OF NUCLEAR INTEREST: Water pollution documented in new Pilgrim Nuclear report

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A new report, titled Entergy, Our Bay is Not Your Dump, calls for an end to the pollution of Cape Cod Bay by Entergy’s Pilgrim Nuclear Station in Plymouth. Based on a thorough review of thousands of pages of Entergy documents and internal records from the U.S. EPA and the state Department of Environmental Protection (MassDEP), the report details pollution and marine destruction caused by Pilgrim’s outdated “once-through” cooling water system.

For years, groups have been calling on regulators to require Entergy to upgrade the system and end the harm to the bay and its ecosystems. Now they have backed up the request with pages of information from state, federal and industry resources.

Since 1972, Pilgrim has been using Cape Cod Bay as a source of free cooling water for its operations. Entergy’s use of the bay is supposed to be strictly regulated under a Clean Water Act permit. Pilgrim’s permit expired in 1996, and regulators say they are too busy to renew it. The permit allows Entergy to use cooling water technology that is unchanged from the 1970s, when Pilgrim first went online.

Entergy pumps in up to 510 million gallons of water from Cape Cod Bay for cooling purposes each day. The process draws in tens of millions of fish and shellfish and billions of planktonic organisms each year. Entergy dumps the used water – heated and contaminated – back into the bay. Using the once-through cooling system is also inefficient: two-thirds of the thermal energy produced by Pilgrim is dumped back into the bay as waste heat instead of being turned into useful electricity.

The report identifies laws that are supposed to be protecting Cape Cod Bay, such as the Clean Water Act, Magnuson-Stevens Fisheries Act, and endangered-species laws, and describes how these laws are being ignored by regulators and Entergy.

Entergy’s Clean Water Act permit is supposed to ensure Pilgrim has as little impact as possible on Cape Cod Bay, and that it uses the best available technology to minimize impacts. Entergy’s permit does neither, according to the report. Instead, all Entergy has to do is “monitor” and “report” the marine destruction and pollution that it causes, without having to mitigate the impacts.

Entergy’s system destroys marine life when it “impinges” marine organisms, such as adult or juvenile fish that get pulled in and trapped on Pilgrim’s “trash racks” or on the screens that protect the pumps. Most of the marine life is killed or maimed. Records kept since the 1980s show that about eighty different fish species have been impinged. The most common ones impinged are Atlantic menhaden, silversides, Atlantic and river herring, winter flounder, rainbow smelt, and sand lance. In 2009, the largest single impingement event at Pilgrim occurred: 107,000 young Atlantic menhaden were impinged in a three-day period.

Entergy also “entrains” smaller marine organisms such as plankton, fish eggs and larvae, which pass through the trash racks and screens and then circulate through Pilgrim’s internal pipes and machinery. Inside Pilgrim the marine organisms are exposed to hot water and chemicals, and are battered around by mechanical equipment. For entrained fish eggs and larvae at Pilgrim, some experts assume 100 percent mortality due to high temperatures combined with chlorination of the discharge water. Furthermore, in addition to the marine life immediately killed by entrainment, there is no ability to measure long-term viability or success of organisms even if they do survive.

From 1980 to 1999, about 3.5 to 88.8 million individual winter flounder larvae were entrained annually at Pilgrim. In 1997 and 1998, two years of particularly high entrainment rates, Pilgrim killed flounder larvae that represented 124,000 “equivalent adult” fish. When converted to pounds of fish, MassDEP and EPA records state this approaches 40 percent of the annual total recreational and commercial catch in the local area. In 1998, one of the highest records of larval winter flounder entrainment occurred (77,000 equivalent adults), which was nearly a 30 percent loss of the adult flounder population that year.

Despite these facts showing the massive destruction of marine life by Entergy’s cooling water system, state and federal regulators have failed to act. EPA and MassDEP have broken public promises to act quickly to issue a new Clean Water Act permit for Pilgrim. As a result, the 24 groups endorsing the report say there is no option left but to terminate the permit.

The report was issued by Cape Cod Bay Watch and endorsed by numerous state and regional groups. It is available at: capecodbaywatch.org.

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