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

Topic: PNPS Updates as of December 3, 2012

Previous Plans: Results from groundwater monitoring well samples collected during the weeks of October 15, 2012 and October 29, 2012 were reported by Entergy. Split sample results for the weeks of October 15, 2012 and October 29, 2012 were also reported by MERL.

Current Status:

Table 1[1]: Week of October 15th

Location	Date	MERL pCi/L	GEL pCi/L
MW 201	10/15/2012	541	NDA(315)*
MW 202	10/15/2012	-	-
MW 202 I	10/15/2012	-	-
MW 203	10/15/2012	-	-
MW 204	10/15/2012	-	-
MW 205	10/15/2012	2,153	1,900
MW 206	10/15/2012	1,700	1,360
MW 207	10/15/2012	-	-
MW 208-S	10/15/2012	-	-
MW 208-I	10/15/2012	-	-
MW 209	10/15/2012	1,023	584
MW 210	10/15/2012	-	-
MW 211	10/15/2012	1,080	985
MW 212	10/15/2012	-	-
MW 213	10/15/2012	-	-
MW 214	10/15/2012	-	-
MW 215	10/15/2012	1,153	1,110
MW 216 new	**10/15/2012**	**4,889**	**4,800****
MW 217	10/15/2012	441	424
MW 3	10/15/2012	-	-
MW 4	10/15/2012	-	-
SW-boat ramp	10/15/2012	-	-
SW-intake	10/15/2012	NDA(300)*	NDA(358)*

Table 2: Week of October 29th

Location	Date	MERL pCi/L	GEL pCi/L
MW 201	10/29/2012	359	401
MW 202	10/29/2012	-	-
MW 202 I	10/29/2012	-	-
MW 203	10/29/2012	-	-
MW 204	10/29/2012	-	-
MW 205	10/29/2012	3,838	3,520
MW 206	10/29/2012	4,707	4,300
MW 207	10/29/2012	-	-
MW 208-S	10/29/2012	-	-
MW 208-I	10/29/2012	-	-
MW 209	10/29/2012	1,039	864
MW 210	10/29/2012	-	-
MW 211	10/29/2012	1,101	1,040
MW 212	10/29/2012	-	-
MW 213	10/29/2012	-	-
MW 214	10/29/2012	-	-
MW 215	10/29/2012	1,181	1,030
MW 216 new	**10/29/2012**	**8,077**	**7,620****
MW 217	10/29/2012	318	485
MW 3	10/29/2012	-	-
MW 4	10/29/2012	-	-
SW-boat ramp	10/29/2012	-	-
SW-intake	10/29/2012	NDA(300)*	NDA(356)*

*** NDA = not detected at less than activity value listed**
**** See additional weekly results for MW216 discussed below**
\- Not analyzed this week

[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.

The groundwater monitoring results reported by Entergy show MW205 increased to a level of 1,900 pCi/L of tritium detected during the week of October 15th and increased to a level of 3,520 pCi/L of tritium detected during the week of October 29th (the previous result during the week of October 1st was 1,050 pCi/L). Entergy results show that MW206 increased to a level of 1,360 pCi/L of tritium detected during the week of October 15th and increased to a level of 4,300 pCi/L of tritium detected during the week of October 29th (the previous result during the week of October 1st was 1,080 pCi/L). Results for the other wells sampled during the weeks of October 15th and October 29th were within typical ranges detected since the groundwater monitoring for tritium began (i.e. no detectable tritium to approximately 1,100 pCi/L of tritium detected). Split sample results from MERL for the weeks October 15th and October 29th were generally consistent with Entergy results (see tables above).

Weekly sampling of MW216 continued. Entergy results for MW216 to date indicate fluctuations between 2,250 to 4,800 pCi/L of tritium detected for the weeks of September 17th through October 22nd, with a significant increase to 7,620 pCi/L of tritium detected the week of October 29th, which then decreased to 3,060 pCi/L of tritium detected the following week of November 5th. MERL results for MW216 were generally consistent with Entergy's results. As a result, MDPH and MEMA are requesting that weekly sampling of MW216 continue and that issues (e.g., tidal influence) be re-evaluated now that more comprehensive historical data are available.

Entergy surface water sampling results for the intake canal downstream of MW205 for the weeks of October 15th and October 29th indicated no detectable tritium. MERL split sample results for surface water also indicated no detectable tritium for samples collected during the weeks of October 15th and October 29th.

Entergy did not take a second surface water sample as part of sampling conducted the week of August 20, 2012. The quarterly surface water sample was collected from the intake canal on October 26, 2012 and shipped out for analysis on Monday, October 29, 2012. Results indicated no detectible tritium and MERL results also indicated no detectible tritium.

Representatives from MEMA and MDPH met with Entergy representatives and their consultants to review the current status of the tritium in groundwater investigation on November 20, 2012. MDPH raised a number of scenarios relative to sources to tritium detections in groundwater. One potential source that MDPH believes may be important relates to a spill of contaminated water on November 16, 1988 in the area of MW206 and MW216, which was an unpaved area at the time. MDPH's continued search of historic records identified a report summarizing this event. The 1988 spill was cleaned up and the NRC concluded at the time that there were no offsite impacts, however, tritium was not measured, but would likely have been present. MDPH also considers the radwaste discharge line a potential source of tritium for MW205 and MW206 if there is a leak on the south side of the reactor building that could flow along the deep foundation on both sides of the reactor building to MW205 and MW206. The main stack drain line, which is known to contain tritium up to approximately 50,000 pCi/L, could also be a potential source for MW205, since it runs near MW205 and has been relocated in the past (which potentially could have spilled tritium during relocation). Entergy acknowledges that both the radwaste discharge line and main stack drain line have the potential to be sources of tritium in groundwater if not intact due to the nature of the fluids they are designed to transport. Past summary reports document the extensive testing conducted on these lines including pressure testing on the main stack drain and dye testing of the radwaste discharge lines. Along with the installation of strategically located new groundwater monitoring wells, subsurface examinations and soil testing near these lines, all testing to date has suggested that no leaks are present, but these lines will remain a focus going forward.

The main outcome of the meeting was for Entergy to prepare a detailed summary evaluating the likelihood that these and other potential sources that have been investigated during the past 2.5 years help explain the presence of tritium in groundwater. Entergy will work on this summary including possible next steps for further discussion with MDPH and MEMA. It is expected that this summary will help inform additional actions to best identify potential source(s) of tritium in groundwater.

Looking Forward:

MDPH will continue to closely follow all investigational activities that are currently underway at PNPS.