

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

Topic: PNPS Updates as of May 25, 2012

Previous Plans: Results from groundwater monitoring well samples collected during the weeks of May 2nd and May 15th, 2012 were reported by Entergy. Split sample results for the weeks of May 2nd, 2012 were also reported by MERL. Split sample results for the week of May 15th, 2012 are currently being analyzed by MERL.

Current Status:

Table 1¹: May 2nd

Table 2: May 15th

| Location | Date | MERL ² pCi/L | GEL ³ pCi/L | Location | Date | MERL pCi/L | GEL pCi/L |
|--------------|------------|----------------------------|---------------------------|--------------|------------|---------------|--------------|
| MW 201 | 05/02/2012 | 429 | 674 | MW 201 | 05/15/2012 | ** | 592 |
| MW 202 | 05/02/2012 | - | - | MW 202 | 05/15/2012 | - | - |
| MW 202 I | 05/02/2012 | - | - | MW 202 I | 05/15/2012 | - | - |
| MW 203 | 05/02/2012 | - | - | MW 203 | 05/15/2012 | - | - |
| MW 204 | 05/02/2012 | - | - | MW 204 | 05/15/2012 | - | - |
| MW 205 | 05/02/2012 | 5,158 | 5,440 | MW 205 | 05/15/2012 | ** | 1,820 |
| MW 206 | 05/02/2012 | *** | *** | MW 206 | 05/15/2012 | *** | *** |
| MW 207 | 05/02/2012 | - | - | MW 207 | 05/15/2012 | - | - |
| MW 208-S | 05/02/2012 | - | - | MW 208-S | 05/15/2012 | - | - |
| MW 208-I | 05/02/2012 | - | - | MW 208-I | 05/15/2012 | - | - |
| MW 209 | 05/02/2012 | 906 | 1,030 | MW 209 | 05/15/2012 | ** | 985 |
| MW 210 | 05/02/2012 | - | - | MW 210 | 05/15/2012 | - | - |
| MW 211 | 05/02/2012 | 1,126 | 1,230 | MW 211 | 05/15/2012 | ** | 1,140 |
| MW 212 | 05/02/2012 | - | - | MW 212 | 05/15/2012 | - | - |
| MW 213 | 05/02/2012 | - | - | MW 213 | 05/15/2012 | - | - |
| MW 214 | 05/02/2012 | - | - | MW 214 | 05/15/2012 | - | - |
| MW 215 new | 05/02/2012 | 1,091 | 1,730 | MW 215 new | 05/15/2012 | ** | 1,200 |
| MW 217 new | 05/02/2012 | 454 | 660 | MW 217 new | 05/15/2012 | ** | 666 |
| MW 3 | 05/02/2012 | - | - | MW 3 | 05/15/2012 | - | - |
| MW 4 | 05/02/2012 | - | - | MW 4 | 05/15/2012 | - | - |
| SW-boat ramp | 05/02/2012 | - | - | SW-boat ramp | 05/15/2012 | - | - |
| SW-intake | 05/02/2012 | NDA | NDA | SW-intake | 05/15/2012 | ** | NDA |

* 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.

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 5,440 pCi/L of tritium detected on May 2nd and decreased to 1,820 pCi/L of tritium detected on May 15th (the previous result on April 17th was 3,860 pCi/L). Sample collection for MW206 was not possible during the sample collections on May 2nd and May 15th due to the contractor failing to notify Entergy that moveable equipment was reportedly blocking access to the well (1,930 pCi/L of tritium was detected in the previous sample on April 17th). Results for the other priority wells were within their typical ranges (i.e. approximately 600 pCi/L to approximately 1,700 pCi/L of tritium detected) for the weeks of May 2nd and May 15th. Split sample results from MERL for the week of May 2nd were generally consistent with Entergy results (see table above). Split sample results for the week of May 15th are currently being analyzed by MERL.

Entergy results for surface water from the intake canal downstream of MW205 indicated no detectable tritium for the weeks of May 2nd and May 15th. Split surface water sample results from MERL for the week of May 2nd also indicated no detectable tritium (see table above). Split surface water sample results for the week of May 15th are currently being analyzed by MERL.

MDPH staff visited PNPS on Tuesday, May 22nd, 2012, to review the final report prepared by Entergy's consultant, Ozark, summarizing their Phase I dye testing efforts. MDPH staff also reviewed the current status of Entergy's investigational activities at PNPS and those in the planning process. The Ozark report determined that because no dye was detected in groundwater monitoring wells located down gradient from the 3 lines where the dyes were introduced (i.e. radwaste discharge line, reactor roof drains, and radwaste building roof drains), it is likely that these lines are intact. If they are the source of leaks, Ozark believes the leaks are too small to detect with dye. The Ozark report also determined that groundwater flow in the Condensate Storage Tank (CST) valve pit area is stagnated by the reactor building foundation because dye introduced directly to the CST valve pit French drain was not detected in nearby monitoring wells.

Results of this report will be considered by all interested parties in determining the potential tritium source.

During the site visit, MDPH staff also attended Entergy's tritium investigation team meeting. This is a regular internal meeting of Entergy staff specifically focused on the tritium investigation. Information from this meeting, as well as other aspects of the site visit will help MDPH summarize site investigation activities to date. This summary will appear in a future update.

Looking Forward:

MDPH will continue to closely follow all investigational activities that are currently underway at PNPS (e.g., well placement, excavation activities).

MDPH Bureau of Environmental Health is preparing a summary of tritium investigational activities to date and planned next steps.