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то	:	File, 19-1398-29		DATE:	JAN 1 4 1966
FROM	· :	W.H. Kay W. H. Ray Irradiated Fuels Branch:DM	• - Sector Contractor Sector Sector Sector 	i a see	 '

SUBJECT: QUEHANNA LICENSE REVISIONS - WINTER - 1965

By letter dated October 21, 1965, the Martin-Marietta Corporation requested an amendment to byproduct license 19-1398-29 by submitting 17 revised pages for substitution in the 255 page Facility Design and Safety Evaluation MND-3137. The revisions update the administrative organization at Quehanna and provide additional flexibility in the processing procedures, analytical work, and testing programs.

The revisions introduce changes in some of the job titles. A Co-ordination Production Supervisor is substituted for the Supervisor of Process and Quality Control, and this position no longer has responsibilities for maintaining quality of the product. The Co-ordination Production Supervisor co-ordinates with the Quality Control Supervisor and the Process Supervisor (instead of with the Process Chemist, Licensing Specialist, and Plant Manager), with regard to obtaining materials and meeting requirements of the production schedule safely. The Co-ordination Production Supervisor will refer suggested process or procedure changes to the Process Supervisor instead of to the Plant Manager, and he will likewise submit daily reports to the Process Supervisor. The qualifications for both the Co-ordination Production Supervisor and the Quality Control and Safety Supervisor positions are the same as those for Shift Supervisors.

A new position entitled Quality Control and Safety Supervisor has exclusive responsibility for inventory and transfers. Another newly created position, Process Supervisor, situated between the Plant Manager and the Quality Control and Co-ordiantion Production Supervisor is presently vacant.

The Hot Cell Operator Positions have been re-entitled "Hot Cell Technician." A junior (trainee) gradie technician has been added, requiring only high school education and three months related experience. The experience required for Technician Grade C has been reduced from four years to one year, but this position now requires a broad technical knowledge of radioactive processing techniques.

The Process Supervisor position which replaces the former Supervisor of Production and Quality Control requires only three to six years of experience, instead of eight, along with a minimum of three years of college education.



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A new provision permits college training and technical courses to be substituted for up to two years general experience in meeting the job qualification minima for operating personnel.

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Previous license restrictions imposed a limit of 100,000 curies of Strontium 90 not processed into the final fuel form in the A half of the Cell-4 process box plus an additional 150,000 curies in the final fuel form. The total permitted in the Cell-4 process box was limited to 250,000 curies, including a limit of 100,000 curies sealed in metal containers in the B half of the Cell-4 process box. The proposed revision does not increase the 250,000 curie limit for Strontium 90 in the Cell-4 process box. (250,000 curies is about all that the Cell-4 shielding will warrant.) However, the proposed revision would authorize the full 250,000 curies either in sealed containers in the B half of the process box or in an uncontained condition, not processed to the final fuel form, in the A half of the process box, or any combination thereof not exceeding 250,000 curies.

The limits on the quantity of Strontium 90 presently authorized in various steps of the process were listed and approved in the Safety Analysis prepared by the Irradiated Fuels Branch:DAL dated September 21, 1964 when License 19-1398-29 was renewed. The accident analyses considered at that time did not reveal a mechanism for expelling contamination from Cell-4, and hence there was no particular basis for limiting the amount of Strontium 90 in process (not fully compressed nor densely packed) to 100,000 curies in the process box compartment 4-A. Similarly, the absence of a means for dispersal of material from Cell-4 leaves us without a basis for limiting the strontium not processed to the final fuel form to quantities less than 250,000 curies.

The presence of 250,000 curies at one location adversely situated in Cell-4 may radiate from 5 to 10 mR per hour through a cell window. This is not a hazardous exposure rate, and administratively imposed operating restrictions can readily limit the exposure of personnel in accordance with 10 CFR 20.

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The proposed revisions alter some of the work area assignments. Cell-1, previously undergoing decontamination and refurbishing consequent to its use prior to the license renewal, is now to be used for storage of up to 1 megacurie of encapsulated Strontium 90 in the same kind of ventilation cooled shield that has been authorized for 1 megacurie storage in Cell-5. Capsule compatibility with fuel tests and welding are additionally specified work assignments for both Cells 1 and 5. In addition Cell-1 may be used for treating and handling up to 50 curies of Strontium 90 compounds

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or solutions by remote control. This will not be done concurrently with the corrosion compatibility experiments or welding. The 50 curie quantities will be process samples that need further preparation and dilution before introduction into the radio chemistry laboratory.

The revisions provide for preparation and removal of 50 curie samples from the Cell-4 process box via the SOTS to Cell-3, where the samples will be doubled y contained for manual transfer to Cell-1.

Other work assignment revisions include changing feed and waste sampling from Isolation Room 4 to Isolation Room 3 and adding reagents to the strontium supply cask in Isolation Room 4. Inert gass supply cylinders will be mounted in Isolation Room 5, and manipulator decontamination will be executed in a tent in the Service Area.

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The above includes information supplied by the submission of 7 additional revision pages with a letter from the Martin Company dated January 6, 1966 in response to questions posed by DML via telephone November 30, 1965. (Copy of questions attached)

The proposed revisions in administrative organization, distribution of radiostrontium in various forms in Cell-4, and the assigned work in specific areas do not appear to endanger life or property. Accordingly, their adoption by amendment of the license is recommended.

QUESTIONS ASKED M. J. GAITANIS OF MARTIN COMPANY AT QUEHANNA <u>BY</u> <u>W. H. RAY IFB/DML VIA TELEPHONE 11-30-65</u>

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- 1. Describe sealed source handling and storage in Cell 1. What provisions are made for heat dissipation?
- 2. What is nature of support work with compounds and solutions containing as much as 50 curies in Cell 1? What containment and ventilation measures will be provided to protect personnel as well as environs? What limits will be imposed on flammables and explosive materials permitted in Cell 1 and Isolation Room 1?
- 3. Explain how 50 curie solution samples are withdrawn in Cell 3 and conveyed to Cell 1 in a manner that restricts contamination and prevents spills.
- 4. Evaluate hazards that might arrise from the corrosion and compatibility tests and the welding which may be done in Cells 1 and 5.
- 5. Analyse accidents which might result from the location of gas supply cylinders in Isolation Room 5. Where will the acetone vapor from the cold trap used in connection with charging thermoelectric generators, such as the LCG-25A, be vented? (e.g. items IV. C. h and V. B. 14, Instructions NOO13130.)
- 6. Explain how contamination is controlled during manipulator decontamination in the Service Area.