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Honorable Governor Charlie Baker
Massachusetts State House
Office of the Governor
Room 280
Boston, MA 02133
December 27, 2016

RE: PILGRIM NUCLEAR POWER STATION SPECIAL INSPECTION

Dear Governor Baker,

Please find attachment 1: NRC email sent to Diane Turco, President and Co-Founder of the Cape Downwinders on December 6, 2016 by Leonard Cline, NRC Senior Project Engineer, Reactor Projects Branch 5 Division of Reactor Projects. Attachment 2 is the Key to NRC Acronyms compiled by the Cape Downwinders for easier interpretation of NRC jargon.

It is important to consider the context that surrounds and informs the assessment in this email, assumed intended for Nuclear Regulatory Commission (NRC) eyes only and now being interpreted by the general public. This unusual circumstance has created a level of transparency that is an overexposure of a regulator and industry that traditionally controls information before crafting it for public consumption. The content contains preliminary unvarnished and unedited observations of an NRC Special Inspection Team of twenty experienced specialists, summarized by the team leader after the first week (of three weeks) in the last phase (of a three phase) intensive special investigation process to determine whether Pilgrim Nuclear Power Station (PNPS) and Entergy have improved the level of their game by "*arresting declining performance*".

It's reasonable to assume these observations are informed by the completed first and second phases of this special inspection process. Additionally it's reasonable to assume these observations are informed by years of downward trending performance history at PNPS that has caused the NRC to rank it as one of the three worst performing nuclear power stations in the country, all owned by Entergy. Because the email's author refers to one of Entergy's very troubled plants, Arkansas Nuclear One (ANO), we can also reasonably assume the history at Entergy's other two troubled plants informs this email as well.

It doesn't take much to connect the dots to see a pattern at Entergy of systemic Corporate Safety Culture problems. Because PNPS is reportedly losing money and on the edge of retirement there is no financial incentive to invest in performance improvement. Entergy has recently closed or sold a surprising number of its nuclear fleet (Vermont Yankee, Pilgrim, Fitzpatrick, and Palisades) because they can't compete. Going forward Entergy will spend as little money as possible at these plants.

The email's author is also following the money, couched as "*resources*", and a key ingredient contributing to PNPS' inability to turn a positive corner on and maintain improved employee

performance, expertise, and professional development: *“Overall, we are beginning to see a picture where the people seem to be willing and happy/excited about change, but actions seem to be marginalized during implementation. Some of this marginalization seems to be due to not understanding what the end state should look like, and frankly some of it seems to be due to a lack of resources across many groups. We will be probing this further, as it is a key to making a recommendation whether or not the plan will be effective/sustainable.”* This is an insightful, foreboding, and powerful statement to make in a preliminary inspection report. The author appears to have been down this road before and his assessments have not sprung from vague suspicions.

It's important here to acknowledge that Cape Downwinders and others believe most Entergy employees at PNPS are genuinely doing as good a job as possible. It's our opinion that during the Nor'easter Juno scam in January 2015, PNPS employees pulled a rabbit out of the hat. The Union of Concerned Scientists categorized that emergency shutdown a “near miss” complicated by multiple emergency safety equipment failures.

The same inspectors are saying there are rooted safety culture problems that PNPS and Entergy may not be able to overcome: *“We are observing current indications of a safety culture problem that a bunch of talking probably won't fix.”* Again, this is a very strong assessment to document in black and white in a preliminary report by experienced NRC professionals very familiar with making these kind of judgements. The *“culture problem”* that has developed at PNPS and Entergy over the years is not going to be turned around immediately or even in the two years remaining in Entergy's commitment to keep PNPS in service to honor a power purchase agreement with ISO New England.

Obviously Entergy loses money every minute it's offline, which is a situation to be avoided at the public's expense. This email revealed a very troubling interaction that speaks directly to gambling with public safety to stay online: *“The Pilgrim Systems Engineering Manager stated to the team that the site did not want to remove the EDG from service to investigate this concern as it would result in unavailability time that could place the EDG in Maintenance Rule A.1. Later in the day the Engineering Director and Site VP tried to backtrack on this statement, but the team believes that it was a genuine thought by this senior station manager and is an insight on Safety Culture.”*

We will be sending a follow up letter documenting a PNPS switchyard weakness known to exist since the Blizzard of '78' but which remains uncorrected to this day (~ 27 years). It has resulted in recurrent Loss Of Offsite Power (LOOP) events that triggered automatic scrams eight times. This will illustrate and support the NRC inspector's suspicions of a Safety Culture problem at Entergy (as well as at the NRC, FEMA and MEMA) where public safety is consciously and willfully endangered by taking increased avoidable risks in the service of staying online to maximize financial performance.

All of this results in and informs our skepticism and distrust when Entergy, the NRC, FEMA and MEMA mechanically respond to every emergency event with statements like this: *“The employees and public were never at risk or in danger, all safety systems performed as they were designed to”*. Every time this marginalization, invalidation and “dance” around our concerns occurs, distrust only deepens in the well informed people who are watching very closely. This leaked email with it's albeit preliminary observations has irreversibly affirmed impressions that are going to be hard to soften or reverse with PNPS watch dogs and the general public. For good reason, it's simply the unvarnished truthful assessment by an NRC expert. Considering the consequences and the degraded condition of the plant's equipment and Entergy's self serving Corporate Safety Culture, it's time to shut PNPS down now. It is not worth the gamble to the five million people living within the 50 mile emergency planning zone to continue for two more years predominantly for the financial benefit of Entergy and the Town of Plymouth.

PNPS problems are symptomatic of interagency (NRC, FEMA and MEMA) and industry (Entergy) Safety Culture problems that speak to arrogantly putting profit above public safety. Probabilistically based risk assessment theory used by the NRC to conclude that an accident is

unlikely to happen in the United States is simply denial and convenient. A Chernobyl Engineer named Sergiy Parashyn reflected “We knew with certainty, with arrogant certainty, that we were in control of the power we were playing with. This was the day...we learned we were wrong.”

The candor and content in this NRC email are glaring and alarming. Entergy and the NRC are in a hard corner that’s going to be difficult to convincingly talk their way out of. To borrow a phrase from the email, this is a problem that “a bunch of talking probably won’t fix.”

We look to your bold leadership to protect the citizens of the Commonwealth. The time for talk, public meetings and dialogue is long overdue. What we need is action now. **Therefore we petition Governor Baker, Attorney General Maura Healey, the Massachusetts General Court, the MA Congressional Delegation, Senator Markey and Senator Warren to insist the Nuclear Regulatory Commission shut down PNPS immediately and begin decommissioning.**

Sincerely,

*William Maurer, Falmouth, Margaret Stevens, Pocasset, Maxine Wolfset, Mashpee, Don Barton, Mashpee, Arlene Williamson, Mashpee, Karen Quinn, Centerville, Susan Carpenter, South Dennis, Sarah Thacher, Dennis, Elaine and Arthur Dickinson, Harwich, Bonnie Bridges, Harwich, Mary Conathan, Chatham, Diane Turco, Cape Downwinders Steering Committee

*Deb Katz, Rowe, Executive Director, Citizens Awareness Network

*Pine Dubois, Kingston, Executive Director, Jones River Watershed Association

*Johanna Hammond, Amesbury, Director, Tom MacLachlan, No More Fukushimas

*Maureen Burgess, Truro, Cape Cod National Seashore Advisory Commission (CCNSAC)

*Ann Rosenkranz, Vineyard Haven, MVI350.org

*Ed DeWitt, Dennis, Executive Director, Association to Preserve Cape Cod (APCC)

*Cole Harrison, Cambridge, Director, MA Peace Action

*Guntrum Mueller, Susan Mirsky, Newton, Paula Sharaga, Boston, Boston Downwinders

*Karen Vale, Plymouth, Director, Cape Cod Bay Watch

*Mary Lampert, Duxbury, Director, Pilgrim Watch

*Yvonne Boracas, Susan Weegar, Candace Perry, Wellfleet, Down Cape Downwinders

*Laura Wagner, Scituate, Executive Director, UU Mass Action Network

cc:

Senator Edward Markey

Senator Elizabeth Warren

MA Congressional Delegation

Mindy D’Arbelloff, Deputy Chief of Staff

Kurt Schwartz, MA Emergency Management Agency

Maura Healey, Attorney General

Daniel Bennett, Executive Office of Public Safety and Security

Stan Rosenberg, Senate President

Robert DeLeo, House Speaker

MA State General Court

Stephen Burns, NRC Chair

Jeffrey Baran, NRC Commissioner

Kristine Svinicki, NRC Commissioner

Michael R. Johnson, Deputy Executive Director for Reactor and Preparedness Programs

Daniel H. Dorman, Regional Administrator Region I

William M. Dean, Director, Office of Nuclear Reactor Regulation

Don Jackson, Chief, Operations Branch, Region 1

Mary Pat Flynn, Barnstable County Commissioner

Sean O’Brien, Barnstable County Regional Emergency Planning Committee

From: "Cline, Leonard" <Leonard.Cline@nrc.gov>
Date: December 6, 2016 8:57:16 AM EST
To: "Weil, Jenny" <Jenny.Weil@nrc.gov>, "Tifft, Doug" <Doug.Tifft@nrc.gov>, "Draxton, Mark" <Mark.Draxton@nrc.gov>, "Sheehan, Neil" <Neil.Sheehan@nrc.gov>, Diane Turco <tturco@comcast.net>, "Venkataraman, Booma" <Booma.Venkataraman@nrc.gov>, "Guzman, Richard" <Richard.Guzman@nrc.gov>
Subject: **FW: Pilgrim 95003 Phase C Update 12/5/16**

From: Jackson, Donald
Sent: Monday, December 05, 2016 9:58 PM
To: Dorman, Dan <Dan.Dorman@nrc.gov>; Lew, David <David.Lew@nrc.gov>; Lorson, Raymond <Raymond.Lorson@nrc.gov>; Yerokun, Jimi <Jimi.Yerokun@nrc.gov>; Scott, Michael <Michael.Scott@nrc.gov>; Pelton, David <David.Pelton@nrc.gov>; Burritt, Arthur <Arthur.Burritt@nrc.gov>
Cc: Duncan, Eric <Eric.Duncan@nrc.gov>; Clagg, Rodney <Rodney.Clagg@nrc.gov>; Josey, Jeffrey <Jeffrey.Josey@nrc.gov>; Arner, Frank <Frank.Arner@nrc.gov>; Carfang, Erin <Erin.Carfang@nrc.gov>; Cline, Leonard <Leonard.Cline@nrc.gov>; Keefe-Forsyth, Molly <Molly.Keefe@nrc.gov>; Horvitz, Stacey <Stacey.Horvitz@nrc.gov>; Bickett, Carey <Carey.Bickett@nrc.gov>
Subject: Re: Pilgrim 95003 Phase C Update 12/5/16

Folks,

I will clean this up tomorrow....I left Chaff in there from last week. In general, if you read the updates later in the paragraphs it provides better info...the issues are all in play.

Don Jackson
Chief-Operations Branch
USNRC Region I
(610) 337-5306

On: 05 December 2016 19:10, "Jackson, Donald"

<Donald.Jackson@nrc.gov> wrote:

Folks,

The following is a brief (or maybe not so brief) update of inspection activities associated with the ongoing Pilgrim 95003 Phase C

Activities:

- The Safety Culture Group conducted additional focus groups today, bringing the total number of people interviewed so far to over 130. This group plans to conduct 1 on 1 chance interviews in plant next week to validate observations from the group discussions
- The Operations NRC inspector observed pre-job briefings and maintenance and operations evolutions in plant
- Many Engineering discussions over the status of the EDGs
- Many team field activity observations

Issues/PDs:

- (Update) The station performed an apparent cause evaluation for an 'A' EDG issue that occurred in September of this year, which involved oil leakage from the 'A' EDG blower gear box relief valve fitting. We are still inspecting this issue, but items that we are currently following include:
 - Pilgrim only performed a visual inspection of the gear box following the event, even though there are indications that the gear box was potentially run with little or no oil. There are two bearings and a pump in this gear box. We provided this issue as an operability concern to the control room this afternoon. The initial operability determination was "operable" based on the fact that they ran the 'A' EDG successfully this morning. The NRC Engineering, Maintenance, and Programs group lead does not now have an immediate operability concern, but numerous questions are still being addressed by Pilgrim
 - The 50.59 that was performed to install this type of gear box appears to be inadequate, in that it did not account for a new failure mode (i.e., introduction of a relief valve to the gear box)

- Inadequate causal evaluation of the issue (Pilgrim classified the cause as “indeterminate” and missed similar operating experience from North Anna)
 - Questions on the pre-startup checks for the EDG were resolved by Carey and Erin, as they walked down pre-start up checks with Non Licensed Operators
 - Missed reportability call is likely
 - The team further questioned the extent of condition of this issue related to the same gear box on the ‘B’ EDG. We believe that there is a current operability question on the ‘B’ EDG related to the same relief valve failure mechanism and leakage. The Pilgrim Systems Engineering Manager stated to the team that the site did not want to remove the EDG from service to investigate this concern as it would result in unavailability time that could place the EDG in Maintenance Rule A.1. Later in the day the Engineering Director and Site VP tried to backtrack on this statement, but the team believes that it was a genuine thought by this senior station manager and is an insight on Safety Culture. Pilgrim is conducting an inspection of this ‘B’ EDG Gear Box this evening.
 - The licensee analyzed oil from both the ‘A’ and ‘B’ EDG Blower gear boxes and determined that no component degradation occurred.
 - The licensee removed the ‘B’ EDG Gear Box RV, and determined that adequate thread engagement existed, and a common mode failure was unlikely. The reset and reinstalled the RV
 - The licensee also ‘staked’ the threads on the ‘B’ EDG Gear Box RV to prevent recurrence of the failure.....However, it appears that the licensee did not perform a 50.59 screening for this modification to SR equipment which is an additional example of 50.59 process performance deficiencies.
- (Update) We are observing evidence of some weaknesses in the use of Subject Matter Experts (SMEs) as a CAPR in the corrective action program area. Specifically, the roles and responsibilities of the SMEs do not appear to be clearly defined (i.e., we are hearing different things from station personnel, the lead CAP SME, and the support CAP SMEs about what their role is). At this point, we do not know if this extends to the other areas or not. The PIR Group is developing examples to support the teams belief that the CAPRs for the Root Cause for the Corrective Action Program may not be fully

effective. The plant has completed 123 of 134 corrective actions in this area, yet we have identified CAP problems through this week. Preliminarily, CAPRs 1 and 2 involving the use of SMEs and Use of Performance Indicators appear to be ineffective.

- (No Change) The Engineering, Maintenance, and Programs group is looking at several examples where well established programs have not been followed. There was a circuit breaker replacement (swap) involving 52 circuit breakers covering a wide variety of plant equipment that was not screened under 50.59 as the licensee believed that they were exact, "like for like" replacements. The NRC has determined that lugs used inside of the breakers were a different size, and should have been evaluated accordingly. Other items that may also support this issue (though the mods are very dated):
 - The EDG gearbox issue described above
 - During a walkdown, an inspector noted that the EDG exhaust didn't appear to be missile-protected. The exhaust was moved as part of a modification
 - Plant Computer modification that impacted the heat balance calculation

- (No Change) The Engineering, Maintenance, and Programs group is looking into several examples of corrective actions that may not have been properly addressed. One involves a 2011 Internal Flooding issue that was raised, and has not yet been fully addressed.
- (No Change) The Engineering, Maintenance, and Programs group is inspecting an issue associated with lack of clearance between grating/ pipe supports and the primary containment liner. The design requires 1/16 " clearance and in some cases there is no clearance. The licensee wrote and closed 4 CRS without properly evaluating the issue or reviewing extent of condition. We did brief a 10CFR50 AppB Criterion XVI performance deficiency that we are developing
- (Update) We receive a revised Root Cause Evaluation for the 95001 SRV sample on Monday. The teams preliminary review of the document appears to provide an inadequate Root Cause Evaluation and corrective actions that will not prevent recurrence. Essentially, this revised root cause blames Operations Management and an inadequate post trip review. The inspector believes that these may be contributing causes, but the root cause is more aligned to a failure

to properly implement the corrective action process. Frank Arner reviewed Doug Dodson's work and has aligned with Doug's view that the Root Cause is not adequate. However, there is a possibility, when you evaluate all of the corrective actions taken to date on the issue, that they have taken adequate corrective actions. Doug believes that the Root Cause is an inadequate Operability Determination for the 2013 SRV Failure, and poor corrective actions for what they did put in the CAP. Since ODs and CAP are issues that have had recent actions, we think that they may have taken adequate corrective action. That being said, it is likely that the licensee did not adequately complete the 95001 in that they got the Root Cause wrong.

- (New) Pilgrim has a longstanding (30+Years) issue where the 'B' RHR Heat Exchanger bottom flange has been leaking. They have conducted three non-code furminite repairs over the years. The last injection was 2007, and the leakage has reinitiated at 30 drops per minute. Entergy cannot find the paperwork for the first injection, and does not know the type or the amount of material injected. This appears to be a non-code repair of a code system that either needed to be resolved at the next outage, or code relief provided by the NRC. Neither has been done. Additionally, there is current leakage (120 drops/min at 50 psig) outside of the drywell that has not been appropriately evaluated. More to follow on this issue.
- (New) The ECP Manager has not completed the Entergy qualification program. This seems strange for a Column 4 plant where Safety Culture is a fundamental problem area.
-

Common Causal Insights:

- (No Change) The Safety Culture Group is hearing that people are happy and working to improve the site (Exception- Security). The observation of actual performance however is somewhat disjointed. It appears that many staff across the site may not have the standards to know what "good" actually is. There is a lot of positive energy, but no one seems to know what to do with it, to improve performance, leading to procedural non-compliances, poor maintenance, poor engineering practices, and equipment reliability problems. Example- Jeff Josey questioned operability of 'A' EDG Wednesday around 10 AM with a well-developed set of questions, and a direct statement questioning operability. By 4pm, we were aware that the Shift

Manager was not made aware of this challenge, and no CR was written. The NRC then approached the Shift Manager with the Operability challenge. We are still waiting for the answers to our operability questions (but as mentioned previously, we don't think there is now an immediate concern). Additionally, while observing an IC surveillance, the worker stated that this test would take him much longer since the NRC was watching. In fact, the channel that we watched took 2.5 hours to complete, and the other 3 Channels took 2 hours total to complete when we were not observing.

- (Update) We became aware today that corrective actions associated with the Recovery Plan are being “kicked back” to the organization by the external contracted review folks after completion by Pilgrim because the closure actions do not match the required actions. In several cases that we have reviewed, station management then changes the recovery action on the CA to match what was actually done, such that the external contracted review group agrees with issue closure. We are capturing examples of this to prove our point. The licensee was in disbelief when we mentioned this issue. One example that we found today is that the Recovery Plan calls for all Supervisors and above to have a “Targeted Performance Improvement Plan” which is tailored to the individual, have milestones, and due dates for specific actions. Apparently the plans are not tailored to the individual and are nearly all the same, and we found that some folks just recently found out that they were on a TPIP, and were surprised. It does not appear that they met the spirit of the recovery action.
- (No Change) Overall, we are beginning to see a picture where the people seem to be willing and happy/excited about change, but actions seem to be marginalized during implementation. Some of this marginalization seems to be due to not understanding what the end state should look like, and frankly some of it seems to be due to a lack of resources across many groups. We will be probing this further, as it is a key to making a recommendation whether or not the plan will be effective/ sustainable.
- (New) A licensee oversight contractor informed me that the licensee is actively working a further revision to the Recovery Plan to address the issues that we have found in the last week. They plan to present this to the NRC later this week. I will likely need to discuss this with NRR to figure out the rules on reviewing this.

Level of Cooperation:

- In general, the licensee is being responsive, but very disjointed in their ability to populate meetings and answer questions, staffing problems seem to impact how fast the licensee can respond. For example- We attempted to conduct a safety culture focus group with Security and no one showed up, because the security supervisor “forgot” he needed to support it. The plant seems overwhelmed by just trying to run the station. An RP person wrote a CR last evening that the NRC inspection was significantly impacting getting her work done, and that we should spread out requests over the whole 3 weeks....seemed very frustrated. We have been very clear that we are flexible, and that we are sensitive to impact on plant activities.
- The licensee engineering group appears unprepared to address all of the questions being posed by the team. I am couching this by questioning their overall Engineering Acumen.

My thoughts:

The team is really struggling to figure out what all of this means. The licensee staff seems to say the right things, and they are genuinely energized about improving. We believe that there are some incremental improvements that look bigger than they actually are to the licensee staff. The corrective actions in the recovery plan seem to have been hastily developed and implemented, and some have been circumvented as they were deemed too hard to complete. We are observing current indications of a safety culture problem that a bunch of talking probably won't fix. We did see a paired supervisory observation that uncovered procedure usage problems that were not directly identified by the workers supervisor. If the 95001 SRV review is truly UNSAT after almost 2 years, my confidence will not be very high, and I reiterate we received a revision dated 4 days ago. The dance associated with EDG operability this week is also disturbing on many levels- Poor Engineering Expertise, no communication with the shift manager, Poor original corrective action, and a Senior Manager stating a reluctance to assure operability due to a negative impact on maintenance rule status. Carey, Frank, and met early on Sunday, and discussed several “themes” that we plan to further develop, namely: Safety Culture, Ineffective CAP, Conduct of Operations/OPS Standards, Engineering Acumen, and Work Management. The challenge will be to determine if Corrective Actions already taken in all of these areas has been

effective or not. On the plus side, we have not identified performance deficiencies at the same rate as ANO, and the team believes that procedures are in good shape.

Very Respectfully
Don Jackson- Team Lead

Exhibit #2: Key to NRC Acronyms

(Cape Downwinder 12/7/2016)

Key is in order of first appearance in text of 12/6/2016 NRC email.

There were multiple meanings for many acronyms, a best fit was picked.

- NRC - Nuclear Regulatory Commission
- EDG - Emergency Diesel Generator
- RV - Relief Valve
- SR - Safety Related
- CAPR - Corrective Action to Prevent Recurrence
- CAP - Corrective Action Plan
- PIR - Problem Identification and Resolution
- CRS - Condition Report Summary? (Could be typo of plural CRs)
- SRV - Safety Relief Valve
- OD - Operability Determination
- RHR - Residual Heat Removal
- ECP - Employee Concerns Program
- CR - Condition Report or Contractor Report
- IC - Isolation Condenser or Indicating Controller
- CA - Corrective Action
- TPIP - Targeted Performance Improvement Plan
- NRR - Office of Nuclear Reactor Regulation (at the NRC)
- RP - Recovery Plan (or Reactor Project or Radiation Protection)
- UNSAT - Unsatisfactory
- OPS - Operational Protection Systems
- ANO - Arkansas Nuclear One (also owned by Entergy and similarly troubled)