Issue/Title: Pilgrim Nuclear Power Station (PNPS): Tritium in Groundwater Monitoring Wells

Topic: PNPS Updates as of September 20, 2010

Previous Plans: Results from groundwater monitoring well samples and surface water samples taken during week of September 6, 2010, were reported by Entergy (see table below). Splits of these samples are currently being analyzed by the MDPH MERL lab. As reported last week, the labs are having difficulty keeping up with the number of samples to analyze weekly, and discussions are underway on how best to address this issue to ensure timely analyses, especially for wells of particular interest (e.g., MW-205, MW-206).

Current Status:

Table 1[1]: August 30th

Location	Date	MERL[2] pCi/L	GEL[3] pCi/L
MW 201	8/30/2010	1294	974
MW 202	8/30/2010	**	NDA<364
MW 202 I	8/30/2010	**	NDA<364
MW 203	8/30/2010	**	**
MW 204	8/30/2010	607	**
MW 205	**8/30/2010**	**1785**	**1390**
MW 206	**8/30/2010**	**2707**	**2790**
MW 207	8/30/2010	**	**
MW 208-S	8/30/2010	**	**
MW 208-I	8/30/2010	**	**
MW 209 **new**	8/30/2010	1934	1780
MW 210 **new**	8/30/2010	385	NDA<362
MW 211 **new**	8/30/2010	1597	1340
MW 212 **new**	8/30/2010	570	385
MW 213 **new**	8/30/2010	346	NDA<361
MW 214 **new**	8/30/2010	NDA<300	NDA<364
MW 3	8/30/2010	**	**
MW 4	8/30/2010	674	**
SW-boat ramp	8/30/2010	**	NDA<319
SW-intake	8/30/2010	**	NDA<320

Table 2: September 7th

Location	Date	MERL pCi/L	GEL pCi/L
MW 201	9/7/2010	**	1200
MW 202	9/7/2010	**	352
MW 202 I	9/7/2010	**	417
MW 203	9/7/2010	**	375
MW 204	9/7/2010	**	455
MW 205	**9/7/2010**	****	**3010**
MW 206	**9/7/2010**	****	**3190**
MW 207	9/7/2010	**	329
MW 208-S	9/7/2010	**	NDA<295
MW 208-I	9/7/2010	**	NDA<304
MW 209 **new**	9/7/2010	**	1560
MW 210 **new**	9/7/2010	**	589
MW 211 **new**	9/7/2010	**	1570
MW 212 **new**	9/7/2010	**	655
MW 213 **new**	9/7/2010	**	341
MW 214 **new**	9/7/2010	**	NDA<297
MW 3	9/7/2010	**	NDA<331
MW 4	9/7/2010	**	662
SW-boat ramp	9/7/2010	**	NDA<326
SW-intake	9/7/2010	**	NDA<328

*** NDA = not detected at less than activity value listed**

**** results pending**

The most recent results (September 7) demonstrate increases in tritium concentrations in both MW-205 and MW-206 from results of the week of August 30. For MW-205 the level was 3010 pCi/L (up from 1785 pCi/L on August 30th) and for MW-206 the level was

[1] PNPS screening level for tritium in groundwater monitoring wells is 3,000 pCi/L, which is 1/10th of the NRC-approved Pilgrim Offsite Dose Calculation Manual standard for tritium in non-drinking water sources. The EPA drinking water standard is 20,000 pCi/L. The nearest drinking water wells are approximately 2.5 miles from the plant.

[2] Results from the Massachusetts Environmental Radiation Laboratory (MERL)

[3] GEL Laboratories are a radioanalytical laboratory contracted by PNPS

3190 pCi/L (up from the previous measurement of 2790 pCi/L). The fluctuation in tritium concentrations in groundwater continues to be difficult to interpret. As reported last week, PNPS staff are convening other Entergy experts from their plants in other parts of the country, including Vermont Yankee and Indian Point, NY, to evaluate all data that have been collected to date at PNPS to get additional input on possible sources of tritium that should be further investigated. PNPS anticipates that this meeting will occur within the next two weeks.

Entergy also reported that they have reviewed a proposal for dye testing of key systems at the facility that may help provide information on possible tritium sources. Specifically, the proposal would involve inserting dyes into piping systems from the radiological waste discharge line, and two drain lines from roofs (reactor building and rad waste building). There would be approximately 25 locations to monitor throughout the plant for possible dye detections and hence better define areas of concern. The first step will be to collect baseline data for the areas that will be tested after the dye has been inserted for before and after comparison.

We reported last week that Entergy plans to evaluate the possible role of heavy rainfall influencing tritium concentrations, particularly in MW-206. They have not yet been able to take samples from rainwater draining off the reactor building into a concrete drain pipe that goes through Manhole-9 and near MW-206 before discharging into the intake canal at permitted Outfall 006. However, they are still planning to do this work as time and resources allow.

Entergy also reported that they are evaluating the possible role of tritium emissions from the reactor building vent (accounting for approximately 95 percent of all airborne emissions of tritium at the facility) on groundwater monitoring well concentrations. This evaluation includes conducting modeling of these emissions to predict possible tritium concentrations during/after rainfall events that may impact groundwater concentrations. The details of modeling assumptions and implications will be further discussed with Entergy staff.

A site visit that will include MDPH, MEMA and MassDEP is currently being scheduled tentatively for Friday, October 15, 2010.

Looking Forward:
MDPH, MEMA, and MassDEP will participate in the site visit to PNPS, now tentatively scheduled for October 15, 2010.

Entergy reported that the U.S. Government Accountability Office (GAO) is conducting a site visit on Tuesday, September 21, 2010, at PNPS. The GAO has a Congressional mandate to evaluate underground piping systems at nuclear power plants across the country. Entergy reported that GAO staff will also be visiting Vermont Yankee and Seabrook this week.