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

Topic: PNPS Updates as of September 22, 2011

Previous Plans: Results from groundwater monitoring well samples collected during the weeks of August 23rd and August 30th, 2011 were reported by Entergy (see tables below). Split sample results for the week of August 23rd from MERL are also presented in the table below. Split sample results for the week of August 30th, 2011 are currently being analyzed by MERL.

Current Status:

Table 1[1]: August 23rd

Location	Date	MERL[2] pCi/L	GEL[3] pCi/L
MW 201	8/23/2011	939	685
MW 202	8/23/2011	-	-
MW 202 I	8/23/2011	-	-
MW 203	8/23/2011	-	-
MW 204	8/23/2011	-	-
MW 205	**8/23/2011**	**9526**	**7,330**
MW 206	**8/23/2011**	**1247**	**953**
MW 207	8/23/2011	-	-
MW 208-S	8/23/2011	-	-
MW 208-I	8/23/2011	-	-
MW 209 **new**	8/23/2011	1274	1,320
MW 210 **new**	8/23/2011	-	-
MW 211 **new**	8/23/2011	1392	1,330
MW 212 **new**	8/23/2011	-	-
MW 213 **new**	8/23/2011	-	-
MW 214 **new**	8/23/2011	-	-
MW 3	8/23/2011	-	-
MW 4	8/23/2011	-	-
SW-boat ramp	8/23/2011	-	-
SW-intake	8/23/2011	-	-

Table 2: August 30th

Location	Date	MERL pCi/L	GEL pCi/L
MW 201	8/30/2011	**	653
MW 202	8/30/2011	-	-
MW 202 I	8/30/2011	-	-
MW 203	8/30/2011	-	-
MW 204	8/30/2011	-	-
MW 205	**8/30/2011**	******	**2,140**
MW 206	**8/30/2011**	******	**2,280**
MW 207	8/30/2011	-	-
MW 208-S	8/30/2011	-	-
MW 208-I	8/30/2011	-	-
MW 209 **new**	8/30/2011	**	879
MW 210 **new**	8/30/2011	-	-
MW 211 **new**	8/30/2011	**	1,380
MW 212 **new**	8/30/2011	-	-
MW 213 **new**	8/30/2011	-	-
MW 214 **new**	8/30/2011	-	-
MW 3	8/30/2011	-	-
MW 4	8/30/2011	-	-
SW-boat ramp	8/30/2011	-	-
SW-intake	8/30/2011	-	-

*** NDA = not detected at less than activity value listed**
**** results pending**
***** well inaccessible due to scheduled equipment use**
- 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.

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

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

The latest groundwater monitoring results reported by Entergy show MW205 increased to a level of 7,330 pCi/L of tritium detected on August 23rd and then decreased to 2,140 pCi/L of tritium detected on August 30th (the previous result on August 16th was 4,730 pCi/L). Results for MW206 show an increasing trend with 953 pCi/L of tritium detected on August 23rd and 2,280 pCi/L of tritium detected on August 30th (no tritium was detected in the previous sample on August 16th, detection limit <342). Results for MW201 indicated 685 pCi/L of tritium detected on August 23rd and 653 pCi/L of tritium detected on August 30th. Results for MW209 indicated 1,320 pCi/L of tritium detected on August 23rd, and 879 pCi/L of tritium detected on August 30th. For MW211, 1,330 pCi/L of tritium was detected on August 23rd, and 1,380 pCi/L of tritium was detected on August 30th. Split sample results for the week of August 23rd from MERL were generally consistent with results from Entergy. MERL results for split samples collected on August 30th are currently being analyzed.

The charcoal samplers placed in monitoring wells for the dye testing effort continue to be collected weekly. No dye has been detected to date in groundwater including the dye that was introduced directly to the soil beneath the French drain in January to help characterize groundwater flow in the area between the reactor building and the ocean. Entergy and their contractor are continuing to add water to the French drain regularly in order to help move the dye to the groundwater table.

As previously reported, despite environmental monitoring efforts, there is still no clear explanation for the continued fluctuations in tritium at MW205 and MW206. Entergy is currently considering several new investigational activities to help identify the cause of the tritium detections at PNPS using a process of elimination. Entergy has summarized these proposals and will share them with Commonwealth agencies for input. In the meantime, the regular groundwater and surface water sampling will continue.

As part of Entergy's buried pipe and tank program, they are planning excavations later this month to inspect critical underground components, such as piping associated with diesel generators and standby gas treatment system piping at the main stack. While this work is being conducted as part of their relicensing process and not directly related to the tritium in groundwater investigation, the excavations will provide Entergy with an opportunity to inspect underground components as potential sources of tritium in groundwater. Entergy will share a schedule with MDPH to observe the excavations while they are open.

Looking Forward:

MDPH will continue to reach out to radiation control program contacts in other states to better understand tritium in groundwater monitoring programs across the U.S. and any applicable information.

MDPH and MEMA plan to review Entergy's proposed next steps in the tritium investigation and provide feedback once a summary of the proposed steps are provided by Entergy.

MDPH will follow up with Entergy on coordinating buried pipe and tank excavation observations.