

TASK CLOSE OUT DOCUMENT

Task Scope: Cost Estimation  
Estimate for the  
work.

To: M. Levenson  
S. Levy  
E. Zebroski

Task No. 11- Date Complete 11-1-57

Reason felt task is complete:  
completion of cost estimate  
\_\_\_\_\_

- Members of Committee
- Levenson
- Levy
- Zebroski
- ...
- ...
- ...
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- ...
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[Signature]  
Signed  
Committee Leader

**POOR ORIGINAL**

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TMI-C REACTOR CORE STATUS

INSTRUMENTATION DATA PACKAGE

Prepared By:

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TRINITY REACTOR CORE STATUS  
INSTRUMENTATION DATA REPORT

Numerous measurements have been made during the last 30 days that can help in inferring the status of the TRINITY reactor core. The purpose of this document is to report all of these measurements to provide as completely and accurately as possible the pertinent information. This data will be reported by instrument class.

1. Incore Thermocouples

52 Cr/Al thermocouples are located in incore instrument thimbles positioned approximately 6" above the active core. Diagnostic measurements (loop resistance, time trace studies, trend analysis and spectral analysis) indicate that 49 of these are functioning and appear to be healthy, 2 (13F and 2L) are suspect (reading low and are noisy) and 1 is failed (13L).

2. Incore Self-Powered Neutron Detectors

There are 52 instrument thimbles in the core that contain 7 self-powered neutron detectors (SPND) in each thimble at levels in inches from the core bottom as follows:

LEVEL	Inches From Core Bottom
1	10
2	30
3	50
4	70
5	90
6	110
7	130

Diagnostic measurements (loop resistance and current) on these SPND's indicate that 37 of these are not failed (high resistances and immeasurable currents) with 20 of 52 at level 1 and 15 of 52 at level 2, 1 at level 3 and 1 at level 5 (see attachment 1 for detailed location information). The failed SPND's show low loop resistances indicating probably failed sheaths and moisture in the cable.

3. Excore - Uncompensated Ion Chambers

Eight uncompensated ion chambers (4 upper and 4 lower) are positioned about 6" outside the reactor vessel. Icc measurements have been made on these chambers as follows:

Icc - standard: 8.8 R/hr/ra

Quadrant (relative pump)	Upper	Lower
WX (2A)	2.8	2.1
ZY (1A)	2.6	3.4
WY (2B)	2.2	2.0
ZY (1B)	1.88	1.6

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4. Startup Range Detector (SR, Counters)

There are two startup range detectors located about 6" outside the reactor vessel. These detectors have been verified to be responding to neutrons (integral bias curve, discriminator setting). The neutron source from the core at this time is a combination from the startup sources (Americium, Beryllium and Americium) and  $\gamma, n$  reactions in Deuterium and then from multiplication in the core. The detectors were reading 40 cps on 4/9/79 and were showing slight decay daily.

5. Moveable Incore Detector

Each instrument thimble has a hollow tube for insertion of a moveable incore SPND. BI were capped off and one (A-B) had the moveable SPND paried. The SPND was inserted on 4/9/79 and moved to about 3 ft. (24-3 in) up into the core before it was blocked for any further insertion. The probe was backed off and reinserted to this same point several times indicating a firm blockage at this point.

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