

October 15, 2010

William Dean, Administrator
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, PA 19406-1415

RE: PILGRIM NPS, TRITIUM

Dear Mr. Dean:

Pilgrim Watch and the Town of Duxbury Nuclear Advisory Committee fully support David Lochbaum's October 15, 2010 letter to Region I (document attached); and recommend the following NRC actions in response to statements made by NRC to the Patriot Ledger, Pilgrim tritium levels back above federal drinking water standards, October 13, 2010.

We request that the NRC issue an order that requires Entergy to:

1. Reduce power immediately to come into compliance with offsite allowable releases.
2. Put in place more extensive monitoring of Cape Cod Bay, pools, ponds, lakes, rivers, and drinking wells off the owner controlled areas.
3. Compel Entergy to evaluate all onsite and offsite radiological monitoring data back to Day One to see if any evidence is available to support the tritium rainfall theory.
4. Perform an immediate (time limit for completion included) subsurface hydrogeologic study throughout Pilgrim's site with both the methodology and analysis made available to MDPH and the public in keeping with Chairman Jaczko's call for transparency, as requested in Pilgrim Watch's August 13 *206 Petition Regarding Hydrogeologic Assessment Pilgrim NPS* (August 13, 2010) and the October 6, 2010 Supplement.

BASIS

A. Tritium at Pilgrim NPS attributed by NRC to Rainfall (Patriot Ledger, 10.13.10, document attached)

1. If NRC's Neil Sheehan's statement in the October 13, 2010 Patriot Ledger regarding elevated levels of Tritium found in samples at Pilgrim NPS monitoring wells is believed by NRC to be correct in that tritium being discharged from Pilgrim's stack is concentrating to levels above the EPA drinking water standard due to rain, NRC is conceding that the existing basis for release limits is invalid and that Pilgrim is in reality exceeding allowable release limits. Therefore it seems to us that NRC must require Pilgrim to reduce power to come into compliance. The existing basis assumes the radioactivity in the gaseous effluent mixes fairly uniformly with the air, resulting in a negligible dose to the public located offsite. But if rain impedes that mixing/dilution effect, all bets are off.

2. Assuming NRC staff accepts Neil Sheehan's expressed notion, in addition to requiring Pilgrim to reduce power, NRC would have to back up that position by also requiring more extensive monitoring of the bay, pools, ponds, lakes, rivers, and drinking wells off the owner controlled areas. After all, it does not rain just on the plants. NRC's guarantee of "reasonable assurance" cannot be met otherwise.

3. If tritium being released from the stack is indeed being deposited on the plant site by rainfall, that accumulation can only complicate the "tried and true" measures cited by Mr. Sheehan as being effective at other sites. For example, if high levels of tritium are detected in a monitoring well, it might be attributed to rainwater reaching that well. Such attribution could easily prevent a search for other potential sources, such as from a leaking underground pipe. Thus, the tritium rain excuse could mask a legitimate unmonitored and uncontrolled leak location preventing it from being detected and corrected.

To confirm the assertion that rainfall is depositing tritium released from the stack onto the plant's grounds, the petition asks that NRC demand Entergy institute a scientifically sound program to collect samples of onsite rainfall and evaluate said water for its radioactive content.

A sound program requires (a) proper location of control rain water collectors for sampling, at a remote distance from reactors. Dr. Ian Fairlie said in his report, *Tritium Hazard Report: Pollution and Radiation Risk from Canadian Nuclear Facilities*, June 2007¹ (at 24),

It is important to know the true background concentration of airborne tritiated water vapor ... so that we can deduct this value from observed values near nuclear stations to establish what concentrations are due to the discharges. The difficulty is that *most tritium measurements are made near nuclear stations and one has to be very remote, at least >300 km (186.411 miles) away*, in order to escape from low levels of tritium contamination from nuclear stations. [Emphasis added]

And require (2) split rainfall samples with the Massachusetts Department of Public Health.

The rainfall monitoring program would either provide real data to confirm the currently unsupported notion that rainfall is a culprit or provide real data to reject this unsupported notion and focus attention on actual causes of the tritium contamination.

Given that it has been raining on and around Pilgrim since before the reactor began operating, why has past sampling of flora and fauna not previously detected this level of tritium? David Lochbaum's letter to Region I (October 15, 2010) contained tables showing Entergy's annual submittals that surface water sampled from 2004-2008 from locations ranging from 656 feet to 8 miles away showed no detectable levels of tritium in any of the samples. Not once. David Lochbaum reported that, "Year after year Pilgrim's owner informs the NRC that '*No radioactivity attributable to Pilgrim Station was detected in any of the samples collected.*'" Therefore we conclude that either there is nothing to the rain theory or Entergy, and BECO before, have provided environmental reports that appear woefully incomplete and NRC negligent in their review of said reports.

¹ <http://www.nirs.org/radiation/tritium/tritium06122007gphazardreport.pdf>

In the late 1970s and early 1980s, we understand that the amount of tritium released from the stack was much higher than it is in recent years. Rainfall in those years should have deposited significantly higher levels of tritium on the site, if the tritium rainfall assertion holds water. Yet we are not aware of a single report from the milk and produce sampling program about high tritium detections. Therefore we request that NRC compel Entergy to evaluate all onsite and offsite radiological monitoring data back to Day One to see if any evidence is available to support the tritium rainfall theory.

B. Entergy's Protocol Given Full Support/Approval by NRC (Patriot Ledger, 10.1310)

A second point brought forward in the Patriot Ledger article is Neil Sheehan's, comment that "his agency (NRC) is satisfied that Entergy is taking the right steps to solve the mystery at Pilgrim... following the same protocol that's been used – and used effectively – at other plants."

Pilgrim's Watch's *206 Petition Regarding Hydrogeologic Assessment Pilgrim NPS* (August 13, 2010) and the October 6, 2010 Supplement (Attachment B) demonstrated that absent a recent subsurface hydrological assessment over the entire site, Entergy has no factual basis for where they are placing monitoring wells. Entergy is relying on a pre-construction 1967 subsurface assessment. Construction on site over the last 40 years has impacted groundwater flow, vertically and horizontally.

Further the most recent dye testing strategy to locate the source of the leaks is simply one more example of Entergy's plume chasing effort that does not provide "reasonable assurance."

Dr. David Ahlfeld, Pilgrim Watch's technical expert, described it well. He said during the 2.206 teleconference (08/13/10) that:

I just want to make the point that those wells (and dye strategy) are what I would characterize as a part of the plume- chasing effort. That is, they appear to have a problem. Let's try to find out where that tritium is and going and looking for it, which is a good thing to do but is somewhat different than a hydrogeologic assessment where we're really trying to understand the behavior over the whole site. (Transcript, Pg., 20)

C. Current Monitoring Well Test Results Do Not Support Business as Usual

Table 1²: September 20th

Location	Date	MERL ³ pCi/L	GEL ⁴ 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

CONCLUSION

The persistent findings of tritium at Pilgrim substantiate our call for action by NRC to require Entergy to:

² 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.

³ Results from the Massachusetts Environmental Radiation Laboratory (MERL)

⁴ GEL Laboratories are a radioanalytical laboratory contracted by PNPS

1. Reduce power at PNPS immediately to come into compliance with offsite allowable releases.
2. Put in place more extensive monitoring of Cape Cod Bay, pools, ponds, lakes, rivers, and drinking wells off the owner controlled areas.
3. Compel Entergy to evaluate all onsite and offsite radiological monitoring data back to Day One to see if any evidence is available to support the tritium rainfall theory.
4. Perform an immediate (time limit for completion included) subsurface hydrogeologic study throughout Pilgrim's site with both the methodology and analysis made available to MDPH and the public in keeping with Chairman Jaczko's call for transparency, as requested in Pilgrim Watch's August 13 2006 *Petition Regarding Hydrogeologic Assessment Pilgrim NPS* (August 13, 2010) and the October 6, 2010 Supplement.

We trust that NRC appreciates that the need for action is indicated by persistent findings of tritium at Pilgrim, and around the country. We are simply asking that NRC does its job and put public safety and health at the forefront and cease supporting and apologizing for industry's responses that do not provide reasonable assurance that public health and safety are being protected. We deserve better.

Respectfully submitted,

[original signed]

Mary Lampert
Pilgrim Watch, Director
148 Washington Street
Duxbury, MA 02332

Joining Pilgrim Watch

[Original signed]

Rebecca Chin
Town of Duxbury Nuclear Advisory Committee, Co- Chair
31 Deerpath Trl. North- Duxbury, MA 02332

ATTACHMENT

Pilgrim tritium levels back above federal drinking water standards

Radioactive isotope in monitoring well again above federal drinking water standards

By Jon Chesto

The Patriot Ledger

Posted Oct 13, 2010 @ 03:42 AM

Last update Oct 13, 2010 @ 10:15 AM

After dropping steadily for much of the summer, levels of a radioactive isotope at one of the Pilgrim nuclear plant's monitoring wells have skyrocketed above federal drinking water standards again.

Officials at Entergy Corp., the company that owns the Plymouth plant, and the Nuclear Regulatory Commission continue to be vexed by the elevated levels of tritium seen in one of the monitoring wells.

They have been trying to pinpoint the source since tritium levels first rose to more than 25,000 picocuries per liter in July in a monitoring well that was installed earlier in the spring.

That was the first time the well showed tritium levels that exceeded the Environmental Protection Agency's standard for drinking water of 20,000 picocuries per liter. For several successive weeks, the well's tritium levels fell considerably, at one point dropping to 1,830 picocuries per liter on Sept. 13.

But Entergy spokesman Dave Tarantino said the tritium levels in that well rose to 22,000 picocuries per liter on Sept. 20, and then to about 25,000 picocuries per liter on Sept. 27.

Tarantino said the elevated levels of tritium are no threat to Plymouth's drinking water supplies because most of the groundwater on the Pilgrim site flows into the Cape Cod Bay and the nearest underground drinking water source is more than two miles away.

"It's not a threat to drinking water or any public health," Tarantino said of the source of the contaminants. "But it's something we need to find out. Believe me, everybody wants to find it soon."

Among other steps, Tarantino said Entergy plans to start using dyes in the plant's underground systems to see if any contaminants are flowing from pipes into the nearby soil.

The company also installed six new monitoring wells at the site in August, bringing the total number of wells to 18. However, Tarantino said the new wells were not helpful in tracing the source as only

relatively low amounts of tritium were detected in them. Levels that exceed 5,000 picocuries per liter have only been seen in one other monitoring well at the site.

Neil Sheehan, a spokesman for the Nuclear Regulatory Commission, said his agency is satisfied that Entergy is taking the right steps to solve the mystery at Pilgrim. Sheehan said the volatility in tritium levels could indicate that the problem isn't an underground leak or spill. He said an alternative theory is that the radioactive isotopes are being swept off the rooftop at the plant's spent fuel building by rain, which could explain the fluctuations.

"They're following the same protocol that's been used – and used effectively – at other plants," Sheehan said of Entergy.

Elevated tritium levels have been detected at more than three dozen nuclear plants. Most of the higher tritium levels were spotted after the industry began a groundwater monitoring program several years ago.

Mary Lampert, founder of the Pilgrim Watch citizens group, said Entergy needs to install more monitoring wells at Pilgrim and improve its research of groundwater flows on the property to find the source of the problem.

"This is a problem around the country that as reactors have aged, they have been starting to leak," Lampert said. "How much (that) is found really depends on how accurate the monitoring is. If you don't have cops on the highway, nobody is going to be arrested for speeding. The same thing goes here."

Jon Chesto may be reached at jchesto@ledger.com.