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**H. I. Fries, Director**  
**Division of Licensing and Regulation**

Signed  
by

AUG 12 1960

**Marvin M. Mann, Assistant Director**  
**Division of Inspection**

M. M. Mann

**WESTINGHOUSE TESTING REACTOR - REFERENCE: INSPECTION REPORT CF-169  
AND ATTACHED MEMORANDUM, INVESTIGATION OF INCIDENT AT WTR**

**SYMBOL: IES:MEM**

Attached is Division of Inspection Report CF-185 concerning a visit to the Westinghouse Testing Reactor.

While the decontamination work subsequent to the incident of April 3, 1960, is almost complete and the facility itself should be ready for resumption of operations in the near future, we offer the following comments on certain aspects of the WTR operation.

In our memorandum of comment on the incident of April 3, attached to Inspection Report CF-169, we noted that the venting system for the process water head tank and for the process water surge tank negated in part the purpose and effect of the containment building. We noted on July 29, 1960, that installation of an automatic trip valve vent line was in progress and, in our view, this design modification should remove the deficiency mentioned above.

It was noted also in the referenced memorandum that the Supervisor in charge of the reactor at the time of the incident was inexperienced and that, in the view of the committee, detailed operating procedures and emergency procedures were lacking. While it appeared from our discussion with Messrs. Morris and Schultz that some improvement in operating procedure has come about, we believe that the status of organization and procedure at WTR remains substandard and in need of substantial improvement. Responsibility for preparation and approval of operating procedure remains solely within the WTR operating group. The technical support group, although it receives copies of procedures, has no formal responsibility either for continuing review and approval of operations or procedure. The translation of technical specifications and requirements into detailed operating procedure is made by the operating group and no responsibility for procedural safety exists outside the operations group. Messrs. Morris and Schultz appear to be unimpressed with the need for such independent technical review and approval and remarked that in their past experience in the manufacture of radar

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equipment, it was found both necessary and satisfactory that detailed test (operating) procedures be the sole responsibility of the test group. We can only conclude that VTR management looks upon reactor operation as it does upon the manufacture of components and equipment; a view with which we disagree and believe deficient in full understanding of those features of organization and procedure most conducive to operational safety.

Our views concerning the possibility of flow disease as a contributing factor to the April 3 incident remains substantially unchanged. We do not agree with the conclusions of VTR-49 that boiling disease was not a cause of the incident. We believe that boiling disease remains a definite possibility as a cause but that until further research and development is done, the actual cause of the incident cannot be fully determined.

We were not encouraged by the reluctance of VTR management to consider an operational rule forbidding detectable boiling in the reactor. We have discussed this subject previously and remain of the view that until the boiling phenomena in reactors of the VTR-VTR-57H type are better understood in relation to burnout, it is prudent to avoid operational situations in which detectable boiling exists.

It was unfortunate that we were not able to talk with Mr. Charles Weaver in the afternoon of July 29, 1960. During our conversation with him on the morning of that date, however, we explained our findings from previous visits and our concern with questions of organization and procedure discussed above. In a short telephone contact with Mr. Weaver later in the afternoon, we agreed to meet and discuss the events of July 29th as soon as possible.

Attachment:  
Div. of Inspection  
Report CF-185

cc v/attach:  
W. F. Finan, AGRS  
Dr. C. K. Beck, DIR  
~~L. E. Johnson, DIR~~  
C. F. Eason, OGC  
R. C. Hageman, CH  
R. H. Engelken, SAN  
J. R. Sears, NY  
V. A. Walker, ID

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Weisman:bh

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U. S. ATOMIC ENERGY COMMISSION  
DIVISION OF INSPECTION  
REPORT CF-185

By: John R. Sears, Inspection Specialist  
New York Operations Office

Date: AUG 12 1960

Title: WESTINGHOUSE TESTING REACTOR

SUMMARY

A visit was made to the Westinghouse Testing Reactor on July 29, 1960, by Dr. Marvin M. Mann, Assistant Director, Division of Inspection, Hq., Vincent A. Walker, Division of Inspection, Hq., and John R. Sears, New York Operations Office. The purpose of the visit was to conduct a follow-up inspection of the Westinghouse Testing Reactor after the receipt by the Commission of Report No. WTR-49, "Report On WTR Fuel Element Failure on April 3, 1960" and to determine the state of readiness of the facility and organization for resumption of operation.

DETAILS

I. Scope of Visit

Dr. Mann and Messrs. Walker and Sears met with Mr. Charles Weaver, Vice President of the Westinghouse Electric Corporation in charge of atomic development, on the morning of July 29, 1960. It had been planned for the inspectors to visit the WTR site before meeting with Mr. Weaver; however, due to Mr. Weaver's schedule, such arrangement was not possible, and the inspectors met with him before visiting the site.

WTR personnel contacted by the inspectors at the site included:

Mr. Edmund Morris	-	WTR Manager
Dr. M. Schultz	-	Engineering Manager
Andy Pressesky	-	Scientific Support Manager
E. H. Hemmerle	-	Supervisor, Technical Assistance

Mr. Merson Booth of the AEC Hazards Evaluation Branch was present during the meeting with the WTR staff.

The visit included a tour of the site, a discussion of the incident, and remedial measures taken by the staff to prevent similar incidents.

Distribution:

H. L. Price, DLR  
Dr. C. K. Beck, DLR  
L. E. Johnson, DLR  
General Counsel (Mr. Eason)

Approved: Marvin M. Mann  
Assistant Director

## 20. Results of Visit

### A. Visual Inspection of the Site

The inspectors were conducted on a complete tour of the reactor building, the auxiliary buildings, and the waste disposal plant.

In the reactor building in the subpile room, a radiation sign indicated that the general reading in the subpile room was 10 mr/hr. It was noted that sheet lead had been installed around pipe elbows on the pneumatic rabbit system.

Within the containment sphere, contamination appeared to be well under control. Many areas were stated to be clean. It was noted in some areas that a 4-inch layer of concrete had been placed over the original floor to contain contamination. Almost every floor area had had new tile installed.

On the pile top it was noted that a crew had just finished working inside the reactor vessel. They had been chemically decontaminating the walls of the vessel and it was noted that a plywood cover and a plastic sheet had been spread over the core location to prevent extraneous matter dropping down into the core area.

It was also noted during the tour that the instrumentation for the bubble detection was still in place.

At the head tank it was observed that rigging was in place for installation of the automatic trip valve on the vent line from the head tank.

The head tank monitor location in the fan room was observed. Mr. Pressesky stated that the time of response of radioactive gas in the head tank by the monitor was in the order of one or two seconds.

At the waste disposal area, it was observed that there were approximately thirty-six 20,000 gallon tanks and one 500,000 gallon tank in addition to two plastic sheet lined basins of approximately 100,000 gallon capacity each. Mr. Pressesky stated that there is approximately 1,600,000 gallons of water held up in these tanks and in the basins now, and the average activity of the water would be about  $5 \times 10^{-4}$   $\mu\text{c/ml}$ . One of the difficulties is that these open retention basins catch rain water. Mr. Pressesky described one incident that contributed to the large volume of water which now has to be evaporated. A caustic solution had been used for decontaminating the heat exchangers. The solution had been flushed out of the lines after the decontamination, but evidently the pump used for circulating the solution had not been flushed. This same pump was then used to pump out a tank through a temporary hose line which was coupled with an aluminum coupling. Very soon after the pump was turned on, the caustic solution dissolved the threads on the aluminum coupling and the contaminated water in the tank spilled over the ground. Fortunately, a bulldozer was being used at the site at the time and was immediately pressed into service to build an earthen dam around the spill.

The evaporator for concentrating the contaminated water was being installed during the inspection. This evaporator was stated to have a capacity of 2000 - 3000 gallons an hour.

Within a fenced area, a number of 55 gallon drums were noted. These drums were marked with radiation signs and it was stated that they contained mud.

Results of Visit (Continued)

During the inspection, a trench was being dug for the installation of a cast iron pipe to the original concrete lined retention basin. The original pipe to this retention basin had been made of concrete and Mr. Pressesky said that ground water had leaked into this pipe at a rate of approximately 5 gallons a minute, and that this had contributed to the large amount of water now in the waste disposal area.

B. Organization and Procedures

At a meeting with the operating management staff, Dr. Schultz showed the inspectors revised pages of the operations manual. These pages incorporated procedures which warn against allowing the reactor to return to power after an unexplained drop in reactivity.