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

Topic: PNPS Updates as of January 10, 2013

Previous Plans: Results from groundwater monitoring well samples collected during the weeks of December 10, 2012 and December 24, 2012 were reported by Entergy. Split sample results for the weeks of December 10, 2012 and December 24, 2012 were also reported by MERL.

Current Status:

Table 1[1]: Week of December 10th

Location	Date	MERL pCi/L	GEL pCi/L
MW 201	12/10/2012	480	NDA(379)*
MW 202	12/10/2012	-	-
MW 202 I	12/10/2012	-	-
MW 203	12/10/2012	-	-
MW 204	12/10/2012	-	-
MW 205	12/10/2012	1,179	1,040
MW 206	12/10/2012	2,841	2,820
MW 207	12/10/2012	-	-
MW 208-S	12/10/2012	-	-
MW 208-I	12/10/2012	-	-
MW 209	12/10/2012	984	928
MW 210	12/10/2012	-	-
MW 211	12/10/2012	1,049	685
MW 212	12/10/2012	-	-
MW 213	12/10/2012	-	-
MW 214	12/10/2012	-	-
MW 215	12/10/2012	1,073	1,220
MW 216 new	**12/10/2012**	**5,587**	**5,540**
MW 217	12/10/2012	-	-
MW 3	12/10/2012	-	-
MW 4	12/10/2012	-	-
SW-boat ramp	12/10/2012	-	-
SW-intake	12/10/2012	NDA(300)*	NDA(381)*

Table 2: Week of December 24th

Location	Date	MERL pCi/L	GEL pCi/L
MW 201	12/24/2012	440	507
MW 202	12/24/2012	-	-
MW 202 I	12/24/2012	-	-
MW 203	12/24/2012	-	-
MW 204	12/24/2012	-	-
MW 205	12/24/2012	3,729	3,510
MW 206	12/24/2012	4,285	3,670
MW 207	12/24/2012	-	-
MW 208-S	12/24/2012	-	-
MW 208-I	12/24/2012	-	-
MW 209	12/24/2012	1,011	669
MW 210	12/24/2012	-	-
MW 211	12/24/2012	1,186	1,230
MW 212	12/24/2012	-	-
MW 213	12/24/2012	-	-
MW 214	12/24/2012	-	-
MW 215	12/24/2012	1,123	1,130
MW 216 new	**12/24/2012**	**6.471**	**5,240**
MW 217	12/24/2012	-	-
MW 3	12/24/2012	-	-
MW 4	12/24/2012	-	-
SW-boat ramp	12/24/2012	-	-
SW-intake	12/24/2012	NDA(300)*	NDA(329)*

*** NDA = not detected at less than activity value listed**
**** results pending**
***** well inaccessible**
- 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 decreased to a level of 1,040 pCi/L of tritium detected during the week of December 10th and increased to a level of 3,510 pCi/L of tritium detected during the week of December 24th (the previous result during the week of November 26th was 3,680 pCi/L). Entergy results show that MW206 increased to a level of 2,820 pCi/L of tritium detected during the week of December 10th and increased to a level of 3,670 pCi/L of tritium detected during the week of December 24th (the previous result during the week of November 26th was 1,970 pCi/L). Results for the other wells sampled during the weeks of December 10th and December 24th were within typical ranges detected since the groundwater monitoring for tritium began (with the exception of MW216, which is discussed below). Split sample results from MERL for the weeks of December 10th and December 24th were generally consistent with Entergy results (see tables above).

Weekly sampling results from Entergy for MW216 to date indicate fluctuations between 2,250 to 7,620 pCi/L of tritium detected for the weeks of September 17th through December 24th, with tritium consistently detected above 5000 pCi/L in this well during the last three consecutive weekly samples. The most recent results for MW216 were 5,430 pCi/L of tritium detected the week of December 17th and 5,240 pCi/L of tritium detected the week of December 24th. MERL split sample results for MW216 for the September 17th through December 24th period have also been generally consistent with Entergy's results. MDPH is closely monitoring tritium levels in MW216, as recent results have been trending higher than levels that have typically been detected in other monitoring wells at PNPS (with the exception of MW205 and MW206). MW216 will continue to be sampled weekly.

Entergy surface water sampling results for the intake canal downstream of MW205 for the weeks of December 10th and December 24th indicated no detectable tritium. MERL split sample results for surface water also indicated no detectable tritium for samples collected during the weeks of December 10th and December 24th.

As previously reported, a conduit that houses the station heating pipeline underground in the vicinity of MW205 was previously identified by Entergy and their consultant as a location that could potentially accumulate condensed moisture from the indoor air of the reactor building that could contain tritium. If upon plug removal moisture was present, Entergy had planned to test the liquid for tritium. On December 20th, Entergy staff accessed this area and was able to remove the plug from the conduit where the station heating pipe line enters the reactor building. No condensed moisture was present.

As previously mentioned, Entergy and their consultant are preparing a detailed summary of potential tritium sources that have been investigated during the past 2.5 years (including a spill of contaminated water in 1988 in the area of MW206 and MW216) and their likely relationship to detections of tritium in groundwater at PNPS.

Looking Forward:

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