Jones River Watershed Association

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December 26, 2016

William Dean, Director
U.S. Nuclear Regulatory Commission

Daniel Dorman
Region 1 Office Administrator
U.S. Nuclear Regulatory Commission

Arthur Burritt, Chief
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Mr. Andrew Griffith
Associate Deputy Assistant Secretary for Fuel Cycle Technologies
U.S. Department of Energy, Office of Nuclear Energy
1000 Independence Ave SW, Washington, DC 20585

RE: Pilgrim Nuclear Power Station, Plymouth, Massachusetts

Dear NRC and DOE Staff,

We are writing to express legitimate concerns about the Pilgrim Nuclear Power Station (PNPS) site that should be immediately addressed by your agencies. We continue to believe that the PNPS site, including its nuclear waste storage area, are at risk from flooding and storms. New aerial photos underscore these concerns.

In 2015 and 2016, we provided NRC staff with several letters expressing concern about potential flooding and storm impacts on the PNPS site.[1] We first forwarded NRC staff a 2015 report called 'Analysis of AREVA Flood Hazard Re-Evaluation Report for Pilgrim Nuclear Power Station,' which we had commissioned from Coastal Risk Consultants. According to this report, Entergy's March 2015 'Pilgrim Nuclear Power Station Flooding Hazard Reevaluation Report' (#51-9226940-000) underestimates and omits important risk factors, uses outdated data, and does not consider future risk estimates for rainfall and sea level rise.

[1] JRWA letter to NRC. Jan. 18, 2015. Re: Analysis of AREVA Flood Hazard Re-evaluation Report for Pilgrim Nuclear Power Station; JRWA letter to NRC. Feb. 11, 2015. Re: Entergy's Hazards Reevaluation Report of Pilgrim Nuclear Power Station, Plymouth, MA (License no. DPR-35); JRWA letter to NRC. Feb. 29, 2016. Re: Updated NGRP Site Maps for Pilgrim Nuclear Power Station.

In February 2016, we also forwarded NRC staff updated site maps for the PNPS site that we had commissioned from Northeastern Geospatial Research Professionals (NGRP). These site maps highlighted inaccurate elevation data used by Entergy when estimating flood risk at the PNPS site.

We are now bringing to your attention two aerial photographs taken in November 2016 (Appendix A), which show that NGRP's site maps are accurate (Appendix B). These photos validate the LiDAR data used by NGRP to generate the site maps – the jetty in the photos are over-washed with seawater in the same locations depicted as lower elevations in the site maps, despite Entergy's claims that the PNPS elevations are higher. It's important to note that the photos, based on tidal marks and rack lines, are of the PNPS site during moderate wind and weather conditions and likely after high tide (Appendix C). During just a Category 1 storm, both the easterly revetment and the southerly jetty would be inundated.

We again urge your agencies to review these maps and recognize the threat posed by coastal flooding and storms at the PNPS site. We strongly urge you to require PNPS to permanently stop operations now, and require its stockpile of nuclear waste to be moved to higher elevation and further from the shoreline. Climate change will only bring harsher conditions to our shores. PNPS's nuclear waste should be moved now, before more casks are filled and it becomes more problematic to move.

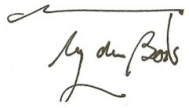
PNPS is currently in Column 4 of the NRC's Action Matrix. Your agency just finished two weeks of an intensive inspection where, based on a memo inadvertently emailed to the public, highlighted non-compliances, poor maintenance, poor engineering practices, equipment reliability problems, and an overwhelmed staff. Additionally, PNPS was recently forced to shut down due to leaks in three main steam isolation valves.

We anticipate that due to degradation of the boron panels in the spent fuel pool, PNPS will escalate transfer of waste fuel to the dry casks. This requires urgent review of the default coastal location of PNPS's dry cask storage facility.

Furthermore, we vigorously oppose the refueling planned for early 2017 due to the added burden it will place on Plymouth and expansion of the time frame for site clean-up. We strongly urge the NRC to require shut down prior to refueling. We especially urge DOE to require PNPS's nuclear waste storage area to be move farther from coastal risks and salt water degradation, away from Cape Cod Bay and to higher elevation. We encourage all regulators and officials to escalate the timeframe for decommissioning PNPS and clean-up of the site.

Please contact us with any questions.

Sincerely,



Pine duBois
Executive Director
Jones River Watershed Association

Karen Vale-Vasilev
Program Manager
JRWA's Cape Cod Bay Watch Program

Enclosure

cc:

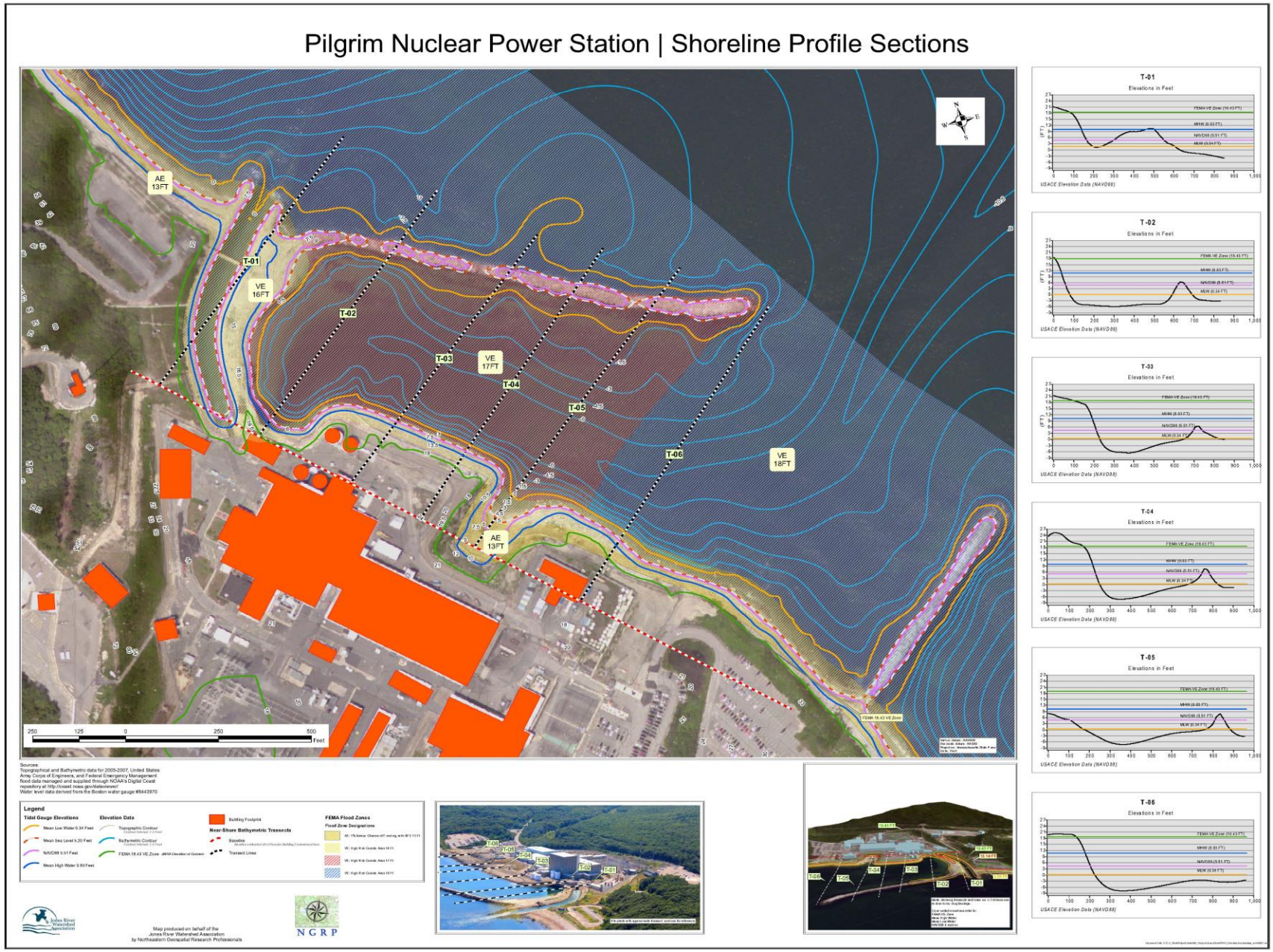
Stephen Burns, NRC Chair
Curt Spalding, EPA Region I Administrator
Dave Webster, EPA Water Permit Branch Chief
Governor Charlie Baker
Mark Beaton, Secretary, EOEEA
Martin Suuberg, Commissioner, DEP
Beth Card, Assistant Commissioner, DEP
Bruce Carlisle, Director, CZM
Board of Selectmen, Town of Plymouth
Nuclear Matters Committee, Town of Plymouth
Massachusetts Delegates

APPENDIX A

Photos: Pilgrim Nuclear Power Station on November 18, 2016
Estimated to be just after a 12 ft. high tide and with moderate wind conditions (6-14 mph) from NNE

APPENDIX B

One of the NGRP maps showing the height of the breakwater jetties and other elevations that appear significantly lower than those shown in Entergy's plans, demonstrating that the site is not as protected from flooding and sea level rise as Entergy reports. Note the breaks in the northerly jetty, which match the photographs in Appendix A. See all NGRP maps here: http://jonesriver.org/pilgrim-elevation-analysis



APPENDIX C

Weather Conditions Nov. 18, 2016
Source: Weather Underground, Plymouth, MA, Daily History

TIME	TEMP	DEW POINT	HUMIDITY	PRESSURE	VIS	WIND DIR	WIND SPEED	CONDITION
12:52 PM	57.0 °F	39.9 °F	53%	30.01 in	10.0 mi	NNE	13.8 mph	Clear
2:52 PM	59.0 °F	39.9 °F	49%	30.01 in	10.0 mi	N	9.2 mph	Clear
3:52 PM	57.0 °F	39.9 °F	53%	30.01 in	10.0 mi	NNW	5.8 mph	Clear

Tidal Conditions Nov. 18, 2016
High tide in Plymouth at 1:51 PM: 12.0 ft. Source: BoatMA.com
Note tidal elevations based on MLLW of Boston buoy

MASSACHUSETTS MARINE TRADES ASSOCIATION
BoatMa.com
SINCE 1964

back to the Tides Index
back to South Shore Tides

Plymouth Cape Cod Bay
Plymouth Cape Cod Bay, Massachusetts

November Tide Chart
2016

DAY	DATE	HIGH				LOW						
		AM	hgt	PM	hgt	AM	hgt	PM	hgt	rise	set	moon
Tuesday	01	12:53	9.8	1:00	10.5	7:04	0.8	7:32	0.1	7:15	5:36	
Wednesday	02	1:31	9.7	1:37	10.4	7:42	1.0	8:11	0.2	7:17	5:34	
Thursday	03	2:10	9.5	2:16	10.2	8:22	1.2	8:52	0.4	7:18	5:33	
Friday	04	2:51	9.3	2:58	10.1	9:04	1.4	9:35	0.6	7:19	5:32	
Saturday	05	3:35	9.1	3:42	9.9	9:48	1.6	10:21	0.7	7:20	5:31	
Sunday	06	3:22	9.0	3:31	9.7	9:37	1.7	10:10	0.8	6:22	4:30	
Monday	07	4:12	9.0	4:24	9.7	10:29	1.7	11:03	0.8	6:23	4:28	
Tuesday	08	5:06	9.2	5:20	9.7	11:26	1.5	11:58	0.6	6:24	4:27	
Wednesday	09	6:00	9.6	6:18	10.0	12:24 PM	1.1			6:25	4:26	
Thursday	10	6:54	10.1	7:16	10.3	12:53	0.3	1:21	0.5	6:26	4:25	
Friday	11	7:47	10.8	8:13	10.7	1:47	-0.1	2:18	-0.2	6:28	4:24	
Saturday	12	8:39	11.5	9:08	11.1	2:40	-0.5	3:12	-0.9	6:29	4:23	
Sunday	13	9:30	12.1	10:03	11.4	3:33	-0.9	4:06	-1.6	6:30	4:22	
Monday	14	10:21	12.6	10:56	11.5	4:24	-1.1	4:58	-2.0	6:31	4:22	
Tuesday	15	11:12	12.8	11:49	11.5	5:15	-1.2	5:50	-2.2	6:33	4:21	
Wednesday	16	12:04 PM	12.8			6:06	-1.2	6:42	-2.2	6:34	4:20	
Thursday	17	12:43	11.3	12:57	12.5	6:58	-0.9	7:35	-1.9	6:35	4:19	
Friday	18	1:38	11.0	1:51	12.0	7:51	-0.5	8:29	-1.4	6:36	4:18	

Below are elevation datum from the Boston buoy. The Boston buoy is the closest and most relevant tidal buoy for PNPS. Below are the current and previous tidal epochs (each epoch is 18 years). The previous 1960-1978 epoch was the information used when PNPS was first developed. It is significant that the jetties were first compromised in the blizzard of 1978. The 1983-2001 is the present epoch and shows a rise in sea level. Local present day tide charts are based on this. We are nearly done with the third epoch (2002-2020), when information will be brought to reflect present day conditions.

Source: https://tidesandcurrents.noaa.gov/stationhome.html?id=8443970

Elevations on Station Datum

Station: 8443970, Boston, MA
Status: Accepted (Apr 17 2003)
Units: Feet
T.M.: 75
Epoch: (/datum_options.html#NTDE) 1983-2001
Datum: STND

Datum	Value	Description
MHHW (/datum_options.html#MHHW)	13.80	Mean Higher-High Water
MHW (/datum_options.html#MHW)	13.36	Mean High Water
MTL (/datum_options.html#MTL)	8.61	Mean Tide Level
MSL (/datum_options.html#MSL)	8.73	Mean Sea Level
DTL (/datum_options.html#DTL)	8.66	Mean Diurnal Tide Level
MLW (/datum_options.html#MLW)	3.87	Mean Low Water
MLLW (/datum_options.html#MLLW)	3.52	Mean Lower-Low Water
NAVD88 (/datum_options.html)	9.03	North American Vertical Datum of 1988
STND (/datum_options.html#STND)	0.00	Station Datum
GT (/datum_options.html#GT)	10.27	Great Diurnal Range
MN (/datum_options.html#MN)	9.49	Mean Range of Tide
DHQ (/datum_options.html#DHQ)	0.44	Mean Diurnal High Water Inequality

Elevations on Station Datum

Station: 8443970, Boston, MA
Status: Superceded (Apr 17 2003) (Accepted Apr 15 1998)
Units: Feet
T.M.: 75
Epoch: (/datum_options.html#NTDE) 1960-1978
Datum: STND

Datum	Value	Description
MHHW (/datum_options.html#MHHW)	13.70	Mean Higher-High Water
MHW (/datum_options.html#MHW)	13.26	Mean High Water
MTL (/datum_options.html#MTL)	8.49	Mean Tide Level
MSL (/datum_options.html#MSL)	8.60	Mean Sea Level
DTL (/datum_options.html#DTL)	8.54	Mean Diurnal Tide Level
MLW (/datum_options.html#MLW)	3.71	Mean Low Water
MLLW (/datum_options.html#MLLW)	3.37	Mean Lower-Low Water
NAVD88 (/datum_options.html)		
STND (/datum_options.html#STND)	0.00	Station Datum
GT (/datum_options.html#GT)	10.33	Great Diurnal Range
MN (/datum_options.html#MN)	9.55	Mean Range of Tide
DHQ (/datum_options.html#DHQ)	0.44	Mean Diurnal High Water Inequality