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

Topic: PNPS Updates as of November 9, 2010

Previous Plans: Results from groundwater monitoring well samples and surface water samples taken during the weeks of October 18th and October 25th, 2010, were reported by Entergy (see tables below). Splits of these two sampling dates are currently being analyzed by MERL.

Current Status:

Table 1[1]: October 18th

Location	Date	MERL pCi/L	GEL pCi/L
MW 201	10/18/2010	**	966
MW 202	10/18/2010	-	-
MW 202 I	10/18/2010	-	-
MW 203	10/18/2010	-	-
MW 204	10/18/2010	-	-
MW 205	10/18/2010	****	**5890**
MW 206	10/18/2010	****	**5950**
MW 207	10/18/2010	-	-
MW 208-S	10/18/2010	-	-
MW 208-I	10/18/2010	-	-
MW 209 **new**	10/18/2010	-	-
MW 210 **new**	10/18/2010	-	-
MW 211 **new**	10/18/2010	-	-
MW 212 **new**	10/18/2010	-	-
MW 213 **new**	10/18/2010	-	-
MW 214 **new**	10/18/2010	-	-
MW 3	10/18/2010	-	-
MW 4	10/18/2010	-	-
SW-boat ramp	10/18/2010	**	NDA<325
SW-intake	10/18/2010	**	NDA<325

Table 2: October 25th

Location	Date	MERL pCi/L	GEL pCi/L
MW 201	10/25/2010	**	1340
MW 202	10/25/2010	**	NDA<390
MW 202 I	10/25/2010	**	NDA<390
MW 203	10/25/2010	**	**
MW 204	10/25/2010	**	**
MW 205	10/25/2010	**	**2840**
MW 206	10/25/2010	**	**12200**
MW 207	10/25/2010	**	**
MW 208-S	10/25/2010	**	**
MW 208-I	10/25/2010	**	**
MW 209 **new**	10/25/2010	**	1710
MW 210 **new**	10/25/2010	**	837
MW 211 **new**	10/25/2010	**	870
MW 212 **new**	10/25/2010	**	568
MW 213 **new**	10/25/2010	**	**
MW 214 **new**	10/25/2010	**	**
MW 3	10/25/2010	**	**
MW 4	10/25/2010	**	**
SW-boat ramp	10/25/2010	**	**
SW-intake	10/25/2010	**	**

*** NDA = not detected at less than activity value listed**
**** results pending**
- not analyzed this week

Results of weekly sampling of groundwater monitoring wells of most concern (MW205 and MW206) continue to show fluctuation. The level of tritium detected in MW205

[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.

increased from 1,760 pCi/L in samples collected on October 12th to 5,890 pCi/L in samples collected on October 18th. MW-205 concentrations fell to 2,840 pCi/L in the October 25th sample. In MW206, the level of tritium decreased from 10,100 pCi/L on October 12th to 5,950 pCi/L in samples collected on October 18th. This well increased to 12,200 pCi/L in samples taken October 25th. The level of tritium detected in weekly samples of MW 201 continues to be relatively stable. MERL results for samples collected on October 12th became available yesterday and continue to be fairly consistent with the Entergy lab's results. Specifically, MERL reported 2,115 pCi/L tritium detected in MW205 and 10,916 pCi/L of tritium detected in MW206 in samples collected during the October 12, 2010 sampling round.

Entergy staff reported their contractor is onsite and has begun the necessary background work to initiate dye testing in early December. The remainder of November will be dedicated to 1) ensuring dye testing company personnel become familiar with the site layout and safety procedures, 2) collecting the necessary background data to determine which dyes will be suitable for application at PNPS, and 3) finalizing any necessary environmental permitting requirements associated with discharging dyes to surface water. The selected dyes are expected to be injected during the first week of December and routine sampling to detect the dyes in groundwater will begin shortly afterwards. As previously mentioned, dye testing will be used to evaluate several possible sources including the roof drains for the reactor building and the radioactive waste truck dock, the rad waste drain line, and the French drain system located near the condensate storage tanks.

Entergy reported that they will be conducting ultrasonic testing of condensate storage tank drain lines to further evaluate anomalies detected with ground penetrating radar. Although Entergy currently believes these anomalies are not potential leak sources, they are doing the ultrasonic testing to confirm this. The testing is expected to begin in about 2-3 weeks.

In response to a request from the NRC, Entergy plans to further explore the possibility that condensate generated from their roof air conditioning systems may concentrate permitted air emissions of tritium into storm water, which may ultimately impact tritium levels in groundwater. This scenario is based on experiences at other nuclear power plants who have also had fluctuating levels of tritium detected in groundwater monitoring wells. Entergy plans to look into this further including possibly taking samples to determine tritium concentrations in air conditioning condensate.

Looking Forward:

MDPH/BEH has scheduled a follow-up meeting for early December with MassDEP and MEMA to discuss the information presented during the October 15, 2010, site visit.