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

Topic: PNPS Updates as of October 8, 2010

Previous Plans: Results from groundwater monitoring well samples and surface water samples taken during weeks of September 20th and 27th, 2010, were reported by Entergy (see tables below). Splits of the September 20th samples are also reported by the MDPH MERL lab and the September 27th splits are currently being analyzed by MERL.

Current Status:

Table 1[1]: September 20th

Location	Date	MERL[2] pCi/L	GEL[3] pCi/L
MW 201	9/20/2010	1431	1340
MW 202	9/20/2010	362	NDA<314
MW 202 I	9/20/2010	317	341
MW 203	9/20/2010	NDA<300	NDA<394
MW 204	9/20/2010	474	NDA<394
MW 205	9/20/2010	**24713**	**22000**
MW 206	9/20/2010	**18122**	**8290**
MW 207	9/20/2010	364	NDA<394
MW 208-S	9/20/2010	NDA<300	NDA<390
MW 208-I	9/20/2010	NDA<300	NDA<394
MW 209 **new**	9/20/2010	1734	1390
MW 210 **new**	9/20/2010	927	1020
MW 211 **new**	9/20/2010	1422	1200
MW 212 **new**	9/20/2010	478	462
MW 213 **new**	9/20/2010	331	NDA<420
MW 214 **new**	9/20/2010	NDA<300	NDA<396
MW 3	9/20/2010	NDA<300	NDA<395
MW 4	9/20/2010	518	493
SW-boat ramp	9/20/2010	**	NDA<389
SW-intake	9/20/2010	**	NDA<393

Table 2: September 27th

Location	Date	MERL pCi/L	GEL pCi/L
MW 201	9/27/2010	**	958
MW 202	9/27/2010	**	400
MW 202 I	9/27/2010	**	522
MW 203	9/27/2010	-	-
MW 204	9/27/2010	-	-
MW 205	9/27/2010	****	**25000**
MW 206	9/27/2010	****	**5040**
MW 207	9/27/2010	-	-
MW 208-S	9/27/2010	-	-
MW 208-I	9/27/2010	-	-
MW 209 **new**	9/27/2010	**	1760
MW 210 **new**	9/27/2010	**	816
MW 211 **new**	9/27/2010	**	1090
MW 212 **new**	9/27/2010	-	-
MW 213 **new**	9/27/2010	**	438
MW 214 **new**	9/27/2010	-	-
MW 3	9/27/2010	-	-
MW 4	9/27/2010	-	-
SW-boat ramp	9/27/2010	-	-
SW-intake	9/27/2010	-	-

*** 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 recent results from Entergy demonstrate an increase in tritium concentrations in MW-205 compared to the last several weeks prior. For MW-205, the level was 1840 pCi/L on September 13th, then up to 22,000 pCi/L (September 20th) and again increased to 25,000 pCi/L in the latest sampling round on September 27th. MDPH's MERL results for this well went from 1,707 pCi/L on September 13th to 24, 713 pCi/L on September 20th. The current situation appears similar to the detection of 25,000 in samples collected July 7, 2010, in that, there seems to be no consistent pattern – i.e. there were no similar increases in wells located in close proximity to MW 205.

During the week of October 4th, Entergy technical staff at the Pilgrim facility reportedly met with a member from Entergy's Fleet Groundwater Programs to review and discuss the ongoing efforts to determine the source of tritium in groundwater. Their discussions have included theories on roof drain run-off, not only from the reactor building, but other buildings at the plant, and possible older sites of contamination left in the subsurface of the ground/soil where tritium might be released by rainfall events or temporary rising of groundwater table levels. PNPS reports that assistance from Entergy's corporate fleet will continue with site visits as necessary and review of data and results as they become available. The Pilgrim technical team housed at the PNPS will continue to meet daily.

Entergy is working to finalize the plan for the dye testing for the radiological waste discharge line and other locations not yet specified. Currently, Entergy is going through the permit process to be sure that they are following all federal and state regulations to ensure that no environmental threats occur as a result of this type of test. The plan will be finalized once they are sure they have met all regulatory guidelines.

ERM, the hydrogeology consultants working with Pilgrim, continues to read the transducers from the monitoring wells each week. They have made progress in refining the contour maps of groundwater flow at the plant, to include effects from, but not limited to, the intricate piping system, building structures, and fill materials underground. ERM also performed a correlation analysis to assess whether tritium concentrations in

MW-205 were correlated to rainfall events or changing water table levels, but their analyses did not indicate a correlation between these variables.

The past few weeks' abundance of rain has allowed for collection of rain samples from roof run off. Five buildings, including the reactor and some office buildings, were sampled for rainwater run off and will be analyzed along with the priority monitoring well samples also taken this week. There has been some discussion about taking soil samples in the areas close to MW 205 in an attempt to find any older contamination (as previously mentioned) that might be present and hence a possible source of tritium. Soil sampling may be done if the dye test proves to be inconclusive.

The sampling schedule will continue to be weekly for MW 205, MW 206, MW 201, and the two surface water intake locations, and bi-weekly for the other monitoring wells. The next full round of samples will be taken the week of October 11th.

Looking Forward:

A site visit that will include MDPH, MEMA and MDEP is currently scheduled for Friday, October 15, 2010. The site visit will include detailed updates on groundwater investigations provided by Entergy and their hydrogeology consultants, investigations of different plant systems, and a site tour.