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

Topic: PNPS Updates as of January 28, 2011

Previous Plans: Results from groundwater monitoring well samples and surface water samples collected during the weeks of January 4th and January 10th, 2010, were reported by Entergy (see tables below). Split samples for the week of January 4th have been reported from MERL and split samples for the week of January 10th are currently being analyzed by MERL.

Current Status:

Table 1[1]: January 4th

Location	Date	MERL[2] pCi/L	GEL[3] pCi/L
MW 201	1/4/11	1020	875
MW 202	1/4/11	-	-
MW 202 I	1/4/11	-	-
MW 203	1/4/11	-	-
MW 204	1/4/11	-	-
MW 205	1/4/11	**1375**	**1410**
MW 206	1/4/11	**3566**	**4360**
MW 207	1/4/11	-	-
MW 208-S	1/4/11	-	-
MW 208-I	1/4/11	-	-
MW 209 **new**	1/4/11	-	-
MW 210 **new**	1/4/11	-	-
MW 211 **new**	1/4/11	-	-
MW 212 **new**	1/4/11	-	-
MW 213 **new**	1/4/11	-	-
MW 214 **new**	1/4/11	-	-
MW 3	1/4/11	-	-
MW 4	1/4/11	-	-
SW-boat ramp	1/4/11	NDA<300	NDA<338
SW-intake	1/4/11	NDA<300	NDA<313

Table 2: January 10th

Location	Date	MERL pCi/L	GEL pCi/L
MW 201	1/10/11	**	928
MW 202	1/10/11	**	308
MW 202 I	1/10/11	**	365
MW 203	1/10/11	**	**
MW 204	1/10/11	**	**
MW 205	1/10/11	**	**2430**
MW 206	1/10/11	**	**3700**
MW 207	1/10/11	**	**
MW 208-S	1/10/11	**	**
MW 208-I	1/10/11	**	**
MW 209 **new**	1/10/11	**	1370
MW 210 **new**	1/10/11	**	769
MW 211 **new**	1/10/11	**	927
MW 212 **new**	1/10/11	**	583
MW 213 **new**	1/10/11	**	**
MW 214 **new**	1/10/11	**	**
MW 3	1/10/11	**	**
MW 4	1/10/11	**	**
SW-boat ramp	1/10/11	**	**
SW-intake	1/10/11	**	**

*** NDA = not detected at less than activity value listed**
**** results pending**
- 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 and summarized above show that MW205 has increased slightly from 1,410 pCi/L of tritium detected on January 4th to 2,430 pCi/L of tritium detected on January 10th. Results for MW206 decreased slightly from 4,360 pCi/L of tritium detected on January 4th to 3,700 pCi/L detected on January 10th. Results for MW201 remained generally consistent with previous sampling rounds with tritium detected at slightly less than 1000 pCi/L. MERL has also reported their final sampling results for the week of January 4th which are summarized in the table above. As with previous results, MERL compared well with those reported from Entergy. Results for the remaining groundwater monitoring wells have continued to remain generally consistent over time and surface water samples were again non-detectable. In addition, MERL has reported their final sampling results for the week of December 29th. As expected, MERL results compared well with those reported from Entergy. Specifically, for MW 205, MERL detected 4,016 pCi/L of tritium and Entergy detected 3,930 pCi/L; for MW 206 MERL detected 8,425 pCi/L of tritium and Entergy detected 8,950 pCi/L.

The dye testing process has begun at PNPS. Specifically, dyes were introduced to the roof drains for the reactor building and the radioactive waste truck lock, and to the radwaste discharge drain line on January 17, 18th, and 19th. In approximately two weeks, a fourth dye will be injected into the French drain system (valve pit) located near the condensate storage tanks. The decision to delay the fourth dye injection was made based on a suggestion from Entergy's consultants conducting the dye test. Since the water from the French drain system is expected to reach groundwater more quickly than the other locations, they did not want the dye injected to this system to mask anything that might be attributed to dyes from the other three possible source areas. Based on the average rate of groundwater flow at PNPS, Entergy and their hydrogeological consultants estimate that the dyes could be detected in MW206 as early as mid/late February. The dyes are not expected to be detected in the other monitoring wells until the April/May timeframe. Beginning January 24th, charcoal bags designed to detect the

dyes are being collected from the groundwater monitoring wells (and replenished) on a weekly basis.

Entergy has reported that the soil sampling is tentatively scheduled to begin in late February (weather permitting). Entergy has been meeting with their consultants to secure the specific dates and details. Currently, Entergy is planning to conduct soil sampling in four locations; near MW205, near MW206, and at two other on-site locations where historical spills have previously occurred. Entergy will be providing MERL with split soil samples which will include two borings with 3 depth-interval samples at each of the 4 soil sampling locations. As previously reported, the soil sampling is being conducted to evaluate the possibility of a historical source of soil contamination that may be mobilized by a rising water table and causing tritium detections in groundwater monitoring wells.

The third party review report of the ultrasonic and guided wave tests on the Condensate Storage Tank line was received by Entergy this week. The report is still being reviewed by Entergy and results will be made available to MDPH when their review is complete. Entergy informed MDPH that initial results indicate no significant anomalies that would suggest a source for the tritium in groundwater.

Looking Forward:

The meeting with MDPH, MEMA, MDEP and Entergy (to include their hydrogeologist consultants and members of their technical staff) has been confirmed for February 4th and will be held at MDPH.