie content of 5604 as of June 14, 1996.

- The sources shall be located at 1020 London Road, Cleveland, Ohio, 44110.

- The disposal site shall be the Barnwell Low-Level Radioactive Waste Management Facility (South Carolina).

- The sources shall be packaged in a shielded transfer container that is suitable for this purpose prior to loading in a shipping cask in preparation for stabilization by cement solidification.

- Following the appropriate cure of the solidification matrix, cask closure procedures will proceed in preparation for shipment to the disposal site.

- Sources shall be transferred to the disposal site in a single shipment.

- All labor and expenses, including state/local taxes, are included.

- All personnel, equipment and casks provided by SUBCONTRACTOR shall comply with applicable regulatory agency-approved Quality Assurance Programs, licenses and permits.

AMS Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.

- Inventory and load sealed sources into the shielded transfer container.

- Provide physical characteristics, radiological composition, representative exposure rate and contamination levels or other information as deemed necessary by AMS and SUBCONTRACTOR to satisfactorily specify and perform services.

- Transfer the loaded container to a pre-determined staging area within the London Road facility.

- Provide work space for packaging and shipment certification service, storage of shipping containers, loading/unloading of shipping containers, administrative work area, and personnel hygiene area.

- Operate existing in-house material handling equipment for the loading of packaged material into/on the shipping containers/equipment and, as necessary, to support the packaging and shipment certification service.

- Provide radiation protection services and health physics coverage.

- Provide up to two (2) AMS employees to render assistance, as needed, for this task.

- Provide other radiation protection equipment (e.g., protective clothing, survey instruments, portable shielding, etc.) as may be available at the London Road facility or as specified by SUBCONTRACTOR in advance of on-site work.

SUBCONTRACTOR Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.

- Provide a schedule for all activities.

- Provide a listing of specialty equipment and services that AMS must supply in advance of on-site work.

- Provide, in advance of on-site work, a copy of written procedures and work instructions for AMS approval and for AMS use in preparing a Radiation Work Permit.

- Provide project management for on-site work.

- Provide the required shielded liner, shipping container, packaging materials, shipping documents, labels, placards and materials/components procedures in accordance with SUBCONTRACTOR's Quality Assurance Program for packaging and transport of the sealed sources.

- Provide exclusive-use transportation of the packaged sources to the disposal site.

- Transfer the shipment from the AMS facility to the transport vehicle.

- Ensure compliance with all USNRC, DOT, South Carolina and Ohio laws and regulations for loading, shipment and disposal of the materials addressed in this task.

- Ensure Barnwell acceptance of the shipment based upon the AMS description of its physical and radiological characteristics.

- Provide a receipt of disposal within one week of acceptance of the sources at the disposal site.

Period of Performance:
This task shall be completed within 60 days after AMS authorization to proceed is given.

Task 3: Receipt, Packaging, Transport and Disposal of GE-500 and "Blue" Cask

Task Description: SUBCONTRACTOR shall receive, package, transport and dispose of approximately 19,400 curies of sealed sources and bulk canisters of ^{60}Co.

Assumptions:

- The sealed sources and bulk canisters of ^{60}Co shall consist of the following:

  (1) 28 sources currently located in the GE-500 Cask with a total volume of approximately 2717 cm^3 and a curie content of 10,080 as of June 14, 1996.

  (2) 18 sources currently located in the "Blue Cask" with a total volume of approximately 1,747 cm^3 and a curie content of 9,306 as of June 14, 1996.

- The sources shall be located at 1020 London Road, Cleveland, Ohio, 44110.

- The disposal site shall be the Barnwell Low-Level Radioactive Waste Management Facility (South Carolina).

- The GE-500 will be inspected, verified shippable, sourced to a transport trailer and transported to the disposal site for direct disposal.

- The "Blue Cask" will be shipped in a CS-8-120 "B" Cask.

- The CNS-8-120 "B" Cask will be preshored, to the greatest extent possible, to accommodate the "Blue Cask" for transport.

- The "Blue Cask" will be loaded into the prepared shoring inside the shipping cask, sourced to a transport trailer, and transported to the disposal site for direct disposal.

- The GE-500 and the "Blue Cask" shall be transferred to the disposal site in a single shipment.

- All labor and expenses, including state/local taxes, are included.

- All personnel, equipment and casks provided by SUBCONTRACTOR shall comply with applicable regulatory agency-approved Quality Assurance Programs, licenses and permits.

AMS Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.

- Inventory sealed sources.

- Using in-house handling equipment, assist in loading "Blue Cask" into preshored CNS-8-120 "B" Cask.

- Provide physical characteristics, radiological composition, representative exposure rate and contamination levels or other information deemed necessary by AMS and SUBCONTRACTOR to satisfactorily specify and perform services.

- Transfer the casks to a pre-determined staging area within the London Road facility.

- Provide work space for packaging and shipment certification service, storage of shipping containers, loading/unloading of shipping containers, administrative work area, and personnel hygiene area.

- Operate existing in-house material handling equipment for the loading of packaged material into/on the shipping containers/equipment and, as necessary, to support the packaging and shipment certification service.

- Provide radiation protection services and health physics coverage.

- Provide up to two (2) AMS employees to render assistance, as needed, for this task.

- Provide other radiation protection equipment (e.g., protective clothing, survey instruments, portable shielding, etc.) as may be available at the London Road facility or as specified by SUBCONTRACTOR in advance of on-site work.

SUBCONTRACTOR Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.

- Provide a schedule for all activities.

- Provide a listing of specialty equipment and services that AMS must supply in advance of on-site work.

- Provide, in advance of on-site work, a copy of written procedures and work instructions for AMS approval and for AMS use in preparing a Radiation Work Permit.

- Obtain all necessary variances for shipment of either cask.

- Provide project management for on-site work.

- Provide the preshored CNS-8-120 "B" cask, packaging materials, shipping documents, labels, placards and materials/components/procedures in accordance with SUBCONTRACTOR's Quality Assurance Program for packaging and transport of the sealed sources.

- Provide exclusive-use transportation of the packaged sources to the disposal site.

- Transfer the shipment from the AMS facility to the transport vehicle.

- Ensure compliance with all USNRC, DOT, South Carolina and Ohio laws and regulations for loading, shipment and disposal of the materials addressed in this task.

- Ensure Barnwell acceptance of the shipment based upon the AMS description of its physical and radiological characteristics.

- Provide a receipt of disposal within one week of acceptance of the sources at the disposal site.

Period of Performance:
This task shall be completed within 60 days after AMS authorization to proceed is given.

Task 4: Procedure Development, Permitting and Packaging/Shorting/Banding of Waste

Task Description: SUBCONTRACTOR shall provide sufficient consultation services prior to shipping to ensure on-site activities are efficient and effective. In addition, SUBCONTRACTOR shall prepare all shipping papers and permit forms pursuant to 10 CFR 61 and all other applicable federal, state and disposal site regulations.

Assumptions:

- The waste to be shipped shall be as described in Tasks 5 through 10.
- The SUBCONTRACTOR shall utilize this opportunity to identify means of minimizing the number of shipments to the disposal site from AMS, minimizing the total disposal volume (e.g., compaction, supercompaction, incineration) and refining the initial cost estimates shown in Exhibit 2 for Tasks 5 through 10.
- The waste to be shipped is the material described in Tasks 5 through 10.
- All labor and expenses, including state/local taxes, are included.
- All personnel, procedures, equipment and casks provided by SUBCONTRACTOR shall comply with applicable regulatory agency-approved Quality Assurance Programs, licenses and permits.

AMS Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.
- Provide access to all locations within the London Road facility as may be necessary for the SUBCONTRACTOR to develop site-specific procedures.

SUBCONTRACTOR Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.
- Provide at least 72 hours notice as to when a site visit is desired.
- Provide written instructions to AMS in regard to the means by which each form of waste should be prepared and staged
- Provide a variance write-up (change order) for the subcontract between SUBCONTRACTOR and AMS, including a fixed price cost for performing Tasks 5 through 10.
- As necessary, participate in communications between AMS and the USNRC in regard to licensing issues.
- Prepare all applications, permits and other documentation required for shipment of the waste.
- Provide written instructions to AMS on the methodology for submission/execution of applications, permits and other documents that are the responsibility of the generator.

Period of Performance:
This task shall be completed within 30 days after AMS authorization to proceed is given.

Task 5: Receipt, Packaging, Transport and Disposal of DAW in Shielded Drums

Task Description: SUBCONTRACTOR shall receive, package, transport and dispose of 18 shielded drums (55-gallon) of dry solid waste containing ^{60}Co.

Assumptions:

- A total of 18 drums shall be staged for this task.

- The weight of each drum is at least 1,000 pounds.
- The drums shall be located at 1020 London Road, Cleveland, Ohio, 44110.
- The contact exposure rate on the drums may exceed 1,000 mR per hour, with certain drums exhibiting contact exposure rates in excess of 50 R per hour at isolated locations.
- The disposal site shall be the Barnwell Low-Level Radioactive Waste Management Facility (South Carolina).
- The drums will be inspected, over-packed as necessary, sourced to a transport vehicle and transported to the disposal site for direct disposal.
- The drums shall be transferred to the disposal site in a single shipment along with the items listed in Task 6 through 10.
- All labor and expenses, including state/local taxes, are included.
- All personnel, equipment and casks provided by SUBCONTRACTOR shall comply with applicable regulatory agency-approved Quality Assurance Programs, licenses and permits.

AMS Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and **AMS**.
- Provide physical characteristics, radiological composition, representative exposure rate and contamination levels or other information as deemed necessary by **AMS** and SUBCONTRACTOR to satisfactorily specify and perform services.
- Transfer the drums to a pre-determined staging area within the London Road facility.
- Provide work space for packaging and shipment certification service, storage of shipping containers, loading/unloading of shipping containers, administrative work area, and personnel hygiene area.
- Operate existing in-house material handling equipment for the loading of drums into/on the shipping containers/equipment and, as necessary, to support the packaging and shipment certification service.
- Provide radiation protection services and health physics coverage.
- Provide up to two (2) AMS employees to render assistance, as needed, for this task.
- Provide other radiation protection equipment (e.g., protective clothing, survey instruments, portable shielding, etc.) as may be available at the London Road facility or as specified by SUBCONTRACTOR in advance of on-site work.

SUBCONTRACTOR Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and **AMS**.
- Provide a schedule for all activities.
- Provide a listing of specialty equipment and services that **AMS** must supply in advance of on-site work.
- Provide, in advance of on-site work, a copy of written procedures and work instructions for **AMS** approval and for **AMS** use in preparing a Radiation Work Permit.
- Provide project management for on-site work.
- Provide an overpack (as necessary), packaging materials, shipping documents, labels, placards and materials/components/procedures in accordance with SUBCONTRACTOR's Quality Assurance Program for packaging and transport of the drums.
- Provide transportation of the drums to the disposal site.
- Transfer the shipment from the AMS facility to the transport vehicle.
- Ensure compliance with all USNRC, DOT, South Carolina and Ohio laws and regulations for loading, shipment and disposal of the materials addressed in this task.

- Ensure Barnwell acceptance of the shipment based upon the AMS description of its physical and radiological characteristics.

- Provide a receipt of disposal within one week of acceptance of the waste at the disposal site

Period of Performance:
This task shall be completed within 60 days after AMS authorization to proceed is given.

Task 6: Receipt, Packaging, Transport and Disposal of Drummed DAW

Task Description: SUBCONTRACTOR shall receive, package, transport and dispose of 113 cubic feet of dry solid waste containing ^{60}Co, packaged in 55-gallon drums.

Assumptions:

- A total of 15 drums shall be staged for this task.

- The drums shall be located at 1020 London Road, Cleveland, Ohio, 44110.

- The contact exposure rate on the drums does not exceed 1.000 mR per hour.

- The disposal site shall be the Barnwell Low-Level Radioactive Waste Management Facility (South Carolina).

- The drums will be inspected, sourced to a transport vehicle and transported to the consolidation facility, compacted (5-to-1), and packaged for direct disposal.

- The waste is assumed to result in "not greater than Class A waste" following compaction.

- The drums shall be transferred to the disposal site in a single shipment along with the items listed in Task 5 and 7 through 10.

- All labor and expenses, including state/local taxes, are included.

- All personnel, equipment and casks provided by SUBCONTRACTOR shall comply with applicable regulatory agency-approved Quality Assurance Programs, licenses and permits.

AMS Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.

- Provide physical characteristics, radiological composition, representative exposure rate and contamination levels or other information as deemed necessary by AMS and SUBCONTRACTOR to satisfactorily specify and perform services.

- Transfer the drums to a pre-determined staging area within the London Road facility.

- Provide work space for packaging and shipment certification service, storage of shipping containers, loading/unloading of shipping containers, administrative work area, and personnel hygiene area.

- Operate existing in-house material handling equipment for the loading of drums and, as necessary, to support the shipment certification service.

- Provide radiation protection services and health physics coverage.
- Provide up to two (2) AMS employees to render assistance, as needed, for this task.
- Provide other radiation protection equipment (e.g., protective clothing, survey instruments, portable shielding, etc.) as may be available at the London Road facility or as specified by SUBCONTRACTOR in advance of on-site work.

SUBCONTRACTOR Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.
- Provide a schedule for all activities.
- Provide a listing of specialty equipment and services that AMS must supply in advance of on-site work.
- Provide, in advance of on-site work, a copy of written procedures and work instructions for AMS approval and for AMS use in preparing a Radiation Work Permit.
- Provide project management for on-site work.
- Provide an overpack (as necessary), packaging materials, shipping documents, labels, placards and materials/components/procedures in accordance with SUBCONTRACTOR's Quality Assurance Program for packaging and transport of the drums.
- Provide transportation of the drums to the disposal site.
- Transfer the shipment from the AMS facility to the transport vehicle.
- Ensure compliance with all USNRC, DOT, South Carolina and Ohio laws and regulations for loading, shipment and disposal of the materials addressed in this task.
- Ensure Barnwell acceptance of the shipment based upon the AMS description of its physical and radiological characteristics.
- Compact the contents of the drums by a factor of at least five (5) for disposal.
- Provide a receipt of disposal within one week of acceptance of the waste at the disposal site.

Period of Performance:
This task shall be completed within 60 days after AMS authorization to proceed is given.

Task 7 Receipt, Packaging, Transport and Disposal of Ion Exchange Resins/Charcoal Media

Task Description: SUBCONTRACTOR shall receive, package, transport and dispose of 450 cubic feet of ion exchange resin containing ^{60}Co, packaged in 55-gallon drums.

Assumptions:

- A total of 60 drums shall be staged for this task.

- The drums shall be located at 1020 London Road, Cleveland, Ohio, 44110.
- The liquid content of each drum is less than 0.5% by volume, each drum is at least 85% full, and each drum is acceptable for transport in accordance with applicable regulations.
- The contact exposure rate on the drums does not exceed 1,000 mR per hour.
- The disposal site shall be the Barnwell Low-Level Radioactive Waste Management Facility (South Carolina).
- The drums will be inspected, sourced to a transport vehicle and transported to the disposal site for direct disposal.
- The drums shall be transferred to the disposal site in a single shipment along with the items listed in Task 5, 6 and 8 through 10.
- All labor and expenses, including state/local taxes, are included.
- All personnel, equipment and casks provided by SUBCONTRACTOR shall comply with applicable regulatory agency-approved Quality Assurance Programs, licenses and permits.

AMS Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.
- Provide physical characteristics, radiological composition, representative exposure rate and contamination levels or other information as deemed necessary by AMS and SUBCONTRACTOR to satisfactorily specify and perform services.
- De-water and transfer the drums to a pre-determined staging area within the London Road facility.
- Provide work space for packaging and shipment certification service, storage of shipping containers, loading/unloading of shipping containers, administrative work area, and personnel hygiene area.
- Operate existing in-house material handling equipment for the loading of drums and, as necessary, to support the shipment certification service.
- Provide radiation protection services and health physics coverage.
- Provide up to two (2) AMS employees to render assistance, as needed, for this task.
- Provide other radiation protection equipment (e.g., protective clothing, survey instruments, portable shielding, etc.) as may be available at the London Road facility or as specified by SUBCONTRACTOR in advance of on-site work.

SUBCONTRACTOR Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.
- Provide a schedule for all activities.

- Provide a listing of specialty equipment and services that AMS must supply in advance of on-site work.

- Provide, in advance of on-site work, a copy of written procedures and work instructions for AMS approval and for AMS use in preparing a Radiation Work Permit.

- Provide project management for on-site work.

- Provide packaging materials (as necessary), shipping documents, labels, placards and materials/components/procedures in accordance with SUBCONTRACTOR's Quality Assurance Program for packaging and transport of the drums.

- Provide transportation of the drums to the disposal site.

- Transfer the shipment from the AMS facility to the transport vehicle.

- Ensure compliance with all USNRC, DOT, South Carolina and Ohio laws and regulations for loading, shipment and disposal of the materials addressed in this task.

- Ensure Barnwell acceptance of the shipment based upon the AMS description of its physical and radiological characteristics.

- Provide a receipt of disposal within one week of acceptance of the waste at the disposal site

Period of Performance:
This task shall be completed within 60 days after AMS authorization to proceed is given.

Task 8: Receipt, Packaging, Transport and Disposal of HEPA Filters

Task Description: SUBCONTRACTOR shall receive, package, transport and dispose of 30 unpackaged HEPA filters contaminated with ^{60}Co.

Assumptions:

- A total of 30 HEPA filters (1ft x 2 ft x 2 ft) shall be staged for this task.

- The filters shall be located at 1020 London Road, Cleveland, Ohio 44110.

- The contact exposure rate on the filters may be in excess of three (3) R per hour.

- The disposal site shall be the Barnwell Low-Level Radioactive Waste Management Facility (South Carolina).

- The filters sill be inspected, overpacked, sourced to a transport vehicle, transported to the consolidation facility, compacted (2-to-1), and packaged for direct disposal.

- The waste is assumed to result in "not greater than Class A waste" following compaction.

- The filters shall be transferred to the disposal site in a single shipment along with the items listed in Task 5 through 7, 9 and 10.

- All labor and expenses, including state/local taxes, are included.

- All personnel, equipment and casks provided by SUBCONTRACTOR shall comply with applicable regulatory agency-approved Quality Assurance Programs, licenses and permits.

AMS Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.
- Provide physical characteristics, radiological composition, representative exposure rate and contamination levels or other information as deemed necessary by AMS and SUBCONTRACTOR to satisfactorily specify and perform services.
- Transfer the filters to a pre-determined staging area within the London Road facility
- Provide work space for packaging and shipment certification service, storage of shipping containers, loading/unloading of shipping containers, administrative work area and personnel hygiene area.
- Operate existing in-house material handling equipment for the loading of filters and, as necessary, to support the shipment certification service.
- Provide radiation protection services and health physics coverage.
- Provide up to two (2) AMS employees to render assistance, as needed, for this task.
- Provide other radiation protection equipment (e.g., protective clothing, survey instruments, portable shielding, etc.) as may be available at the London Road facility or as specified by SUBCONTRACTOR in advance of on-site work.

SUBCONTRACTOR Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.
- Provide a schedule for all activities.
- Provide a listing of specialty equipment and services that AMS must supply in advance of on-site work.
- Provide, in advance of on-site work, a copy of written procedures and work instructions for AMS approval and for AMS use in preparing a Radiation Work Permit.
- Provide project management for on-site work.
- Provide an overpack, packaging materials, shipping documents, labels, placards and materials/components/procedures in accordance with SUBCONTRACTOR's Quality Assurance Program for packaging and transport of the filters.
- Provide transportation of the filters to the disposal site.
- Transfer the shipment from the AMS facility to the transport vehicle.
- Ensure compliance with all USNRC, DOT, South Carolina and Ohio laws and regulations for loading, shipment and disposal of the materials addressed in this task.

- Ensure Barnwell acceptance of the shipment based upon the AMS description of its physical and radiological characteristics.
- Compact the filters by a factor of at least two (2) for disposal.
- Provide a receipt of disposal within one week of acceptance of the waste at the disposal site.

Period of Performance:
This task shall be completed within 60 days after AMS authorization to proceed is given.

Task 9: Receipt, Packaging, Transport and Disposal of Boxed DAW

Task Description. SUBCONTRACTOR shall receive, package, transport and dispose of 1,150 cubic feet of dry solid (paper) waste containing ^{60}Co, packaged in 10 B-25 boxes and three (3) B-12 boxes.

Assumptions:
- A total of 13 boxes shall be staged for this task.
- The boxes shall be located at 1020 London Road, Cleveland, Ohio, 44110.
- The contact exposure rate on the boxes does not exceed 1,000 mR per hour.
- The disposal site shall be the Barnwell Low-Level Radioactive Waste Management Facility (South Carolina).
- The boxes will be inspected, sourced to a transport vehicle, transported to the consolidation facility, compacted (5-to-1), and packaged for direct disposal.
- The waste is assumed to result in "not greater than Class A waste" following compaction.
- The boxes shall be transferred to the disposal site in a single shipment along with the items listed in Task 5 through 8, and 10.
- All labor and expenses, including state/local taxes, are included.
- All personnel, equipment and casks provided by SUBCONTRACTOR shall comply with applicable regulatory agency-approved Quality Assurance Programs, licenses and permits.

AMS Responsibilities:
- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.
- Provide physical characteristics, radiological composition, representative exposure rate and contamination levels or other information as deemed necessary by AMS and SUBCONTRACTOR to satisfactorily specify and perform services.
- Transfer the boxes to a pre-determined staging area within the London Road facility.
- Provide work space for packaging and shipment certification service, storage of shipping containers, loading unloading of shipping containers, administrative work area, and personnel hygiene area.

- Operate existing in-house material handling equipment for the loading of boxes and, as necessary, to support the shipment certification service.

- Provide radiation protection services and health physics coverage.

- Provide up to two (2) AMS employees to render assistance, as needed, for this task.

- Provide other radiation protection equipment (e.g., protective clothing, survey instruments, portable shielding, etc.) as may be available at the London Road facility or as specified by SUBCONTRACTOR in advance of on-site work.

SUBCONTRACTOR Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.

- Provide a schedule for all activities.

- Provide a listing of specialty equipment and services that AMS must supply in advance of on-site work.

- Provide, in advance of on-site work, a copy of written procedures and work instructions for AMS approval and for AMS use in preparing a Radiation Work Permit.

- Provide project management for on-site work.

- Provide packaging materials (as necessary) , shipping documents, labels, placards and materials/components/procedures in accordance with SUBCONTRACTOR's Quality Assurance Program for packaging and transport of the boxes..

- Provide transportation of the boxes to the disposal site.

- Transfer the shipment from the AMS facility to the transport vehicle.

- Ensure compliance with all USNRC, DOT, South Carolina and Ohio laws and regulations for loading, shipment and disposal of the materials addressed in this task.

- Ensure Barnwell acceptance of the shipment based upon the AMS description of its physical and radiological characteristics.

- Compact the contents of the boxes by a factor of at least five (5) for disposal.

- Provide a receipt of disposal within one week of acceptance of the waste at the disposal site.

Period of Performance:
This task shall be completed within 60 days after AMS authorization to proceed is given.

Task 10: Receipt, Packaging, Transport and Disposal of Water Treatment Vessels

Task Description: SUBCONTRACTOR shall receive, package, transport and dispose of two water treatment vessels that are internally-contaminated with ^{60}Co.

Assumptions:

- A total of two (2) vessels shall be packaged and staged for this task.
- The vessels are constructed of stainless steel with nominal cylindrical dimensions of two (2) feet by four (4) feet (e.g., a volume of approximately 18 ft^3 per vessel).
- The vessels shall be located at 1020 London Road, Cleveland, Ohio, 44110.
- The contact exposure rate on the vessels is less than 40 mR per hour.
- The disposal site shall be the Barnwell Low-Level Radioactive Waste Management Facility (South Carolina).
- The packaged vessels will be inspected, sourced to a transport vehicle, and transported for disposal.
- The waste is assumed to result in "not greater than Class A waste" following compaction.
- The vessels shall be transferred to the disposal site in a single shipment along with the items listed in Task 5 through 9.
- All labor and expenses, including state/local taxes, are included.
- All personnel, equipment and casks provided by SUBCONTRACTOR shall comply with applicable regulatory agency-approved Quality Assurance Programs, licenses and permits.

AMS Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.
- Provide physical characteristics, radiological composition, representative exposure rate and contamination levels or other information as deemed necessary by AMS and SUBCONTRACTOR to satisfactorily specify and perform services.
- Transfer the vessels to a pre-determined staging area within the London Road facility.
- Provide work space for packaging and shipment certification service, storage of shipping containers, loading unloading of shipping containers, administrative work area, and personnel hygiene area.
- Operate existing in-house material handling equipment for the loading of vessels and, as necessary, to support the shipment certification service.
- Provide radiation protection services and health physics coverage.
- Provide up to two (2) AMS employees to render assistance, as needed, for this task.
- Provide other radiation protection equipment (e.g., protective clothing, survey instruments, portable shielding, etc.) as may be available at the London Road facility or as specified by SUBCONTRACTOR in advance of on-site work.

SUBCONTRACTOR Responsibilities:

- Provide the name and telephone number of one (1) individual responsible for coordination of services between SUBCONTRACTOR and AMS.

- Provide a schedule for all activities.
- Provide a listing of specialty equipment and services that AMS must supply in advance of on-site work.
- Provide, in advance of on-site work, a copy of written procedures and work instructions for AMS approval and for AMS use in preparing a Radiation Work Permit.
- Provide project management for on-site work.
- Provide packaging materials, shipping documents, labels, placards and materials/components procedures in accordance with SUBCONTRACTOR's Quality Assurance Program for packaging and transport of the vessels.
- Provide transportation of the vessels to the disposal site.
- Transfer the shipment from the AMS facility to the transport vehicle.
- Ensure compliance with all USNRC, DOT, South Carolina and Ohio laws and regulations for loading, shipment and disposal of the materials addressed in this task.
- Ensure Barnwell acceptance of the shipment based upon the AMS description of its physical and radiological characteristics.
- Compact the vessels by a factor of at least two (2) for disposal.
- Provide a receipt of disposal within one week of acceptance of the waste at the disposal site

Period of Performance:
This task shall be completed within 60 days after AMS authorization to proceed is given.

Fax Transmission

Date: Thursday, September 19, 1996
Time: 8:31:00 AM
Pages: 1

To:

Name: John Madera
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From:

Name: Carol D. Berger
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Voice Number: (301) 762-0502

Note:

So you don't have to "sum" any of the columns in my last fax, as of today there are 21,234 Ci in the Source Garden, 9,734 Ci in the GE-500 cask, 8,987 Ci in the Blue Cask, 3,440 Ci in the Hot Cell, 3,054 Ci in the (stuck) front plug of the Hot Cell, and 5,412 Ci in other locations (e.g., source exchange containers), for a total of 51,860 Ci in the form of sealed sources and bulk cobalt canisters.

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AMS Radioactive Materials Inventory as of 09/19/96 - Page 1

Type	Element	Lot/File	Capsule No	Container No	Type	Storage Location	Curies	As of (date)	Date Received	Date Shipped	Decay Period	Prob=1,Stop=0	Activity (today)	Form (S or N)
AMS Blk Co	Bi361		XXVI		Bulk	Blue Cask	8.12	10/01/90		0	2191	1	276.68	N
AMS Blk Co	Bi363		XXV		Bulk	Hot Cell (FP)	3751	04/01/90		0	2360	1	1180.18	N
AMS Blk Co	Bi357		XXII		Bulk	Blue Cask	3080	11/15/89		0	2680	1	1251.79	N
AMS Blk Co	Bi353		XXIII		Bulk	Blue Cask	3151	01/01/89		0	3165	1	1001.66	N
AMS Blk Co	Bi350		I		Bulk	Hot Cell (FP) ?	1544	12/01/87		0	3235	1	485.06	N
AMS Blk Co	Bi349		II		Bulk	Blue Cask	2101	12/01/87		0	3335	1	660.65	N
AMS Blk Co	Bi330		XXIII		Bulk	Blue Cask	6374	01/01/86		0	3911	1	1522.57	N
AMS Blk Co	Bi316		XVI		Bulk	Hot Cell (FP)	1533	05/01/83		0	4070	1	283.35	N
AMS Blk Co	Bi385		XI		Bulk	Hot Cell (FP)	2943	12/01/80		0	5721	1	990.77	N
AMS Blk Co	Bi381		XV		Bulk	Hot Cell (FP)	2470	06/01/80		0	5893	1	798.79	N
AMS Blk Co	Bi378		XVI		Bulk	Blue Cask	8535	07/01/79		0	6290	1	988.89	N
AMS Blk Co	Bi366		XXXIV		Bulk	Blue Cask	3078	07/01/78		0	6645	1	375.65	N
AMS Blk Co	Bi308		Bi13		Bulk	Hot Cell (FP)	8411	06/01/74		0	8156	1	413.05	N
AMS Blk Co	SiBiMCase		SI-64		Bulk	Hot Cell (FP)	316	09/27/71		0	9157	1	11.50	S
Bi in Ge 500	Bi354			B107/B108	Bulk Target	GE-500	3951	03/16/77		0	7135	1	342.25	S
Bi in Ge 500	Bi344			B106	Bulk Target	GE-500	1052	10/01/76		0	7558	1	113.04	S
Bi in Ge 500	Bi341			B101	Bulk Target	GE-500	2852	01/01/76		0	7567	1	135.13	S
Bi in Ge 500	Bi331			B102+B105	Bulk Target	GE-500	5395	04/01/75		0	7839	1	336.23	S
Bi in Ge 500	Bi329			B110	Bulk Target	GE-500	4424	06/01/75		0	7931	1	244.15	S
Bi in Ge 500	Bi323			B104+B105	Bulk Target	GE-500	4225	01/01/75		0	7932	1	242.77	S
Bi in Ge 500	Bi309			B113	Bulk Target	GE-500	2765	06/01/74		0	8186	1	147.09	S
Bi in Ge 500	Bi290			B109+b110	Bulk Target	GE-500	5345	12/01/73		0	8376	1	266.31	S
Bi in Ge 500	Bi281			B110+B111	Bulk Target	GE-500	6048	07/01/73		0	8481	1	265.10	S
Bi in Ge 500	Bi270			B112	Bulk Target	GE-500	2401	12/01/72		0	8693	1	126.73	S
Picker Pellets	PX346	n/a			WaferSource	B-Y-2	1946	01/31/66		0	11109	1	32.82	S
Picker Pellets	PX43	125			WaferSource	3-Y-1	111	04/01/65		0	537	1	9.39	S
Picker Pellets	PX452	395			WaferSource	4-U-3	2423	03/03/66		0	11158	1	58.76	S
Picker Pellets	PX439	424			WaferSource	4-U-2	2906	01/31/66		0	11109	1	53.27	S
Picker Pellets	PX377	504			WaferSource	7-V-2	2807	03/15/65		0	11539	1	44.00	S
Picker Pellets	PX-468	521			WaferSource	1-W-2	2592	01/31/66		0	11146	1	45.35	S
Picker Pellets	PX376	533			WaferSource	1-W-1	1315	01/30/65		0	11555	1	20.49	S
Picker Pellets	PX356	547			WaferSource	3-V-2	1954	04/15/66		0	11115	1	33.06	S
Picker Pellets	PX372	548			WaferSource	3-V-3	1071	12/30/64		0	11596	1	16.51	S
Picker Pellets	PX477	562			WaferSource	4-T-1	956	07/15/66		0	11024	1	10.08	S
Picker Pellets	PX375	586			WaferSource	6-Y-1	1007	01/30/65		0	11555	1	15.69	S
Picker Pellets	PX239(1239)	599			WaferSource	7-V-1	1750	04/19/63		0	12308	1	21.56	S
Picker Pellets	PX453	603			WaferSource	2-Y-2	2255	12/31/65		0	11781	1	28.75	S
Picker Pellets	PX257	618			WaferSource	GE-500	1626	07/01/63		0	12134	1	20.57	S
Picker Pellets	PX1249(L4 D249)	633			WaferSource	7-X-3	2390	05/06/63		0	12157	1	47.60	S

AMS Radioactive Materials Inventory as of 09/19/96 - Page 2

Type	Identifier	Lot No	Capsule No	Container No	Type	Storage Location	Curies	As of (date)	Date Received	Date Shipped	Decay Period	Pwr, 1-Step=0	Activity (bq/gm)	Form (S or N)
Picker Pellets	PX1(illegible)(OLD395)	644			WaterSource	GE-500	1678	09/15/65		0	11511	1	26.57	S
Picker Pellets	PX447	675			WaterSource	GE-500	841	01/31/66		0	11109	1	15.01	S
Picker Pellets	PX316	661			WaterSource	1-W-3	2979	05/28/64		0	11802	1	40.34	S
Picker Pellets	PX428	682			WaterSource	7-X-1	1176	10/31/65		0	11391	1	20.28	S
Picker Pellets	PX405	694			WaterSource	4-Y-3	3664	06/30/65		0	11404	1	62.84	S
Picker Pellets	PX1368(OLD361)	739			WaterSource	3-V-1	4394	11/30/64		0	11616	1	66.54	S
Picker Pellets	PX1426(OLD426)	742			WaterSource	GE-500	2180	10/30/65		0	11382	1	42.65	S
Picker Pellets	PX1410(OLD410)	734			WaterSource	3-X-1	3110	07/30/65		0	11374	1	51.73	S
Picker Pellets	PX1408	797			WaterSource	2-V-1	4843	06/30/65		0	11403	1	79.70	S
Picker Pellets	PX471	806			WaterSource	GE-500	1175	01/30/65		0	11515	1	18.31	S
Picker Pellets	PX1384	815			WaterSource	3-Y-1	1980	09/15/65		0	11511	1	31.35	S
Picker Pellets	PX1433(OLD433)	822			WaterSource	2-X-2	2900	11/30/65		0	11351	1	51.47	S
Picker Pellets	PX1251(OLD251)	832			WaterSource	GE-500	2128	06/20/63		0	12185	1	76.82	S
Picker Pellets	PX1379(OLD379)	834			WaterSource	GE-500	1920	09/15/65		0	11509	1	40.10	S
Picker Pellets	PX389	840			WaterSource	7-Y-1	5939	05/31/65		0	11434	1	98.60	S
Picker Pellets	PX1435(OLD435)	842			WaterSource	GE-500	3561	10/30/65		0	11331	1	61.23	S
Picker Pellets	PX1289(OLD289)	870			WaterSource	Blue Cask	2673	07/15/64		0	11696	1	36.32	S
Picker Pellets	PX184	877			WaterSource	2-W-2	2633	08/26/62		0	12283	1	29.80	S
Picker Pellets	PX1458(OLD458)	885			WaterSource	GE-500	3317	08/15/66		0	11115	1	60.57	S
Picker Pellets	PX440	926			WaterSource	GE-500	1698	01/31/66		0	11169	1	30.19	S
Picker Pellets	PX1317(OLD317)	968			WaterSource	7-Z-2	6468	05/25/64		0	11505	1	91.84	S
Picker Pellets	Px12	981			WaterSource	GE-500	3680	05/12/60		0	13079	1	22.45	S
Picker Pellets	PX1311(OLD311)	1038			WaterSource	GE-500	2905	07/30/65		0	11374	1	19.65	S
Picker Pellets	PX430	1035			WaterSource	5-Z-3	5553	10/31/65		0	11251	1	95.52	S
Picker Pellets	PX2169	n/a			WaterSource	SA-166	2827	12/31/75		0	7586	1	193.21	S
Picker/AMS Sealed	864	81h			SealedSource	WH590C-179	3060	10/15/60		0	10201	1	77.66	S
Picker/AMS Sealed	879	831			SealedSource	6-U-3	1316	09/01/71		0	3150	1	52.47	S
Picker/AMS Sealed	725	873			SealedSource	3-W-1	3171	07/01/69		0	9963	1	66.35	S
Picker/AMS Sealed	PX269	n/a			SealedSource	3-Z-1	2030	09/15/62		0	13058	1	26.40	S
Picker/AMS Sealed	2002	882			SealedSource	GE-500	982	05/01/73		0	3542	1	45.20	S
Picker/AMS Sealed	695	883			SealedSource	2-W-2	8033	10/15/68		0	10301	1	102.36	S
Picker/AMS Sealed	95	890			SealedSource	3-X-3	1990	10/25/61		0	12783	1	20.10	S
Picker/AMS Sealed	2006	892			SealedSource	2-Z-3	6370	07/01/73		0	6451	1	300.36	S
Picker/AMS Sealed	1363(OLD1(3)	904			SealedSource	5-U-1	529	08/01/65		0	227	1	92.32	S
Picker/AMS Sealed	857	907			SealedSource	8-V-1	2716	10/01/71		0	9120	1	101.74	S
Picker/AMS Sealed	789	915			SealedSource	2-X-3	4122	09/18/70		0	9635	1	132.10	S
Picker/AMS Sealed	883	919			SealedSource	GE-500	1855	09/01/71		0	9120	1	68.74	S
Picker/AMS Sealed	141	947			SealedSource	1-V-3	1434	09/09/62		0	12479	1	16.71	S
Picker/AMS Sealed	1513(OLD513)	97d			SealedSource	4-Z-1	3339	12/31/66		0	10455	1	87.90	S

AMS Radioactive Materials Inventory as of 09/19/96 - Page 3

Type	Number	Lot No	Capsule No	Container No	Type	Storage Location	Curies	As of (Date)	Date Received	Date Shipped	Decay Period	Check (Ship=0)	Activity (today)	Form (S or N)
Picker/AMS Sealed	541	979			SealedSource	GE-500	2745	12/01/87		0	3520	1	61.56	S
Picker/AMS Sealed	611	999			SealedSource	Blue Cask	7990	06/15/88		0	3262	1	198.38	S
Picker/AMS Sealed	636	1012			SealedSource	1-Z-1	2011	07/01/68		0	10247	1	49.06	S
Picker/AMS Sealed	2168	1020			SealedSource	9-Y-1	690	12/01/75		0	7508	1	57.92	S
Picker/AMS Sealed	959	1037			SealedSource	6-Z-2	2812	05/01/73		0	8542	1	129.71	S
Picker/AMS Sealed	916	1039			SealedSource	1-X-2	3135	09/15/70		0	9501	1	149.09	S
Picker/AMS Sealed	2076	1047			SealedSource	1-X-3	1953	07/01/74		0	8116	1	105.03	S
Picker/AMS Sealed	557	1050			SealedSource	6-Y-3	3763	12/15/67		0	10506	1	131.65	S
Picker/AMS Sealed	871	1075			SealedSource	3-X-2	1979	09/25/71		0	9210	1	71.56	S
Picker/AMS Sealed	1679(OLD679)	1108			SealedSource	9-Z-2	2936	01/01/69		0	10123	1	77.94	S
Picker/AMS Sealed	PX784	n/a			SealedSource	6-Z-3	3983	03/15/70		0	9733	1	161.02	S
Picker/AMS Sealed	PX650	n/a			SealedSource	7-Y-2	7001	04/15/86		0	11115	1	177.05	S
Picker/AMS Sealed	616	1135			SealedSource	3-Y-3	3023	05/01/69		0	10960	1	90.14	S
Picker/AMS Sealed	557	1151			SealedSource	GE-500	1895	09/01/87		0	10611	1	41.49	S
Picker/AMS Sealed	2117	1161			SealedSource	1-Y-1	3274	05/01/75		0	7812	1	207.44	S
Picker/AMS Sealed	687	1164			SealedSource	1-Y-1	1870	02/01/69		0	10002	1	49.57	S
Picker/AMS Sealed	3607	1166			SealedSource	3-Z-1	3762	03/10/81		0	5672	1	315.22	S
Picker/AMS Sealed	7348(OLD2060)	1167			SealedSource	1-X-1	3001	03/12/74		0	8224	1	155.23	S
Picker/AMS Sealed	2176	1187			SealedSource	Blue Cask	5531	12/14/82		0	5026	1	204.45	S
Picker/AMS Sealed	2532	1189			SealedSource	Blue Cask	1561	09/05/85		0	4216	1	342.03	S
Picker/AMS Sealed	2811	1190			SealedSource	Hot Cell	7113	04/15/81		0	5636	1	934.41	S
Picker/AMS Sealed	2245	1195			SealedSource	Hot Cell	4478	01/01/77		0	7951	1	388.63	S
Picker/AMS Sealed	2387	1201			SealedSource	Hot Cell	2864	09/19/80		0	5644	1	339.69	S
Picker/AMS Sealed	2285	1202			SealedSource	Hot Cell	1862	01/19/78		0	6818	1	331.85	S
Picker/AMS Sealed	PX2337	1204			SealedSource	Hot Cell	2811	02/16/73		0	8236	1	286.15	S
Picker/AMS Sealed	2407	1205			SealedSource	Hot Cell	3211	03/1883		0	5328	1	556.74	S
Picker/AMS Sealed	2236	1211			SealedSource	Blue Cask	2656	01/19/77		0	7139	1	184.82	S
Picker/AMS Sealed	1203(OLD 2021)	1212			SealedSource	9-W-3	5065	09/04/72		0	5416	1	232.50	S
Picker/AMS Sealed	2527	1221			SealedSource	Hot Cell	3436	1/1/2084		0	4251	1	732.67	S
Picker/AMS Sealed	PX347	n/a			SealedSource	4-V-1	2990	04/3484		0	11503	1	44.50	S
Picker/AMS Sealed	2466	n/a			SealedSource	WHSE113	7532	05/2082		0	5144	1	1361.27	S
Picker/AMS Sealed	2523	n/a			SealedSource	WHSE115	1335	07/1488		0	3197	1	1852.15	S
Picker/AMS Sealed	2510	n/a			SealedSource	WHSE114	1190	04/1384		0	4542	1	816.23	S
Competitor	U&N	780			CompSource	5-Y-2	1700	08/17/75		0	7673	1	167.23	S
Competitor	US-N	781			CompSource	5-Y-3	1809	04/22/75		0	7668	1	83.19	S
Competitor nov	T31	764			CompSource	8-W-2	1160	05/01/83		0	4830	1	109.35	S
Competitor nov	121	774			CompSource	8-W-3	1520	05/01/83		0	4830	1	301.22	S
Competitor	C-106	777			CompSource	7-W-2	385	05/17/76		0	7399	1	26.89	S
Competitor	W787	790			CompSource	GE-500	109	10/08/76		0	7286	1	14.12	S

AMS Radioactive Materials Inventory as of 09/19/96 - Page 4

Type	Identifier	Lot No	Capsule No	Container No	Type	Storage Location	Curies	Act (date)	Date Received	Date Shipped	Decay Period	Curies (Adjusted)	Activity (today)	Form (Solid/Liq)
Competitor	USN	918			CompSource	4-Y-2	300	04/05/77		0	7107	1	29.70	S
Competitor	T163	951	Rudd		CompSource		1400	01/04/78		0	6733	1	115.51	S
Competitor	03369-13-101	959			CompSource	3-Y-3	1670	09/01/75		0	7720	1	134.90	S
Competitor-npi	T52	961			CompSource	1-U-1	930	05/01/83		0	4890	1	142.04	S
Competitor	032TS-101	970			CompSource	2-U-2	479	03/04/80		0	6072	1	100.93	S
Competitor-npi	T352	985			CompSource	Blue Cask	770	05/01/83		0	4890	1	132.23	S
Competitor-npi	T131	963			CompSource	7-Z-3	1050	3/01/83		0	4890	1	171.96	S
Competitor	CEA2604	965			CompSource	Blue Cask	909	09/13/80		0	5981	1	112.48	S
Competitor-npi	T162	974			CompSource	8-Z-2	6370	05/01/76		0	7486	1	427.11	S
Competitor-npi	T205	980			CompSource	1-Y-3	1690	05/01/83		0	4890	1	258.45	S
Competitor	04NTS101	986			CompSource	1-Y-1	2200	12/02/80		0	5770	1	325.39	S
Competitor-npi	T95	987			CompSource	1-Y-2	2080	05/01/83		0	4890	1	357.46	S
Competitor-npi	NPI	999	?		CompSource	7-Y-2	194	12/30/80		0	5742	1	28.53	S
Competitor-npi	T241	992			CompSource	7-W-3	1500	05/01/83		0	4890	1	258.10	S
Competitor	362	996			CompSource	3-Z-3	1745	03/03/81		0	5679	1	195.71	S
Competitor	CEA2605	1003			CompSource	Blue Cask	1596	09/16/81		0	5666	1	402.21	S
Competitor	USN	1004			CompSource	8-Z-3	3345	04/01/81		0	5650	1	837.31	S
Competitor-npi	T145	1011			CompSource	1-W-2	2480	05/01/83		0	4890	1	427.93	S
Competitor-npi	T187	1017			CompSource	9-Y-2	1350	05/01/83		0	4890	1	232.16	S
Competitor-npi	NPI	1024			CompSource	3-Z-1	500	03/10/81		0	5519	1	68.51	S
Competitor-npi	T451	n/a			CompSource	3-T-3	4270	11/01/80		0	5801	1	573.39	S
Competitor-npi	T121	1034			CompSource	3-Y-3	3540	04/25/75		0	7818	1	211.94	S
Competitor-npi	T205	1038			CompSource	3-Y-2	2420	05/01/83		0	4890	1	415.89	S
Competitor-npi	T189	1042			CompSource	5-U-1	2040	05/01/83		0	4890	1	350.59	S
Competitor	USN	1071			CompSource	8-Z-1	1061	09/01/82		0	5132	1	187.12	S
Competitor-npi	T462	1075			CompSource	2-Z-2	2530	05/01/83		0	4890	1	434.80	S
Competitor-npi	T263	1087			CompSource	7-Y-3	6580	12/15/77		0	6853	1	583.09	S
Competitor	USN	1091			CompSource	2-Y-1	637	04/25/83		0	4896	1	109.34	S
Competitor	USN	1092			CompSource	2-Y-3	2161	04/24/83		0	4887	1	370.45	S
Competitor-npi	T337	1103			CompSource	7-Z-1	3470	04/27/79		0	6355	1	351.85	S
Competitor-npi	T177	1114			CompSource	6-U-2	7820	07/15/76		0	7371	1	549.95	S
Competitor-npi	T577	n/a			CompSource	9-Z-3	2730	10/01/82		0	5102	1	484.29	S
Competitor	C172	n/a			CompSource	Blue Cask	350	04/01/83		0	4267	1	134.11	S
Competitor-npi	T540	1129			CompSource	9-Z-1	1500	03/01/85		0	4220	1	320.13	S
Competitor-npi	T388	1134			CompSource	4-U-3	4500	12/01/79		0	6137	1	593.14	S
Competitor-npi	T415	1133			CompSource	Blue Cask	2235	09/01/85		0	4124	1	630.71	S
Competitor-npi	T514	1138			CompSource	2-W-3	4040	09/18/81		0	5499	1	968.34	S
Competitor-npi	T275	1142			CompSource	5-U-3	6600	01/20/78		0	6817	1	571.96	S
Competitor	GET-15-15	n/a			CompSource	Blue Cask	250	04/01/93		0	1267	1	158.81	S

AMS Radioactive Materials Inventory as of 09/19/96 - Page 5

Type	Identifier	Lot No.	Capsule No.	Container No.	Type	Storage Location	Curies	As of (date)	Date Received	Date Shipped	Decay Period	Pres=1 Ship=0	Activity (today)	Form (S or N)
Compeletor-npi	T672	1146			CompSource	2-1-1	4350	01/13/84		0	4633	1	870.07	S
Compeletor-npipecker	RT76	1150			CompSource	3-J-2	3340	10/03/80		0	5330	1	372.71	S
Compeletor-npi	T472	1154			CompSource	# 2 3	3700	01/19/8		0	5722	1	482.70	S
Compeletor-npi	T490	1162			CompSource	1-J-2	6340	03/27/81		0	5659	1	726.91	S
Compeletor-npi	T707	1210			CompSource	4-W-1	3500	09/01/84		0	4432	1	721.12	S
Compeletor-npi	T765	1224			CompSource	WHSE*99_ 1/6	6550	05/02/84		3/4/96 2	4192	0	0.00	S
Compeletor-npi	T772	1237			CompSource	4-W-2	3330	07/01/85		0	4096	1	761.18	S
Compeletor	53817	1242			CompSource	5.9E-13*	7368	11/01/85		0	3975	1	1375.94	S
Compeletor-npi	T972	1252			CompSource	98_702	6390	12/03/86		3/4/90	2848	0	0.00	S
Compeletor	JALAP4	1254			CompSource	S/E117	616	05/02/92		0	1570	1	319.96	S
Compeletor	0343ET	1281			CompSource	SE/106	5700	12/10/85		0	3907	1	1351.18	S
Flicker Pellets	Target Sources				Bulk	GE 500	14944	04/01/9		0	1990	1	6338.93	S