



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

September 25, 1985

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Dr. Jerry R. Kline
Administrative Judge
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

In the matter of
Precision Materials Corp.
(Mine Hill, New Jersey Irradiator Facility)
Docket No. 30-22063; ASLBP No. 85-512-02 ML

ML

Dear Judge Kline:

Your Memorandum and Order dated August 8, 1985 (50 Fed. Reg. 32664, August 13, 1985), giving Notice of Informal Hearing and Opportunity to Become a Party, provides that the NRC staff shall notify you in writing if it wishes to participate as a party in the referenced proceeding. The Staff has reviewed the papers filed by the petitioner, the Township of Mine Hill, and other pertinent matters in the docket file and has determined not to participate as a party.

The Staff is enclosing with this letter the Safety Evaluation (SE) it prepared with regard to the issuance of the byproduct material license to Precision Materials Corporation. The SE documents the basis for the license issuance and is being provided as a supplementation of the materials provided to the Presiding Officer by the licensee in response to the August 8 Memorandum and Order. No environmental assessment was prepared with regard to the issuance of this license, since issuance of a byproduct materials license under 10 C.F.R. Part 30 for an irradiator falls within a categorical exclusion from the requirement to prepare an environmental assessment or environmental impact statement. See 10 C.F.R. § 51.22(c)(14)(vii).

During the course of the proceeding technical or legal issues may arise as to which the Presiding Officer may desire the views of the Staff. As stated in the notice of informal hearing, the Presiding Officer may seek such information from the Staff directly. (50 Fed. Reg. at 32665). In addition, the Staff may determine that a technical or legal matter is of such importance as to warrant a request for permission to express its position to the Presiding Officer. We believe such action would be consistent with the procedures established for this informal proceeding.

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In order to permit the Staff to be apprised of developments in the proceeding, particularly as they bear on the above considerations and upon the Staff's licensing responsibilities, the Staff requests that the undersigned be placed on the Service List for this proceeding.

Sincerely,

Stephen H. Lewis

Stephen H. Lewis
Deputy Assistant Chief Hearing Counsel

Enclosure: Safety Evaluation of Precision Materials Corporation's
Application for an Irradiator License

cc: w/enclosure
Jeffrey D. Michelson, Esq.
Robert Neuner, Esq.
Atomic Safety and Licensing Board
Docketing and Service Section

ENCLOSURE 1

SAFETY EVALUATION OF
PRECISION MATERIALS CORPORATION'S
APPLICATION FOR AN IRRADIATOR LICENSE

ITEM 1. TYPE OF APPLICATION

This item is for information only, no safety review is required.

ITEM 2. NAME AND MAILING ADDRESS

The application is submitted in the name of the corporation and not for a division, individual, or department within the corporation. The information submitted meets the criteria specified in the Standard Review Plan (SRP).

ITEM 3. LOCATION OF USE

The street and town where the facility is located are clearly identified. Maps submitted with the application further specify and identify the facility. The information submitted meets the criteria specified in the SRP.

ITEM 4. PERSON TO BE CONTACTED ABOUT APPLICATION

This item is for information only, no safety review is required.

ITEM 5. MATERIAL TO BE POSSESSED

The application clearly identifies the isotope (cobalt-60), manufacturer and model number of each sealed source, and total activity to be possessed at any one time (2,000,000 Curies). Both types of sources requested have been reviewed and registered as approved sealed sources for this purpose, (AECL - Registry No. NR-169-S-142-U and NPI-Registry No. MD-474-S-108-S).

The OMEGA irradiator is a custom design which is reviewed in ITEM 9 below.

The information submitted meets the criteria specified in the SRP.

ITEM 6. PURPOSE FOR WHICH LICENSED MATERIAL WILL BE USED

The cobalt-60 will be used for irradiation of materials. Precision Materials Corporation has confirmed that explosives, flammables (flashpoint less than 145° Fahrenheit), or corrosives (PH less than 4.0 or greater than 10.0) will not be irradiated. Food will be irradiated only in accordance with regulations of the U.S. Food and Drug Administration. The information submitted meets the criteria in the SRP.

ITEM 7. TRAINING AND EXPERIENCE FOR RESPONSIBLE USERS

(1) Names: Martin Stein
Russell Stein

(2) Formal Training:

Martin Stein has previously been approved as a responsible user on other NRC or AEC licenses.

Russell Stein has completed 28 hours of training at the former RSA Corporation in accordance with the training procedures approved in 1980 and has completed a 20 hour refresher course at PMC in the topics outlined.

(3) Operating experience:

Martin Stein has many years experience in the operation and design of irradiator facilities. He has been designated as a responsible user on previous NRC licenses.

Russell Stein was approved as an operator at RSA Corporation in 1980. He has over two years experience with an operating irradiator.

These individuals meet the requirements to be listed as responsible users.

ITEM 8. TRAINING PROVIDED TO OPERATORS:

- (1) 30 hours lecture training in fundamentals
- (2) At least 16 hours simulator training
- (3) On job training in 3 phases of two weeks duration. A license condition will require 1 month of training.
- (4) An oral exam is given with results of examination to be maintained. 51 questions and answers were submitted and reviewed.

The training program as required by license condition meets the criteria specified in the SRP.

ITEM 9. FACILITIES AND EQUIPMENT

The irradiator is designed for batch operation only. Sources are stored in a water filled pool. Construction of the floors and pool is re-enforced concrete. Irradiator shielding is provided by massive walls and ceiling constructed from stacked concrete block.

The applicant has submitted scale drawings which indicate the type, thickness, and density of shielding materials, the locations of entrances, and locations of control devices, alarms and signals.

The adjacent areas are described and calculations have been submitted to demonstrate compliance with NRC limits in unrestricted areas.

Precision Materials Corporations has provided systems to meet the requirements of 10 CFR 20.203(c)(6) as follows:

- (i) Two doors are provided as barriers to access at the only two entry or access points. Radiation monitors in the entrance and exit mazes will not permit the doors to be opened if sources are exposed. Sources can not be raised if either door is open. Both doors can always be opened from inside the irradiator.
- (ii) Door interlocks are provided to cause the sources to be lowered if either door is opened while sources are up or radiation present. If the radiation monitor reads positive and either door is not fully closed, an automatic Mode C status with visual and audible alarms is initiated by the computer. Monitors also alarm inside the irradiator.
- (iii) Since the shielding walls are stacked block which are not attached together in anyway other than pattern and friction, the question arises whether the barrier could be removed by a seismic event. PMC was asked to show the facility could withstand the maximum likely seismic event (.1 g acceleration) or to provide a system to cause the sources to drop prior to reaching the acceleration limit. PMC elected to provide a seismic switch to automatically lower the sources. Static tests showed that free standing walls of the same thickness to height ratio could easily withstand a .1 g acceleration. Dynamic testing was not done.
- (iv) Visible and audible signals are automatically generated before the sources may be raised. In addition, an audible signal is mechanically generated any time the sources are in motion. An emergency stop switch is provided and clearly identified.
- (v) The "Personnel Check" procedure requires a search to clear the irradiator of personnel prior to raising the sources.
- (vi) The "Radiation Check" procedure requires the use of a radiation monitor during the initial entry into the irradiator following an irradiation.

- (vii) PMC has provided for a computer check to detect the failure of the interlock system anytime either door is open.
- (viii) Not applicable to batch operations.

Precision Materials Corporation has provided shielding calculations demonstrating that radiation levels outside the irradiator should not exceed 0.2 mrem in any one hour.

The water storage pool has been constructed of concrete specifically formulated to prevent moisture leakage. The pool was coated with waterproof coatings on both the inside and outside. PMC has committed to test the pH of pool water and to maintain pH between 6 and 8. Water may be replenished from outside the irradiator and an alarm is generated when water drops below the pump intake. Demineralizers have been provided and conductivity will be maintained below 10 microsiemens per centimeter. A continuous monitor has been provided at the water treatment filters and will alarm if radiation levels increase by 1 mR/hr. There are no penetrations through the pool walls. The water makeup system does not connect with a municipal supply.

Precision Materials Corporation has provided a ventilation system to remove ozone or nitrogen oxides from the irradiator. The irradiator is equipped with both heat - and smoke - sensing devices. Sources are lowered and the ventilation system deactivated if indications of a fire are detected. An automatic water system will sprinkle water on the sources and source shroud if a fire is detected. A manually operated system using inert nitrogen will be used to suppress any fire in the irradiated product.

Since the irradiator will operate in the batch mode only, product will be manually stacked. The shroud provides a positive barrier between irradiated products and the sources.

The facilities and equipment meet the criteria in the SRP.

ITEM 10. RADIATION PROTECTION PROGRAM

Precision Materials Corporation has committed to providing personnel dosimetry (film badges), ample and adequate radiation monitors, and an adequate program for calibration of radiation detection instruments.

Leak testing is provided in three ways.

- (1) Continuous monitoring of the water treatment system. An alarm will sound if radiation levels increase by more than 1 mR/hr. An alarm forces further analysis and assumption of a leaking source.

(2) Weekly water sampling.

(3) Semiannual underwater wipe test and inventory.

Equipment is sensitive enough to detect .05 microcurie or 2×10^{-5} microcurie/milliliter in a sample.

Operating and Emergency procedures were submitted. A license condition requires that procedures be given to all operators. Procedures cover all items referred to in the SRP.

Arrangements have been made with Dover Hospital to accept individuals exposed to radiation.

The information submitted meets the criteria in the SRP.

ITEM 10. WASTE MANAGEMENT

All materials will be transferred only to an authorized recipient. The information submitted meets the criteria in the SRP.