DAVE SPINDLER (3)
11/23/09 (6:00PM)

Note: This is INTERNAL Preliminary Background Information. Status will be updated in the morning.

As of 1800 on November 23, 2009.

Updates in Bold

ISSUE SUMMARY

Three Mile Island airborne contamination results in workers being contaminated and requiring decontamination.

BACKGROUND

At about 1600 Saturday Nov 21, TMI experienced alarms inside the containment due to high airborne contamination levels. TMI is shutdown and replacing their steam generators. The containment was evacuated of approximately 175 workers. 145 workers were processed through a whole body counter with 19 of these workers > 10mrem (16 were between 10 and 20 mrem, 2 were between 20 and 30 mrem , and 1 was between 30 and 40 mrem). There were a total of 17 skin PCEs from the TMI issue, all personnel were decontaminated. The skin PCEs ranged from 1,000 dpm to 30,000 dpm.

Work had been stopped inside containment. Radiation protection has surveyed the containment and surface contamination from the event has been identified. Currently, the only work allowed in containment is encapsulating the "A" Steam Generator, decontamination activities associated with the steam generator replacement, and some work on a case by case basis. The licensee is performing a root cause evaluation for this event.

Cutting was being performed to support removal of the "B" steam generator along with some welding. The "A SG, although cut and off its pedastel, remains fully inside the containment, although there is a cut of the containment to support SG movement which had a plastic covering. The inside side of the plastic tarp was contaminated and is currently in the process of being replaced. Surveys for contamination at the containment cut and just outside the cut have shown no levels of contamination. The final percent of ODCM Quarterly Limit value calculated for the sample started at 1600 and stopped at 1700 is 0.3% particulate.

A call through the HOO was held (~ 2130 11/21) to understand our next steps (licensee outage manager provided us an update). Diane Screnci is available to respond to media calls, Nancy McNamara has reached out to Pennsylvania, and the HOO is making contact with DHS, indicating no need for a federal reaction. There has been media interest and calls from other federal agencies. Next steps include Ron Nimitz assessing possible specialist support onsite. Dave Spindler will assist Javier Brand in regulatory oversight for the week.

LICENSEE ACTIONS

1. Restrict work activities in containment until an apparent cause has been determined.

2. The licensee will ensure that the containment be maintained at a negative pressure with respect to atmosphere. Currently the Exhaust fans are on and the Supply fans are off and the containment is being maintained in a negative pressure. Completed 11/22.

3. The licensee is in the process of replacing the plastic tarp over the maintenance opening. **Completed 11/22**

4. Encapsulate the "A" steam generator contamination from the airborne contamination. **Completed 11/23**

5. Perform a root cause to understand what actually occurred.

    a. Currently there are 4 suspected scenarios, 1. A wet vacuum cleaner caused the release 2. Failure of a separate HEPA filter in containment 3. Welding activities on the "B" Steam Generator cold leg drain 4. Changes in ventilation caused contamination to be stirred and become airborne.

    b. A prompt investigation is complete and the apparent cause is changes in ventilation caused the contamination to be moved. The licensee has held a PORC meeting and planned corrective actions have been implemented. A review of the corrective actions will remediate all the potential scenarios discussed. Completed 11/23

6. Radiological personnel dose implications. (update at 1600 by R. Nimitz)

At the time of the event, the licensee believes a total of approximately 175 personnel were working in containment. All of these personnel were checked for contamination via personnel monitoring. There were three individuals reported to be outside the containment construction cut on the platform at the time of the event. Neither of these individuals were identified as contaminated. Of the 175 personnel, 145 personnel could not pass the gamma sensitive personnel contamination monitoring indicating some type of either external or internal contamination. Of these 145 personnel exactly 17 personnel were determined, based on external frisking to have personnel external contamination. These personnel were decontaminated and NO personnel left site with external contamination. The contamination did not cause any measureable external dose. Of the 145 total, 19 were originally determined to have some measureable internal contamination with doses calculated as below (1770 11/22). As a result of recounting and evaluation, as of 11/23, the licensee believes only 7 personnel indicate a dose greater than 10 millirem as presented below. The licensee is continuing to further evaluate these. The licensee formally authorized those individuals to leave site that alarmed the personnel contamination monitor with some detectable intake.

Time/Date	> 10	10-20	20-30	30-40	maximum
1700/ 11/22	19	16	2	1	38.4 millirem
1600/11/23	7	5	2	0	25.7 milirem

7. **Environmental dose calculation (provided by R. Nimitz)**

   Base on evaluation of flow rates and air samples collected the licensee has calculated that the release on 11/21 resulted in a dose of 0.7% of annual limit of 15mrem per year and 1.5% of the quarterly limit of 7.5mrem per year. The total estimated dose to date from airborne releases at TMI is 0.138mrem.

NRC'S ACTIONS

1. Region I PAO (Diane Screnci), DRS Branch Chief (John White) and a Senior Health Physicist (Ron Nimitz) visit the site and perform a press briefing. Completed 11/22
2. Senior Health Physicist to monitor licensee performance on site. **Ron Nimitz arrived on site 11/23 for this function.**
3. Resident Inspectors to monitor licensee remaining outage activities.
4. Review licensee root cause evaluation
5. Continue public outreach activities and to inform news media as necessary

OBSERVATIONS

1. The licensee is performing minimal work in the containment until the event is fully understood.
2. The licensee still does not understand what actually caused the airborne and is continuing to evaluate. This is key before allowing most work to resume in containment.
3. **The prompt investigation initiated some immediate corrective actions that are tracked in the OCC.**