40-7102

SHIELDALLOY METALLURGICAL CORPORATION

WEST BOULEVARD
P.O. BOX 768
NEWFIELD, NJ 08344
TELEPHONE (609) 692-4200
FAX (609) 692-4017

September 15, 1995

Mr. Gary C. Comfort, Jr.
Licensing Section 2
Division of Fuel Cycle Safety and Safeguards, NMSS
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Re: Application for Renewal of Source Material License No. SMB-743

Dear Mr. Comfort:

Enclosed is the original and one copy of the Shieldalloy Metallurgical Corporation (SMC) application for renewal of the referenced source material license. This application supersedes applications dated June 19, 1995, July 18, 1988, June 2, 1992 and February 10, 1993, submitted previously.

As part of this amended application, SMC is submitting two Radiation Protection Procedures, RSP 001 "Radiation Protection Program" and RSP 003 "Control of Radiation Safety Procedures". Both of these procedures have been reviewed and approved by the Radiation Safety Committee as part of the renewal application. When the review of the entire application has been completed by the NRC, these two procedures will be revised as necessary, depending on input received from the NRC, and final signed procedures will be provided to the NRC shortly thereafter.

Other RSP's are being provided to you under separate cover to facilitate the review of the renewal application. These other RSP's are not to be considered as part of the license renewal application package and are not intended to be implemented as license conditions.

SMC understands that the renewal fee will be assessed and billed at a later date by the USNRC. Therefore, no fees are enclosed. If you have any questions, please contact me at the telephone number shown above.

Sincerely,

C. Scott Eves
Radiation Safety Officer and
Vice President, Environmental Services

cc: H. Nils Schooley
Jay E. Silberg, Esq.
John Kinneman, USNRC Region 1

NRC FORM 313
(9 90)
10 CFR 30, 32, 33,
34 35 and 40

U.S. NUCLEAR REGULATORY COMMISSION

PROVED BY OMB NO 3150-0120
EXPIRES 6-30-93

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 3 25 HRS FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714) U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0120), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON DC 20503

APPLICATION FOR MATERIAL LICENSE

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATIONS FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY, NMSS
WASHINGTON, DC 20555

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS, IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I
NUCLEAR MATERIALS SAFETY SECTION B
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION II
NUCEAR MATERIALS SAFETY SECTION
101 MARIETTA STREET, SUITE 2900
ATLANTA, GA 30323

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION III
MATERIALS LICENSING SECTION
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH, OR WYOMING, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
MATERIAL RADIATION PROTECTION SECTION
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TX 76011

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON, AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION V
NUCLEAR MATERIALS SAFETY SECTION
1450 MARIA LANE, SUITE 210
WALNUT CREEK, CA 94596

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTION.

1. THIS IS AN APPLICATION FOR *(Check appropriate item)*

- [ ] A. NEW LICENSE
- [ ] B. AMENDMENT TO LICENSE NUMBER _____
- [X] C. RENEWAL OF LICENSE NUMBER SMB-743

2. NAME AND MAILING ADDRESS OF APPLICANT *(Include Zip Code)*

Shieldalloy Metallurgical Corporation
12 West Boulevard
P.O. Box 768
Newfield, New Jersey 08344

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED.

Same as 2, above.

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

C. Scott Eves

TELEPHONE NUMBER

(609) 692-4200

SUBMIT ITEMS 5 THROUGH 11 ON 8½ x 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE

5. RADIOACTIVE MATERIAL
a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time. Attachment 1

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED
Attachment 1

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE.
Attachment 2

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS
Attachment 3

9. FACILITIES AND EQUIPMENT.
Attachment 4

10. RADIATION SAFETY PROGRAM.
Attachment 3 & 5

11. WASTE MANAGEMENT.
Attachment 3

12. LICENSEE FEES *(See 10 CFR 170 and Section 170 31)*
FEE CATEGORY 2A
AMOUNT ENCLOSED $

13. CERTIFICATION. *(Must be completed by applicant)* THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE *BINDING UPON THE APPLICANT.*

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, AND 40 AND THAT ALL INFORMATION CONTAINED HEREIN, IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948, 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION

SIGNATURE–CERTIFYING OFFICER	TYPED/PRINTED NAME	TITLE	DATE
H. Nils Schooley	H. Nils Schooley	President	Sept. 15, 1995

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	COMMENTS

AMOUNT RECEIVED	CHECK NUMBER

APPROVED BY

DATE

NRC FORM 313 (9 90)

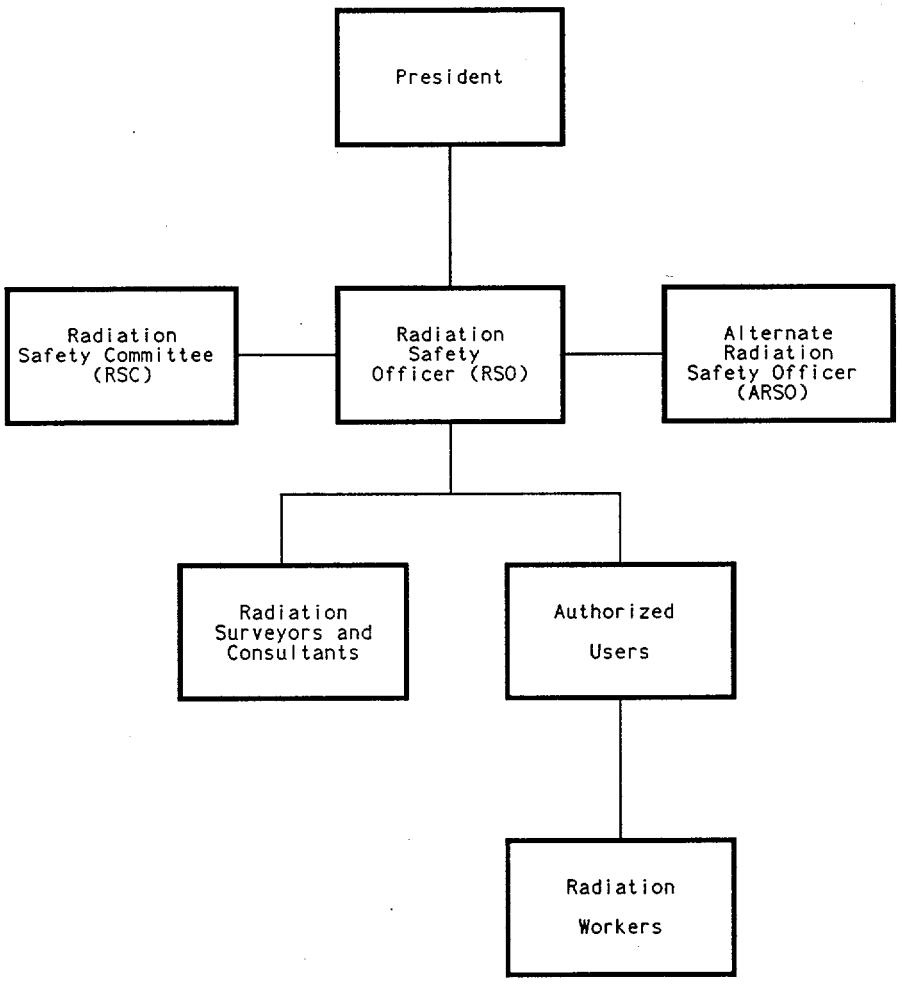
ATTACHMENT 1
Authorized Uses of Licensed Materials

Radioactive Material (Type, Form and Use):

Radionuclide	Chemical/Physical Form	Site Limit (kg)	Intended Use
Thorium-232	Any form suitable for transport under DOT regulations	1.2×10^6	Shipping, receiving, possession, use, research, development and storage incident to the processing of raw and byproduct materials to produce specialty alloys, slag fluidizers, and other products.
Uranium-238	Any form suitable for transport under DOT regulations	1.8×10^5	Shipping, receiving, possession, use, research, development and storage incident to the processing of raw and byproduct materials to produce specialty alloys, slag fluidizers, and other products.

ATTACHMENT 2
Individuals Responsible for Radiation Safety Program

RADIATION SAFETY ORGANIZATION



RADIATION SAFETY OFFICER

C. Scott Eves
Vice President, Environmental Services

Education

B. A. Ramapo College of New Jersey
"The Management Course", American Management Association
OSHA "HAZWOPER" training (40 hours), Education & Consulting Resources
Basic Radiological Health - Baltimore-Washington Chapter, HPS
Radiation Safety Officer Training Course - Radiation Safety and Control Services

Professional Affiliations

National Fire Protection Association
International Association of Environmental Managers
National Environmental Training Association
International Precious Metals Institute

Experience and Background

Shieldalloy Metallurgical Corporation - Oversee and direct compliance and strategy efforts for environmental and radiological matters for two sites. This includes overseeing the preparation and submittal of a Technical Basis Document for the decommissioning of a SDMP site in Ohio, along with the submittal of a Conceptual Decommissioning Plan for the SDMP site in New Jersey. Responsible for the preparation of Radiation Safety Procedures for the New Jersey site as well as meeting the requirements consistent with the possession of an operating license from the USNRC (e.g., personnel and site monitoring, surveys, spill/release response, and emergency plan preparation). Company spokesman at public meetings for Environmental Impact Statement being conducted by USNRC regarding decommissioning alternatives. Participated in USNRC inspections and provided responses to inspection reports.

Degussa Corporation Metal Group - Participated in the design and installation and reviewed the operation of a system used to recover precious metals from radiologically contaminated labware at DOE sites. Responsible for compliance with all state and federal environmental, Food and Drug Administration, and Department of Transportation requirements along with overseeing the licensing requirements for four sealed source x-ray units.

ALTERNATE RADIATION SAFETY OFFICER

James P. Valenti
Environmental Manager

Education

B. A. (Geology), Lafayette College
Graduate Course in Soil Mechanics and Foundations, Syracuse University
General Employee Training, GPU Nuclear Oyster Creek Training Department
General Employee Training, Niagara Mohawk Power Corporation
Basic Radiological Safety, Stone & Webster Engineering Corporation
Radiation Safety Officer Training, Radiation Safety Associates
Hazardous Waste Operations and Emergency Response (29 CFR 1910.120), IT Corporation

Registrations/Certifications

Certified Professional Geologist, Indiana (No. 644)
NJDEP N2 Industrial Wastewater Treatment System Operator License (#N1343)

Professional Affiliations

Society of Mining Engineers
National Ground Water Association

Experience and Background

Shieldalloy Metallurgical Corporation - Has been responsible for conducting RI/FS and ground water remediation, participated in radiological characterization including pressurized ion chamber measurements, gamma scintillation survey and surface soil sample collection at SMC Newfield. Has been responsible for conducting RI/FS at the SMC Cambridge facility and reviewed documents for submittal to NRC for preparation of a draft environmental impact statement. Served as RSO for both facilities from August 1993 to September 1994. Has been point of contact during NRC inspections at both facilities. Provided general employee training at SMC Newfield for all employees at the facility.

Naval Facilities Engineering Command - Managed CERCLA RI/FS, RCRARFI and UST closures at NAEC Lakehurst, NJ, NWSC Crane, IN, NCBC Davisville, RI., and NSY Newport, RI under the Navy Installation Restoration Program. Responsibilities included coordination with local, state and Federal Agencies.

Stone & Webster Engineering Corporation - Conducted blast monitoring, geologic inspection, mapping and photographic documentation during excavation, prepared weekly summary reports and detailed fault reports. Provided site geology and seismic design criteria documentation for preparation of construction permit applications, preliminary safety analysis and final safety analysis reports at the USDOE Clinch River Breeder Reactor Plant Project and NMPC Nine Mile Pont 2 nuclear power plant sites. Provided geotechnical/engineering support services during construction activities at various nuclear and fossil fuel power plant facilities. Also identified lithologies and located formations on a suite of geophysical logs from more that 400 exploratory and production wells drilled in the vicinity of the proposed Permian Basin nuclear waste repository site in Texas for the office of Nuclear Waste Isolation.

ATTACHMENT 3
Radiation Protection Program Plan

SMC	RADIATION PROTECTION PROGRAM PLAN (NEWFIELD FACILITY)	Procedure No: RSP-001	Page: 1 of 16
		Revision No. 000	Date: September 15, 1995
		Approved by (President):	
		Approved by (RSO):	
		Approved by (Co-Chair, RSC):	

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CONTROLLED COPY NO. : ____

1 PURPOSE

The goals of the Shieldalloy Metallurgical Corporation (SMC) policy on radiological protection are to minimize the total risk of harm or injury incurred by employees, contractors, or visitors as a result of work-related licensed activities at the Newfield Plant which involve NRC regulated materials and to demonstrate compliance with applicable laws and regulations on control of radioactive materials. This Radiation Protection Program Plan (Plan) has been developed to guide generation and implementation of SMC Radiation Safety Procedures as they pertain to licensing and radiation protection issues. The following sections contain a description of the programmatic elements that constitute the SMC radiation protection program.

2 SCOPE

This procedure applies to all SMC facilities, equipment and operations at the Newfield, New Jersey site that are licensed by the United States Nuclear Regulatory Commission to possess radioactive materials. Facilities, equipment and operations that do not require a license are exempt from the requirements of this Radiation Safety Procedure.

3 REFERENCES

3.1 Title 10, Code of Federal Regulations, Part 19, "Notices, Instructions and Reports for Workers; Inspection and Investigations"

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

3.3 Title 10, Code of Federal Regulations, Part 40, "Domestic Licensing of Source Material".

3.4 Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material".

3.5 Title 10, Code of Federal Regulations, Part 110, "Export and Import of Nuclear Equipment and Material".

3.6 U. S. Nuclear Regulatory Commission Source Material License Number SMB-743.

4 DEFINITIONS

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

5 PROCEDURE

5.1 Radiation Protection Organization and Administration

5.1.1 President

5.1.1.1 Overall control and authority for radiation protection at the Newfield plant shall rest with the President.

5.1.1.2 The responsibility of the President includes, but is not limited to, the following:

5.1.1.2.1 Establish SMC policy and prepare/amend this Plan accordingly;

5.1.1.2.2 Appoint and empower the SMC Radiation Safety Committee (RSC); and

5.1.1.2.3 Assure that the necessary resources are made available to meet the requirements of this Plan and USNRC license requirements.

5.1.1.2.4 Appoint the RSO and delegates authority for the Plan to the RSO.

5.1.2 Radiation Safety Officer (RSO)

5.1.2.1 Implement the radiation protection program described herein.

5.1.2.2 The RSO is responsible for recommending the type and quantity of staff and resources necessary for full implementation of the Plan.

5.1.2.3 The RSO shall have the responsibility and authority to terminate any work activities that do or may violate regulatory or SMC requirements for radiological protection.

5.1.2.3.1 Specific work activities shall be permitted to proceed to a safe condition after issuance of the stop-work order.

5.1.2.3.2 Stop-work orders shall be lifted after the initiating conditions have been alleviated as described in RSP 017.

5.1.3 In the absence or unavailability of the RSO, the authority for implementation of the radiation protection program described herein shall be delegated to the Alternate Radiation Safety Officer (ARSO).

5.1.4 Radiation Safety Committee (RSC)

5.1.4.1 The SMC Radiation Safety Committee shall provide oversight for the radiation protection program.

5.1.4.2 The permanent members of the SMC Radiation Safety Committee (RSC) shall include the RSO, the ARSO, the Vice President of Human Resources, the Training and Safety Manager, and the Vice President/General Manager, the Production Superintendent and a Certified Health Physicist.

5.1.4.3 Depending upon the topic(s) to be addressed, the composition of the RSC may be expanded to include an environmental department representative, operations department representative, an engineering department representative, a maintenance department representative, a union steward, a Certified Health Physicist, and/or others deemed appropriate by the President or the RSO.

5.1.4.4 The RSC is responsible for the review and approval of all elements of the radiation protection program and for assessing compliance with USNRC license requirements.

5.1.4.5 The RSC is responsible for confirming that activities are performed safely and in a manner that will protect health and minimize hazards to life, property, and the environment.

5.1.4.6 Other responsibilities of the RSC include the following:

5.1.4.6.1 Monitor compliance with Radiation Safety Procedures;

5.1.4.6.2 Review and approve Radiation Safety Procedures for currency and adequacy, recommending revisions as appropriate;

5.1.4.6.3 Review unusual incidents involving radioactive materials or radiation-producing machines and provide recommendations on how their recurrence shall be prevented; and

5.1.4.6.4 Initiate safety evaluations of all proposed uses of radioactive material or radiation-producing machines.

5.1.5 Authorized Users

5.1.5.1 The RSO may designate authority for implementing certain aspects of the radiation protection program to Authorized Users.

5.1.5.2 The responsibilities and authority of Authorized Users may include the following:

5.1.5.2.1 Monitoring and maintaining equipment associated with the use, storage, and disposal of licensed radioactive material under their control.

5.1.5.2.2 Preparing products for shipment;

5.1.5.2.3 Performing product testing;

5.1.5.2.4 Performing research and development with licensed radioactive materials; and

5.1.5.2.5 Ensuring that personnel under their supervision comply with the requirements of this Plan.

5.1.6 Radiation Surveyors

5.1.6.1 The RSO may designate authority for implementing certain aspects of the radiation protection program to Radiation Surveyors.

5.1.6.2 The responsibilities and authority of Radiation Surveyors may include the following:

5.1.6.2.1 Ascertain compliance with rules and regulations, license conditions, and the guidelines approved and specified by the SMC Radiation Safety Committee (RSC);

5.1.6.2.2 Provide technical support for all aspects of radiation protection, including field operations;

5.1.6.2.3 Monitor and maintain equipment associated with the use, storage, and disposal of radioactive material and radiation-producing machines;

5.1.6.2.4 Provide consultation on all aspects of radiation protection.

5.1.6.2.5 Administer and coordinate the distribution of personnel and area dosimeters on an as-needed basis;

5.1.6.2.6 Maintain personnel/area monitoring records, notify the RSO of exposures approaching maximum permissible limits, recommend

appropriate corrective action, and evaluate exposures reported by contract dosimetry services;

5.1.6.2.7 Perform an investigation in cases of apparent overexposure to radiation or radioactive materials;

5.1.6.2.8 Conduct training programs and instruction in the acceptable methods for the use of radioactive materials and radiation-producing machines;

5.1.6.2.9 Provide refresher training as appropriate (e.g., changes in procedures, equipment, regulation);

5.1.6.2.10 Review the storage of all radioactive materials;

5.1.6.2.11 Review the shipping and receiving of all radioactive materials;

5.1.6.2.12 Prepare a radioactive materials inventory to assure continued compliance with the possession limits specified in the USNRC license;

5.1.6.2.13 Review emergency response activities pursuant to RSP-016, "Emergency Response and Notifications"

5.1.6.2.14 Perform other monitoring/surveillance tasks as directed by the RSO.

5.2 Facilities and Equipment

5.2.1 Licensed radioactive materials shall be used/stored in restricted areas as shown in Attachment 1.

5.2.2 Temporary use/storage areas may be instituted by the RSO, subject to the provisions of RSP-012, "Control of Work".

5.2.3 Laboratory facilities, remote handling equipment, storage containers, shielding, fume hoods, ventilation systems, and other items may be used for controlling exposures from licensed radioactive materials.

5.3 Training in Radiation Protection

5.3.1 All personnel permitted unescorted access to the controlled area shall be trained in radiation protection in accordance with RSP-007, "Training in Radiation Protection".

5.3.2 Training may consist of Hazard Communication Training, General Employee Training (GET), Radiation Worker Training, and/or special briefings, as determined by the RSO.

5.3.3 Other license-specific training may be substituted, at the discretion of the RSO.

5.4 Radiation Exposure Control

5.4.1 Radiation Dose Limits and Goals

5.4.1.1 Internal and external exposure limits for employees, visitors and contractors shall be consistent with those established by the USNRC in 10 CFR 20.1201.

5.4.1.2 Administrative exposure goals for monitored personnel shall be less than 2500 millirem TEDE annually.

5.4.1.3 The President shall ensure that sufficient trained personnel are available to perform each operation such that administrative exposure goals are not reached.

5.4.1.4 Persons under 18 years of age are not permitted access to radiologically-restricted areas at SMC facilities.

5.4.1.5 Exposure limits for the unborn child shall not exceed those established by the USNRC for the entire gestation period.

5.4.1.5.1 Any employee, contractor or visitor that has the potential for occupational exposure shall be informed of the potential effects that may result to an embryo-fetus at low exposure levels.

5.4.1.5.2 Employees shall be encouraged to notify the RSO regarding "declared" pregnancies.

5.4.1.6 All employees with the potential to exceed 500 millirem deep dose equivalent (H_d) shall be assigned a personnel dosimeter to wear while on site.

5.4.1.6.1 The personnel dosimetry program shall be accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

5.4.1.6.2 A formal investigation shall be performed by the RSO in the event that a personnel dosimeter shows an unexpected exposure or if a personnel dosimeter is lost.

5.4.1.6.3 A written report shall be submitted to the RSC within ten working days for review and approval of follow-up actions intended to prevent the exposure or loss from re-occurring.

5.4.1.7 All employees with the potential to exceed 500 millirem CEDE or 5,000 millirem CDE from internal sources shall participate in a routine internal radiation monitoring program.

5.4.1.7.1 The routine internal radiation monitoring program may consist of indirect bioassay sampling at the beginning and end of employment, and on a planned and periodic basis thereafter as described in RSP-010, "Exposure Control".

5.4.1.7.2 Special monitoring may be performed whenever an administrative goal may have been exceeded, a nasal smear reveals the presence of detectable radioactivity, or whenever the RSO deems it appropriate.

5.4.1.7.3 Routine monitoring methodologies and frequencies shall be appropriate for detecting the types and quantities of radioactive materials in use by the employee, and shall be determined by the RSO.

5.4.1.7.4 A formal investigation shall be performed by the RSO in the event that a monitoring result is unexpected.

5.4.1.7.5 A written report shall be submitted to the RSC within ten working days for review and approval of follow-up actions intended to prevent the exposure from re-occurring.

5.4.2 Control of Work

5.4.2.1 Routine working conditions that subject an individual to exposures that are less than 100 millirem TEDE per calendar year shall require no specific controls.

5.4.2.2 Control of work that may subject an individual to exposures in excess of 100 millirem TEDE per calendar year shall be accomplished by:

5.4.2.2.1 Establishing radiological standards and responsibilities.

5.4.2.2.2 Using authorized users and the RSO to monitor performance of radiological work.

5.4.2.2.3 Training workers in recognition of radiation hazards and their responsibility to prevent their occurrence.

5.4.2.3 Authorized Users shall not initiate work that may subject members of the general population to exposures in excess of 100 millirem per year TEDE.

5.5 ALARA Program

5.5.1 While occupational radiation exposures incurred by employees or visitors of SMC historically are low, all exposures shall be assumed to entail some risk.

5.5.2 Management shall adopt the following three principles to govern all work activities with the potential for exposure to radiation or radioactive materials:

5.5.2.1 Activities and operations shall produce a positive net benefit.

5.5.2.2 All radiation exposures shall be kept as low as reasonable achievable (ALARA) in light of economic and societal costs.

5.5.2.3 Radiation exposures received by individuals shall not exceed the radiation dose limits described above.

5.5.3 ALARA activities shall be performed as described in RSP-005, "ALARA Program".

5.6 Contamination Control

5.6.1 Loose and fixed radioactive contamination shall be maintained at concentrations that are as low as reasonably achievable (ALARA).

5.6.2 Equipment, components or surfaces where loose or total (loose plus fixed) contamination is detected shall be classified as described in RSP-009, "Contamination Control".

5.6.3 Loose and total contamination shall be measured as described in RSP-008, "Instrumentation and Surveillance" and RSP-009, "Contamination Control".

5.6.4 Contaminated areas shall be clearly defined and posted.

5.7 Instrumentation

5.7.1 Instrumentation used by the RSO, ARSO, Radiation Surveyors, Authorized Users, and other Employees shall be of sufficient sensitivity and accuracy to assess radiation exposure levels found at SMC facilities.

5.7.2 Instrumentation shall be purchased, tested and calibrated by the methodologies described in RSP-008, "Instrumentation and Surveillance".

5.7.3 Calibration and repair records shall be maintained as described in RSP-004, "Radiation Protection Records".

5.7.4 Instrumentation used for other than radiation protection or compliance purposes are exempt from these requirements.

5.8 Surveillance

5.8.1 Routine exposure rate surveys, contamination surveys and air monitoring of restricted areas and certain unrestricted areas at the Newfield facility shall be performed once per calendar quarter.

5.8.2 Non-routine surveys may be performed at the discretion of the RSO or any time there is reason to suspect that radiation or contamination levels may have changed.

5.8.3 The methodology for performing surveillance activities shall be as described in RSP-008, "Instrumentation and Surveillance" and RSP-009, "Contamination Control".

5.9 Posting

Posting/labeling requirements throughout the facility shall be as described in RSP-011, "Radiological Areas and Posting".

5.10 Receipt and Control of Radioactive Material

5.10.1 Incoming packages, known or suspected to contain radioactivity at levels significantly higher than background, shall be monitored for exposure rate and removable external contamination, pursuant to RSP-014, "Receipt, Handling and Identification of Radioactive Material".

5.10.2 Radioactive material shall be marked as such to ensure proper handling and storage.

5.10.3 Items identified as radioactive materials shall be maintained in a material storage area established for this purpose within a restricted area.

5.10.4 Radioactive material received by SMC shall be entered in a radioactive material inventory log pursuant to RSP-014, "Receipt, Handling and Identification of Radioactive Material".

5.10.4.1 The log shall be maintained to assure compliance with maximum possession limits established in the USNRC license.

5.10.4.2 The source material inventory shall be updated at least once per calendar quarter to reflect changes.

5.11 Packaging and Transportation of Radioactive Materials

5.11.1 Licensed radioactive material shipped from SMC shall be packaged, surveyed, and labeled in accordance with RSP-015, "Packaging and Transportation of Radioactive Materials".

5.11.2 Prior to shipment of licensed materials, the RSO shall obtain confirmation that the receiver is licensed to receive the type, quantity and form of radioactive material present in the shipment.

5.12 Control of Radioactive Waste

5.12.1 Control of radioactive waste materials should be accomplished by the following:

5.12.1.1 Preventing materials from becoming unnecessarily and/or excessively contaminated;

5.12.1.2 Decontaminating and/or reusing materials which may be contaminated.

5.12.1.3 Monitoring materials for radioactivity and removing non-radioactive materials prior to disposal; and

5.12.1.4 Using waste volume reduction techniques when practical.

5.12.2 Radioactive waste may be stored on site or disposed of by one of the following means:

5.12.2.1 Transfer to an authorized recipient as provided in 10 CFR 20.2001;

5.12.2.2 Any other means specifically approved in advance by the USNRC.

5.12.3 Manifests, Certificates of Disposal or other documentation to confirm transfer/disposal shall be maintained by the RSO pursuant to RSP-004, "Radiation Protection Records".

5.13 Radiation Protection Records

5.13.1 The RSO shall maintain records in order to document implementation of this Plan and to demonstrate compliance with applicable USNRC license requirements.

5.13.2 Records shall be maintained as described in RSP-004, "Radiation Protection Records".

5.14 Documentation

5.14.1 Radiation Safety Procedures shall be controlled and distributed pursuant to RSP-003, "Control of Radiation Safety Procedures".

5.14.2 The following Radiation Safety Procedures shall require amendment to USNRC License No. SMB-743 prior to revision or discontinuation:

5.14.2.1 RSP-001, "Radiation Protection Program Plan"

5.14.2.2 RSP-003, "Control of Radiation Safety Procedures"

5.15 Emergency Response and Notifications

5.15.1 For emergencies where radioactive materials may be involved, consideration shall be given to exposure to radioactive materials and ionizing radiation in addition to the other hazards present.

5.15.2 Emergency response actions shall be performed pursuant to RSP-016, "Emergency Response and Notifications".

5.15.3 If it is known or suspected that an internal or external dose limit has been exceeded or that contamination levels are not as expected:

5.15.3.1 The RSO shall be notified immediately.

5.15.3.2 The RSO shall evaluate the likelihood and magnitude of the exposure or contamination status, and shall implement appropriate follow-up actions as soon as possible after notification.

5.16 Quality Assurance in Radiological Protection

5.16.1 All activities conducted as part of this Plan shall be subject to quality assurance provisions.

5.16.2 These provisions should include the following:

5.16.2.1 Radiation Safety Procedures shall be developed to implement this Plan.

5.16.2.2 Limited-scope audits/assessments of the radiation protection program should be conducted by the RSO (or designee) to determine compliance with applicable federal/state regulations, applicable license requirements, and this Plan.

5.16.2.3 Audits/assessments of the provisions of this Plan should be performed by the Quality Assurance Department or outside contractors.

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 President and after approval by the USNRC.

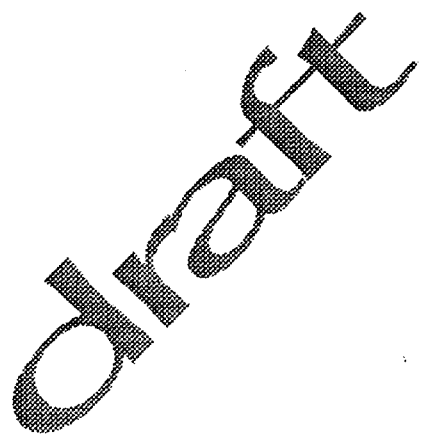
7 DOCUMENTATION

None

8 ATTACHMENTS

Attachment 1 - Location Where Licensed Materials are Used/Stored at the Newfield Facility.

ATTACHMENT 1
LOCATION WHERE LICENSED MATERIALS ARE USED/STORED AT THE NEWFIELD FACILITY


draft

ATTACHMENT 4
Facilities and Equipment

Description of Facilities, Equipment and Other Resources at Shieldalloy Metallurgical Corporation's Newfield, New Jersey Site

Shieldalloy Metallurgical Corporation (SMC) operates a manufacturing facility in Newfield, New Jersey. This facility manufactures or has manufactured specialty steel and superalloy additives, primary aluminum master alloys, refractory and metal carbides, powdered metals, and optical surfacing products. Raw materials currently used at the facility include the following metals: manganese, nickel, bismuth, iron, vanadium, chromium, titanium, silicon, copper, zirconium, magnesium, aluminum, lead and oxides of columbium (niobium), vanadium, barium, calcium, aluminum and fluoride salts.

Products

SMC produces metal alloys using source material. These alloys are produced by conventional electric or aluminothermic smelting techniques. One of the raw materials (pyrochlore) contains natural uranium in the form of uranium oxide (U_3O_8) and natural thorium in the form of thorium oxide (ThO_2). Because the concentration of uranium and thorium in pyrochlore exceeds 0.05% by weight, it is considered to be source material. The uranium and thorium remain with the by-products of production and not with the alloy.

One of the by-products is slag. Once this slag is processed, it is known by the trade name of CANAL©. CANAL© has superior applicability for steel manufacturing since it contains a relatively high percentage of aluminum oxide, making it an effective slag fluidizer.[1] CANAL© also contains greater than 0.05%, by weight, of uranium and thorium. Although these elements have no effect on the performance of the product, the market for CANAL© in the United States, which requires the purchaser/recipient to be licensed by the U. S. Nuclear Regulatory Commission, is virtually non-existent. However, a number of foreign countries do not require specific licensing of these low concentrations of radioactive materials, and SMC has committed to sale of CANAL© within these countries.

Operational Description

Pyrochlore is received and temporarily stored in either Warehouse D203(A) or D203(G) before being transferred to D111. It exists in the solid phase and is currently received at the facility in a powdered form contained in woven polypropylene bags referred to as supersacks. The pyrochlore is processed in the restricted areas of D111.

The slag produced as part of the smelting operation is stored, temporarily, in the Source Material Storage Yard. SMC produces CANAL© by crushing, sizing and packaging ferrocolumbium slag.

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[1] Another manufacturing by-product that has had a successful commercial market over the last several years is a ferrovandium slag, known by the trade name of V-40©. Because of its aluminum and calcium content, this material serves as an additive to the steel making process for reducing impurities in the final product. However, this by-product does not contain uranium or thorium in concentrations that exceed 0.05% by weight and thus is not subject to USNRC licensing.

This process does not modify the type and quantity of radiological constituents in the product. CANAL© production takes place within the restricted areas.

Resources for Radiation Protection

The ferrocolumbium production department, D111, is equipped with a dust collection system which is provided by the collaboration of two distinct filter systems. The American Air Filter (AAF) system, installed by SMC in 1966, is designed to draw 125,000 cfm. This is operated in concert with the Flex-Kleen system, installed in 1987, which can draw up to 200,000 cfm. Pulsed air jets in the Flex-Kleen baghouse and reverse air jets in the AAF baghouse remove the dust from the fabric filters. Baghouse dust is either conveyed via a series of screw conveyors and conveying ducts to a silo for temporary storage prior to transfer to the Source Material Storage Yard (SMSY) or is handled manually in bins for transfer to the SMSY. Because it contains less than 0.05%, by weight, of thorium and uranium, the baghouse dust is considered to be an "unimportant quantity" pursuant to 10 CFR 40.13. However, the source material in the baghouse dust is included in the site inventory.

SMC is equipped with various types of portable radiation detection and sampling instruments in its active instrumentation inventory. These may include breathing zone samplers, area air samplers, portable microR meters, ion chambers, gamma scintillation probes, alpha scintillation probes, a variety of geiger-mueller counters, and a zinc sulfide smear counter.

To support the radiation protection program, SMC has entered into contract arrangements with a variety of specialty firms. These firms provide analytical services, instrumentation, calibration, dosimetry services, field surveyors, Registered Radiation Protection Technologists, Certified Health Physicists, and a variety of other resources to SMC on an "as-needed" basis. All communications with contract support are directed through and coordinated by the SMC Radiation Safety Officer or Alternate Radiation Safety Officer.

ATTACHMENT 5
Methodology for Control, Issue and Distribution of Radiation Safety Procedures

	CONTROL OF RADIATION SAFETY PROCEDURES (NEWFIELD FACILITY)	Procedure No: RSP-003	age: 1 of 12
		Revision No. 000	Date: September 15, 1995
		Approved by (President):	
		Approved by (RSO):	
		Approved by (Co-Chair, RSC):	

TABLE OF CONTENTS

CONTROLLED COPY NO. : _____

1 PURPOSE

This procedure provides instructions for the preparation, transmittal, and revision of Shieldalloy Metallurgical Corporation (SMC) Radiation Safety Procedures. Its purpose is to ensure that persons performing radiological activities are provided the most current approved procedures, and that all provisions of SMC's USNRC radioactive materials license are met.

2 SCOPE

This procedure applies to control and distribution of Radiation Safety Procedures that address activities performed in support of the Radiation Protection Program Plan.

3 REFERENCES

3.1 U. S. Nuclear Regulatory Commission Source Material License Number SMB-743.

3.2 Shieldalloy Metallurgical Corporation, Radiation Safety Procedure No. RSP-001, "Radiation Protection Program Plan".

4 DEFINITIONS

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

5 PROCEDURE

5.1 Responsibilities

5.1.1 The President shall:

5.1.1.1 Review and approve all RSPs prior to implementation.

5.1.1.2 Assure that the instructions contained in RSPs are followed.

5.1.2 The Radiation Safety Officer (RSO) shall:

5.1.2.1 Develop and administer RSPs.

5.1.2.2 Review and approve RSPs to assure compliance with USNRC regulations and license requirements.

5.1.2.3 The RSO or designee shall train personnel on RSP requirements prior to implementation.

5.1.2.4 Distribution coordination with assistance of QAD.

5.1.3 The Radiation Safety Committee (RSC) shall review and approve all RSPs to ensure compliance with corporate safety and operational requirements as well as with the SMC Radiation Protection Program Plan.

5.1.4 A consultant or Quality Assurance Director (QAD) shall:

5.1.4.1 Audit manual issuance and control requirements for compliance with the provisions of this RSP.

5.1.4.2 Assist the RSO in distribution coordination.

5.1.5 SMC personnel shall:

5.1.5.1 Comply with all applicable RSPs.

5.1.5.2 Notify the RSO or an authorized user if an RSP is found to be inaccurate or lacking sufficient detail for the activity.

5.2 Procedure Format

5.2.1 Each page of each RSP shall utilize the header format as shown on this page.

5.2.1.1 The header shall specify the title of the procedure.

5.2.1.2 The procedure number and the approval date shall be specified in the header.

5.2.1.3 The page designation shall specify both the specific page and the total number of pages of the RSP.

5.2.2 The format for all RSPs shall include seven major sections: Purpose; Scope; References; Definitions; Procedure; Exemption Provisions; and Documentation.

5.2.2.1 The Purpose Section shall specify the reason for the RSP and if appropriate, shall denote why the activity is to be performed.

5.2.2.2 The Scope section shall specify the range of activities covered by the RSP and any limitations on the use of the RSP.

5.2.2.3 The References Section should include "Regulatory References" and "Technical References".

5.2.2.3.1 Regulatory References should include regulatory documents used during the preparation of the RSP or identified in the RSP.

5.2.2.3.2 Technical References should include all technical standards, related in-house procedures, and regulatory guides used in the preparation of the RSP or identified in the RSP.

5.2.2.4 The Definitions section shall include the definitions of terms that are used in the body of the document that may not be commonly understood, or it may reference the definitions contained in RSP-002, "Definitions".

5.2.2.5 The Procedures Section shall contain the information necessary for the successful execution of the task being described by the RSP.

5.2.2.5.1 One subsection shall identify those individuals who have responsibilities under the RSP. Responsibilities shall identify all groups and/or levels of individuals that are involved in any phase of any procedure. This includes execution of the RSP through management review of the completed task.

5.2.2.5.2 Each statement describing an action to be performed should be direct and to the point.

5.2.2.5.3 All instructions should be written in a manner that is clear and avoids ambiguity.

5.2.2.6 The Exemption Provisions Section shall specify the means by which variances and exceptions to the RSP are instituted.

5.2.2.7 The Documentation Section shall specify the records that shall be maintained and the length of time records shall be retained.

5.3 Listing of Required RSP Topics

5.3.1 RSP-001, "Radiation Protection Program Plan"

5.3.2 RSP-002, "Definitions"

5.3.3 RSP-003, "Control of Radiation Safety Procedures"

5.3.4 RSP-004, "Radiation Protection Records"

5.3.5 RSP-005, "ALARA Program"

5.3.6 RSP-006, "Training and Qualifications of Radiation Protection Personnel"

5.3.7 RSP-007, "Training in Radiation Protection"

5.3.8 RSP-008, "Instrumentation and Surveillance"

5.3.9 RSP-009, "Contamination Control"

5.3.10 RSP-010, "Exposure Control"

5.3.11 RSP-011, "Radiological Areas and Posting"

5.3.12 RSP-012, "Control of Work"

5.3.13 RSP-013, "Control of Radioactive Waste"

5.3.14 RSP-014, "Receipt, Handling, and Identification of Radioactive Materials"

5.3.15 RSP-015, "Packaging and Transportation of Radioactive Materials"

5.3.16 RSP-016, "Emergency Response and Notifications"

5.3.17 RSP-017, "Stop Work Authority"

5.4 Review of Procedures

5.4.1 Prior to submittal for approval, each RSP shall receive editorial and technical reviews.

5.4.2 An editorial review shall be performed by someone other than the author of the procedure and should address clarity, grammar, punctuation, spelling, and consistency in abbreviations.

5.4.3 A technical adequacy review shall be performed by a technically competent individual who is not directly responsible for the generation of the RSP.

5.5 Approval of Procedures

5.5.1 All RSPs shall be approved by the RSC and signed by the President, the RSO, and the co-chair of the RSC prior to implementation.

5.5.2 Approval signatures shall signify that the RSP is adequate for its intended use, that it meets the requirements of the Radiation Protection Program Plan, and that all provisions of the USNRC license are met.

5.6 Revising Procedures

5.6.1 RSPs shall be revised by making needed changes and resubmitting the revised RSP for the same review and approval as the original RSP.

5.6.2 Signed approvals for the revised RSP shall be obtained prior to implementing any changes.

5.6.3 The following RSPs shall not be revised without amendment of USNRC License No. SMB-743:

5.6.3.1 RSP-001, "Radiation Protection Program Plan"

5.6.3.2 RSP-003, "Control of Radiation Safety Procedures"

5.7 Procedure Change Notices

5.7.1 When the need for a procedural change is identified and it is of such nature that an immediate change is required, a Procedure Change Notice (PCN) shall be used to implement the change to the RSP until the RSP can be revised and reissued.

5.7.2 The originator of the PCN shall perform the following:

5.7.2.1 Enter onto the standard PCN form (see Attachment 1) the needed changes, referencing by number the paragraph to be changed. Entries may be hand written or typed.

5.7.2.2 Submit the PCN to the President, RSO, and RSC for review and approval.

5.7.2.3 Submit the signed form to the RSO or QAD for reproduction and distribution of RSPs.

5.7.3 The RSO or QAD shall assign a number to each PCN for a given RSP, numbered sequentially as each is submitted for production and distribution.

5.7.4 Copies of PCNs shall be distributed to all holders of controlled copies within one week of approval.

5.7.5 Temporary RSP changes shall be noted as such on the PCN, along with effective dates.

5.7.6 Revised RSPs with permanent changes shall be issued within six months of the procedure change approval.

5.8 Minor Changes

5.8.1 Minor changes in RSPs may be made if approved by the RSO.

5.8.2 Minor changes shall be written by hand on the affected page.

5.8.3 The date and originator shall be noted at the top of the affected page.

5.8.4 The RSO shall distribute the affected pages to all holders of controlled copies in a timely manner.

5.9 Procedure Manual Issuance and Control

5.9.1 All RSPs shall be maintained under the controlled distribution system described herein.

5.9.2 Authorized recipients:

5.9.2.1 The RSC shall determine who is to be issued manuals to assure that all individuals needing the RSPs will have access to them in the area in which the work is to be performed.

5.9.2.2 The RSO (or QAD) shall maintain the list of authorized recipients.

5.9.2.3 If requested, and if a recipient name/address is provided, the USNRC shall be an authorized recipient of one copy of the manual and all RSPs.

5.9.3 A master list of procedure manuals and individual procedures issued shall be maintained by the RSO or QAD.

5.9.4. All RSP's shall be maintained in a standardized procedure manual.

5.9.5. Each procedure manual shall have a unique number assigned and each RSP within the manual shall carry that assigned number (e.g. copy number).

5.9.6. A master list of procedure manuals and individual procedures issued shall be maintained by the RSO or QAD, including:

5.9.6.1. The name of the individual to which the manual/procedure is assigned.

5.9.6.2. The manual control number.

5.9.6.3. The dates each manual/procedure is issued and recalled.

5.10 Procedure Cancellation

5.10.1 If it becomes necessary to cancel an RSP, a revision shall be issued consisting of only a PCN that states that the revision cancels the RSP.

5.10.2 The following RSPs shall not be canceled without prior amendment of USNRC License No. SMB-743:

5.10.2.1 RSP-001, "Radiation Protection Program Plan"

5.10.2.2 RSP-003, "Control of Radiation Safety Procedures"

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 President, after approval by the USNRC.

7 DOCUMENTATION

7.1 A historical procedure file shall be maintained for each RSP.

7.2 The historical file shall consist of the following:

7.2.1 The signed master copy of the RSP and each revision.

7.2.2 The signed original of all PCNs associated with the RSP.

7.2.3 The signed original of each Minor Change.

8 ATTACHMENTS

8.1 Attachment 1 - "Procedure Change Notice"

2 Attachment 2 - "Procedure Manual Transmittal Form"

3 Attachment 3 - "Radiation Safety Procedure Transmittal Form"

ATTACHMENT 1
PROCEDURE CHANGE NOTICE

Modification to existing RSP ( ) or Supplement to exiting RSP ( )

RSP Number: _____

RSP Title: _____

Time Period from _____ to _____

Specific Activities Affected: _____

Description of changes including pages and paragraphs affected (attach additional sheets as needed):

Justification for changes:

Approved by: _____
President

Approved by: _____
Radiation Safety Committee (Co-Chair)

Approved by: _____
Radiation Safety Officer

ATTACHMENT 2

RADIATION SAFETY PROCEDURE MANUAL TRANSMITTAL FORM

To: Date:

From: ☐ Radiation Safety Officer ☐ Quality Assurance Director

Subject: Radiation Safety Procedure Manual Issuance

Enclosed for your use is Controlled Copy No. ____ of the Radiation Safety Procedure Manual. Please note that as a controlled-copy holder, you will be issued all revisions to the enclosed procedures. If you feel you do not need this manual, now or in the future, or if you leave the employment of SMC, please return this manual to the Radiation Safety Officer (RSO). Upon receipt of this document, please sign and date this form and return it within five working days to:

☐ Radiation Safety Officer (RSO)

☐ Quality Assurance Director (QAD)

To: ☐ Radiation Safety Officer ☐ Quality Assurance Director Date:

From: _____

Subject: Radiation Safety Procedure Manual Issuance

I verify by my signature that I have received the controlled manual numbered as indicated above.

_____ / _____

Name/Date

ATTACHMENT 3
RADIATION SAFETY PROCEDURE TRANSMITTAL FORM

To: Date:

From:

Subject: Radiation Safety Procedure Transmittal

Attached is a new or revised copy of the procedure(s) listed below for incorporation into your Radiation Safety Procedure Manual. Within ten working days, please place the attached document(s) into your manual and remove and return all superseded documents. Procedure Change Notices (PCNs) should be placed at the front of the existing procedure and all pages retained until the next revision. When you have updated your manual, please sign and date this form and return it to the:

☐ Radiation Safety Officer (RSO)

☐ Quality Assurance Director (QAD)

Revision Number	Date	Pages Affected	Description of Change

I verify by my signature that the above item(s) have been placed in my controlled manual and superseded procedures/PCNs have been removed and returned.

_____ /_____
Name/Date