

To File <sup>mm</sup>  
Thru P.R. Nelson Supv.  
From W. Lorenz Rad. Spec.

Subj. Inspection Evaluation - Westinghouse Elect.  
WANEF Facility - Lic. No. 37-9442-1  
~~Inspected~~

The subject facility was inspected on 5/21/68.  
No items of noncompliance were noted under  
the licensed program. The licensee possess  
two critical facility test cell which do  
not require licensing (NERVA program on  
contract jointly with AEC & NASA).

Licensed material used primarily in R+D  
associated with reactor evaluations.

Licensed material use is well controlled  
and safely used. No apparent hazard from  
licensed use of material. Chas 591 issued  
in the field. Recommend reinspection in  
1 yr plus 4-yr on 11/69. This license  
is properly categorized as E(1) Priority II.

REGION I, DIVISION OF COMPLIANCE  
NEWARK, NEW JERSEY

1. Name and address of licensee:

*Westinghouse  
Walt Mill*

2. Date of Inspection:

*5/21/68*

3. Type of Inspection:

*Announced Reinspect*

4. License number(s), docket number(s), number and date of last amendment for each license. Category and Priority of each license:

*37-9442-1 8/9/67 Am. #6 Cat. E(1) Prior. II*

5. Date of previous inspection:

*9/12/66*

6. Is "Company Confidential," or proprietary, or classified information contained in report?

Yes \_\_\_\_\_ No X

(Specify paragraphs)

7. Scope of inspection:

*complete inspection  
Review of records, facility, controls,  
procedures, material on hand, use of material.*

8.

*W. Lorenz*  
Inspector

*6/6/68*  
Date of Report

*Paul B. Nelson*  
Reviewer

*6/20/68*  
Date of Review

Licensee:

Westinghouse 37-9442-1

Westinghouse Astronuclear Evaluation Facility (WANEF)

Summary

Facility toured, records reviewed, controls discussed with Mgr. and operators and H.P. Tech. Suggested reduce rad levels from auxiliary (Contest) reactor. Pointed out hazards to be expected from H-generator.

Noncompliance and Safety Items

No. noncompliance - only safety suggestion is to reduce rad levels from NERVA test reactor instead of posting man in areas where high levels exist during operations.

Unusual Occurrences

None

Status of Previously Reported Noncompliance or Safety Items

None

Management Interview

The above safety item was discussed with WANEF mgr. who said plans were being considered to earth shield that side of facility.

No. noncompliance noted under licensed operations. Above reported to WANEF mgr. and Dentsburg General Mgr. for Operations services.

Licensee:

Westinghouse 37-9442-1

DETAILS

A. Participants

Dr. W Kovacik Mgr. (WANEF)  
M. Beebe Mgr. (Ind. Hyg. Astronuclear)  
R. Kitz, H.P. Eng.  
M. Rielly State Health Dept.

B. Scope of Licensee Program

R & D on reactors w/ respect to operations, critical arrays.  
calibration and dosimetry of critical assembly (subcriticals  
and minor other studies.

C. Organization

WANEF (West. Astronuclear Exp. Facility) is located at Walby Mill.  
Pa. Site. H.P. Service received by W.T.R. personnel on contract  
basis. WANEF mgr. (Dr Kovacik) reports to General Mgr. of  
Astronuclear Div.

D. Administrative Control

All persons (small group of people) at WANEF have been designated  
by the mgr. as authorized users of materials, Major projects are  
written S.O.P.s and receive Soc. Comm. review. Minor ones approved by mgr.  
Mgr. tours facility daily and has weekly work schedule of H.P. technician  
assigned to facility

E. Use of Material

materials possessed at facility is shown on attached sheet.  
Large & sources used for instr. calibration at farm house basement in  
permanent set-ups.  
Pu + Po-Bz - used for reactor start up sources and instr. Calibration (daily)  
~~Po-Bz - used for instr. cal~~  
H. 3 sources used for in  $\gamma$  generator at farm house facility. (~1 (wh)  
Small sources used for instr. std. and Calibration. (daily)  
irradiated samples 2x in 4 up. (study of contaminants in Be and graphite)

Licensee:

Washington 37-9442-1

F. Facilities

WANEF facility is separately controlled access area at the Waltz Mill Site. WANEF is adjacent to WREC (SUM-738) but distinct.

WANEF has two reactor test cell operated for NASA under AEC-NASA contract (not licensed). In addition 5 other rooms are used in support of reactor test studies. The entire facility has controlled access.

The farm house facility is a std house taken over, used for instr cal. and physics studies. A generator controls located in house for trailers housed, earth shield and locked fenced H-generator.

G. Equipment

possess multiple types of instrumentation including bonosphere type H detector. Primary purpose of facility is to test radiation detection in association with varying reactor configurations.

H. Radiological Safety Procedures

Basically follow Waltz Mill site H.P. procedures. Follow reactor operating procedures. Nuclear Safe Comm. and Iso. Comm. review all major and the procedures. minor ones, procedures review by Mgr. (Kovachik). Daily surveillance of operations by both mgr. and H.P. technician.

Work done at facility is programmed on weekly basis. Mgr. knows per schedule what work is being done at any time.

I. Personnel Monitoring and Exposure to External Radiation

AEC-4 + 5 maintained - Landauer 2 wk. badges used (24 people)

results < 1.25 r/yr W.B.

< 25% of 7.5 r/yr SWB.

< 25% of 18.75 r/yr extremities

also also use 0-200 mR P.D. and occasionally 0-500 mR P.D. for reactor operations in cell entries.

Licensee: Westinghouse 37-9442-1

J. Exposure of Employees to Concentrations of Radioactive Materials

$\alpha$  activities run  $10^{-10}$  to  $10^{-12}$   $\mu\text{Ci/cc}$  (without decay)  
are  $10^{-10}$   $\text{U}^{235}$  insol. ~~as~~ as limit

$\beta$  activities run  $10^{-11}$  to  $10^{-12}$   $\mu\text{Ci/ml}$   
activities measured in test cells  $\approx 4_2$  to 1 hr. after operations and  
before entries. No significant noble gas problems (Kovachik)

K. Effluents to Unrestricted Areas

None.

$\text{H}_2$ -generator housed in trailer well ventilated but no  $\text{H}_2$  gas,  
 $\text{H}_2$  generator equip never disassembled. (pointed out hazard  
when necessary to disassemble.)

L. Disposals

wastes are drummed and transferred to Wally Hill storage  
pool then shipped to Nuclear Eng. Co.

M. Miscellaneous Surveys, Evaluations and Records

Records maintained on all receipts, transfers, survey, etc.

Regarding NERVA test reactor (unlicensed) survey of facility  
and local area around facility. Levels on ~~occasional~~ reach  
 $.75 \text{ mR/hr}$  1 watt when operating. This unlicensed unshielded  
reactor (part of experiment). Reactor operated for short times at  $750 \text{ W}$   
during such operations H.P. tech. ~~personally~~ physically restricted  
areas (private road) adjacent to facility. This level is reached  
at road. (discussed, and licensee plans earth shield to south of  
facility as to down to east of facility)

Licensee: Hestington 37-9442-1

N. Special License Conditions

L.T. B source - B.M. tube in well w/ RLD 4951 scales.  
d " - Eberline SAC-3 Scintillation counter.  
no results over .005 mc. source tested by dry wipe  
every 3 mo. ( $H^{-3}$  every 1 mo.)

O. Posting and Labeling

Facility and surrounding area posted. AEC-3 at entrance.  
Storage containers posted + labeled.

P. Independent Measurements

NONE

Q. Operations Observed

NONE

R. Incidents, Overexposures, Theft or Loss, Equipment Malfunction

NONE

TABLE I - WANEF RADIATION SOURCES

<u>SOURCE</u>	<u>ORIGINAL ACTIVITY</u>	<u>DATE OF CALIBRATION</u>	<u>TYPE 1/</u>
1. Co <sup>60</sup>	30 curies	9/27/67	S
2. Co <sup>60</sup> 2/	200 millicuries	Early 1968	S
3. Cs <sup>137</sup>	22 curies	9/65	S
4. Cockcroft-Walton	D-D ~ 10 <sup>7</sup> neut/sec (max)	—	E
5. Cockcroft-Walton	D-T ~ 10 <sup>11</sup> neut/sec (max)	—	E
6. Kaman Nuclear	D-T ~ 10 <sup>8</sup> neut/sec (max)	—	E
7. Cf <sup>252</sup>	~ 3.1 x 10 <sup>5</sup> n/sec	Early 1968	O
8. RaBe	1 millicurie	1/1/63	O
9. PoBe	7.5 curies	8/25/65	O
10. PoBe	7.5 curies	8/29/66	O
11. PoBe 2/	10.31 curies	9/21/67	O
12. PuBe (exempt)	0.5 curies	9/19/63	O
13. PuBe 2/ ( " )	5 curies	8/15/67	O
14. PuBe 6/ ( " )	5 curies	3/18/63	O
15. Co <sup>60</sup> 4/	~ 20 microcuries	1/1/63	O
16. Co <sup>60</sup> 4/	~ 50 microcuries	Late 1962	O
17. Cs <sup>137</sup> 2/	200 millicuries	Early 1968	O
18. Sr <sup>90</sup> 2/	30 microcuries	?	O
19. Ce <sup>68</sup>	38 microcuries	12/15/68	O
20. Numerous other sources which are license exempt quantities.			O
21. Up to 10 Cockcroft-Walton targets containing 3-5 curies of H <sup>3</sup> absorbed on a thin metal plate.			O

1/ S = STRONG    E = ELECTRICAL    O = OTHER

2/ Proposed NBS secondary standards.

3/ Present reactor startup source.

4/ These sources consist of a collection of loose wires and foils.

5/ Three of these sources exist.

6/ Property of APD Health Physics.



3140 D

1200 B

150 A

170 A

3120 C

280 A

250 A

330 A

520 A

1190 B

200 A

910 A

930 A

930 A

470 A

370 A

1820 B

150 A

1550 B

140 A

1250 B

EX 6

B

A

A

B

A

A

A

Ex 6