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**From:** Garry, Steven  
**Sent:** Tuesday, November 24, 2009 12:24 PM  
**To:** White, John; Nimitz, Ronald  
**Cc:** Pedersen, Roger; Conatser, Richard; Shoop, Undine; Brown, Frederick  
**Subject:** TMI and Industry Dose Data

John and Ron:

INPO has not been answering the phone to help with the estimates of personnel contaminations, as the NRC does not track personnel contaminations. From my knowledge, the number of contamination incidents during are refueling outage varies generally from 10-200, depending on the plant, the location (temperature in containment), and length of the outage.

I would suggest that we provide answers that are generalized to give an overall perspective, and back that up with the specific data.

Steve

The data below is from NUREG-0713. Pls verify the data.

### Three Mile Island

Internal dose: 0 workers with intakes (2008)

Internal dose: 0 workers with intakes (2007)

Total external dose (2008): 2 rem, with 64 workers have measurable dose (likely a non-refueling outage year).

1,128 workers monitored, 62 workers had dose less than 100 mrem, and 2 workers between 100-250 mrem, and none were higher (Appendix B).

Total external dose (2007): 114 rem (likely a refueling outage year)

1,458 workers monitored, 846 workers less than 100 mrem, 349 between 100-250 mrem, 65 between 250 and 500 mrem, 4 workers between 500-750 mrem, 2 workers between 750-1,000 mrem, and none above 1,000 mrem (Appendix B).

Average total external dose (3 year rolling average): 41 rem (Table 4.6).

### Nuclear Power Industry:

There were 61,326 workers with measurable dose in 2008 (Table 4.4).

The total nuclear plant collective dose in 2008 was 9,196 rem (Table 4.4).

The average worker dose (for workers with measurable dose) in 2008 was 150 mrem (Table 4.2 by calculation 9,196,000 mrem divided by 61,326 workers).

There were 12,325 workers with doses 100-250 mrem, 6,786 with doses 250-500 mrem, 2,429 with doses between 500-750 mrem, 921 with doses between 750-1,000 mrem, and 38 with doses between 2-3 rem (Table 4.4).

BWRs: 5 workers with doses exceeding 2 rem external dose.

PWRs: 0 workers with doses exceeding 2 rem external dose.

The 2008 industry total internal dose was 4.6 rem, and the average internal dose was 17 mrem (Table 3.9)

Most common radionuclides for intakes:

1. tritium
2. I-131
3. Co-60

B/125  
1/13/10

- 4. Co-58
- 5. Cs-137