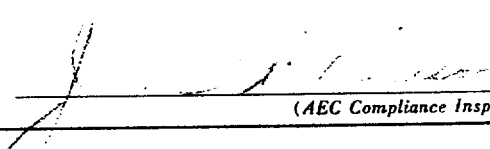



UNITED STATES ATOMIC ENERGY COMMISSION
DIVISION OF COMPLIANCE

INSPECTION FINDINGS AND LICENSEE ACKNOWLEDGMENT

E(1)

1. LICENSEE Westinghouse Electric Corporation Westinghouse Astronuclear Laboratory Pittsburgh, Pennsylvania	2. REGIONAL OFFICE AEC Division of Compliance 375 Madison Street New York, New York 10017
3. LICENSE NUMBER(S) 37-9442-1	4. DATE OF INSPECTION September 12, 1966 (Initial)
5. INSPECTION FINDINGS <input checked="" type="checkbox"/> A. No item of noncompliance was found. <input type="checkbox"/> B. Rooms or areas were not properly posted to indicate the presence of a RADIATION AREA. 10 CFR 20.203(b) or 34.42 <input type="checkbox"/> C. Rooms or areas were not properly posted to indicate the presence of a HIGH RADIATION AREA. 10 CFR 20.203(c) (1) or 34.42 <input type="checkbox"/> D. Rooms or areas were not properly posted to indicate the presence of an AIRBORNE RADIOACTIVITY AREA. 10 CFR 20.203(d) <input type="checkbox"/> E. Rooms or areas were not properly posted to indicate the presence of RADIOACTIVE MATERIAL. 10 CFR 20.203(e) <input type="checkbox"/> F. Containers were not properly labeled to indicate the presence of RADIOACTIVE MATERIAL. 10 CFR 20.203(f) (1) or (f) (2) <input type="checkbox"/> G. Storage containers were not properly labeled to show the quantity, date of measurement, or kind of radioactive material in the containers. 10 CFR 20.203(f) (4) <input type="checkbox"/> H. A current copy of 10 CFR 20, a copy of the license, or a copy of the operating procedures was not properly posted or made available. 10 CFR 20.206(b) <input type="checkbox"/> I. Form AEC-3 was not properly posted. 10 CFR 20.206(c) <input type="checkbox"/> J. Records of the radiation exposure of individuals were not properly maintained. 10 CFR 20.401(a) or 34.33(b) <input type="checkbox"/> K. Records of surveys or disposals were not properly maintained. 10 CFR 20.401(b) or 34.43(d) <input type="checkbox"/> L. Records of receipt, transfer, disposal, export or inventory of licensed material were not properly maintained. 10 CFR 30.51, 40.61 or 70.51 <input type="checkbox"/> M. Records of leak tests were not maintained as prescribed in your license, or 10 CFR 34.25(c) <input type="checkbox"/> N. Records of inventories were not maintained. 10 CFR 34.26 <input type="checkbox"/> O. Utilization logs were not maintained. 10 CFR 34.27 <div style="text-align: right;"> (AEC Compliance Inspector)</div>	
6. LICENSEE'S ACKNOWLEDGMENT The AEC Compliance Inspector has explained and I understand the items of noncompliance listed above. The items of noncompliance will be corrected within the next 30 days. Information in accordance with the Freedom of Information Act, exemptions <u>6</u> <u>2001-0377</u> (Date) <div style="text-align: right;"> (Licensee Representative — Title or Position)</div>	

Information in accordance with the Freedom of Information Act, exemptions 6
2001-0377
(Date)

Reviewed by: Cj

Date: 10/28/66

BACK-UP FOR AEC-591

WESTINGHOUSE ELECTRIC CORPORATION
Box 2278
Pittsburgh, Pennsylvania

Inspector: James F. Bresson

License No.: 37-9442-1

Date of Inspection: September 12, 1966 (Announced Initial)

Persons Accompanying Inspector:

None - Pennsylvania Department of Public Health Notified

Persons Contacted:

Morris R. Beebe, Manager, Health Physics, Industrial Hygiene, and Accident Prevention, Astronuclear Laboratory
A. T. Sabo, Manager, Industrial Hygiene and Safety, Atomic Power Division
W. P. Kovacik, Manager, Astronuclear Experimental Facility
Others as indicated in the report details

DETAILS

Organization and Administration

1. Beebe stated that work performed under this license is done only at the Westinghouse Astronuclear Experimental Facility (WANEF). Work is performed under the administration of Westinghouse Astronuclear Experimental Laboratory (WANEL). W. P. Kovacik is the Manager of the Astronuclear Experimental Facility. Radioisotope work is approved by a functioning Radioisotope Committee, which consists of Beebe as Chairman; A. T. Sabo, Manager, Industrial Hygiene and Safety, AFD; D. A. Brown, Supervisor, Accountability, Astronuclear Laboratory; W. S. Geiger, Health Physicist, Astronuclear Laboratory; J. A. Roll, Supervisor,

Physical Science, Astronuclear Laboratory.

2. The Astronuclear Laboratory administrative structure was described by Beebe as follows: The manager of Nuclear and Thermal Analysis is J. Gallagher, Supervisor of WANEF is, as stated before, Kovacik. The principal activities conducted at WANEF consist of design and development of experimental space reactors under NASA contract and the experimentalist in charge of this work is Clyde Barksdale. Use of the neutron accelerator and also a 20 curie Cs-137 sealed source in an irradiator is ^{under supervision of} B. Jennings. Beebe stated that the neutron accelerator and cesium irradiator are the most commonly used sources under this license. Very little other radioisotope handling is conducted under this license, according to Beebe.
3. Health physics support for this facility is furnished by A. T. Sabo, who assigns one of his technicians, E. Kocian, to this facility full time. He said it is Westinghouse policy that support for various operations conducted by other than Waltz Mills facility organization is provided by the site landlord. In this case, consequently, he is to provide health physics support for this operation, even though administration of this operation is by WANL. The main WANL facility is located at Large, Pennsylvania. Beebe said that he in turn oversees, in general, operations and determines that health physics support provided by Sabo is adequate. Therefore, ultimate responsibility lies with WANL, but they must live with the landlord's regulations. Consequently, ~~Waltz Mill provides the health physics coverage.~~

Scope of the License

4. This license authorizes any byproduct material as sealed sources for a total of 100 curies and any byproduct in any form for a total of 100 curies. The licensee maintains ^{the} source inventory. The latest source inventory was compiled on 9/12/66. On it were listed sources as follows:

Several calibration sources - less than .5 μ c each

C1-36

P1-204

Pb-210

Na-22

C-14

Ba-133

Pa-234

Mn-54

Cs-137 20 curies - sealed source in irradiator - purchased 12/16/65
from NUMEC - stored until 2/2/66.

Co-60 - 13 mc - sealed source - received from NUMEC 12/65

Four Sr-90 sources - 30 μ c each - check sources for area monitors.

H-3 - three tritium targets titanium tritide from Texas Nuclear -
each rated at 5 curies - received September 1964.

Also available at the facility are four Po-Be neutron start-up sources
now rated at 1.2 curies each.

5. The neutron generator is a pulsed neutron generator used for various experiments.
The Cs-137 source is used for evaluation of various thermo-luminescent dosimeters
and for instrument calibration.

Personnel Monitoring

6. Film badges are provided by Landauer and are changed every two weeks. Forms AEC-5 are maintained on all individuals in the facility. Again most work in the facility involves design and experimentation with prototype reactors. Records were examined and it was noted that the highest exposure occurred to [REDACTED] in the first quarter of 1966. He received 1.48 rem gamma. Beebe and Sabo then produced Forms AEC-4 for all personnel involved. Other highest quarterly exposures were noted to be 1.18 rem, 870 mrem, 780 mrem, 810 mrem. Average exposures were noted to range from 200 - 300 mrem. Beebe stated that all film badges are also equipped with indium foils.

7. Urinalyses are routinely run on the personnel every six months. Samples are analyzed for gross beta. Records indicated no evidence of fission product activity. Analyses are performed by Westinghouse Industrial Hygiene Laboratory in east Pittsburgh.

Leak Tests

8. Leak tests of all sealed sources are performed by E. Kocian, the Health Physics Technician. It was noted that leak tests are performed in January and July of each year. The records are maintained in units of microcuries and all records indicated contamination levels of less than .005 μc .

Cesium-137 Irradiator

9. Cs-137 irradiator is utilized in a basement room located directly below the reactor facility. Access to the room is by means of one interlocked door which cannot be opened with the reactor ~~is~~ in use. Access is by means of a long narrow iron ladder-like stairway. ^{rotation activated} ~~As key~~ to the irradiator is located at the bottom of these stairs. When the key is turned, the window or shield is rotated and the source is rotated into the radiation position. Flashing red lights both on top of the irradiator and on top of the door to the stairway are activated when the source is in the exposed position. The unit is run by Gilbert Kubanscek, a technician. He stated that the beam is well collimated. It was noted that the area of the beam is actually roped off so that a person could not possibly get into the beam. The dose rate at the opened window of the unit is 1000 r/hr. The dose rate at the area where the key is inserted to activate the unit is 13 - 15 mr/hr with the source in the opened position. After the source has been turned on Kubanscek stated that he climbs the stairs and places a chain across the top of the railing as a barrier. He then goes out the door and locks it and retains the only key, thus preventing entry to the irradiation room. The source may be in the exposed position for three to four hours when used. It was noted that the barrier which prevents personnel from entering the beam has been

erected at the 100 mr/hr limit.

10. Mr. Burris Jennings is responsible for operating the neutron generator. This generator was noted to be located in the reactor room. Entry to this room, of course, is impossible with either of the reactors operating. This is due to an interlock between the reactors and the entrance door. Jennings stated that neutron generator use is sporadic; it may not be used for a month and then it may be used two or three days. This is a pulsed generator, producing 10^{11} neutrons per second at 14 mev. A 5 c target is utilized. This unit, according to Jennings, is freon cooled and not water cooled because of the long use period. The unit is interlocked with the door in exactly the same way that the reactors are such that opening the door causes the unit to be shut off. It is used for various research purposes, all involving production of neutrons. The generator can be activated only by means of a key which is maintained by the facility manager, Kovacik. Jennings stated that the accelerator produces one pulse per second, each pulse lasting for from two to ten microseconds.

Surveys

11. Kocian described his survey program. Again the surveys are mainly in conjunction with reactor operation, however seeing that the same facilities are utilized for use of the neutron generator, these survey requirements are easily fitted into the schedule. The test cell or reactor room is surveyed for contamination daily. The constant air monitors are checked daily. The counting equipment is checked for background and efficiency. The test cell is also monitored for stray radiation daily. The entire facility is smeared for contamination weekly, including offices. The constant air monitor results and results of any other air samples taken during the reactor operation are recorded. It was noted that when the reactor and neutron accelerator are running, both gamma and neutron dose rate surveys are performed by Kocian. On the few occasions when tritium targets are changed, contamination samples are taken and counted ^{for H^3} in a windowless flow counter. So far, according to Kocian, they have found no indication of tritium spread.

12. The irradiation unit was surveyed at installation. Dose rates are as described previously. Records are maintained of this survey. Kocian also smears eating places and fountains daily, checks laundry for contamination, bundles it up for sending it to Penn Overall Company, calibrates the gamma alarms, packages solid waste for shipment and checks to see that facility procedures are adhered to.

Posting and Labeling

13. It was noted that the cesium irradiator was labeled with the standard "Caution - Radioactive Material" sign and symbol and contained information as to kind, quantity, and date of assay. The roped off area, providing a barrier from the primary beam, is labeled with the standard "Caution - High Radiation Area" sign and symbol, as is the doorway leading to the stairs. The neutron generator is also labeled with the standard "Caution - Radioactive Material" sign and symbol, containing information as to kind, quantity, and date of assay. The door leading to the reactor compartment is labeled with the standard "Caution - High Radiation Area" and "Caution - Radioactive Material" signs and symbols. All other storage containers were noted to be labeled with the standard "Caution - Radioactive Material" sign and symbol, containing information as to kind, quantity, and date of assay. Form AEC-3 was noted to be posted at the entrance to the reactor compartment.

Management Discussion

14. Results of the inspection were discussed with Beebe, Sabo and Kovacik. No items of noncompliance were noted as a result of the inspection. Form AEC-591 was issued at this time.