

March 5, 2014

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Washington, DC 20555-0001

DEFINITION OF NUCLEAR SAFETY CULTURE

Nuclear safety culture is the core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment.

TRAITS OF A POSITIVE NUCLEAR SAFETY CULTURE

Experience has shown that certain personal and organizational traits are present in a positive safety culture. The following are traits of a positive safety culture:

- Leadership Safety Values and Actions—Leaders demonstrate a commitment to safety in their decisions and behaviors.
- Problem Identification and Resolution—Issues potentially impacting safety are promptly identified, fully evaluated, and promptly addressed and corrected commensurate with their significance.
- Personal Accountability—All individuals take personal responsibility for safety.
- Work Processes—The process of planning and controlling work activities is implemented so that safety is maintained.
- Continuous Learning—Opportunities to learn about ways to ensure safety are sought out and implemented.
- Environment for Raising Concerns—A safety conscious work environment is maintained where personnel feel free to raise safety concerns without fear of retaliation, intimidation, harassment, or discrimination.
- Effective Safety Communication—Communications maintain a focus on safety.
- Respectful Work Environment—Trust and respect permeate the organization.
- Questioning Attitude—Individuals avoid complacency and continuously challenge

existing conditions and activities in order to identify discrepancies that might result in error or inappropriate action.

(The problem I have with “commensurate with their significance” is the agency and nuclear industry is exaggerating their granularity with seeing safety significance reality boundary. It is a political statement. Nobody here has a god’s eye perfect view of what engineering reality is...the demarcation between safety and safety insignificant. You can’t even anticipate or predict with all the scientific and engineering tools known to mankind when a PCP impeller or CRDM will crack with accuracy. My proof of this is within this outage and the repetitive nature of these events.)

Dear Mr. Satorius,

The links on the below are all on my blog:

<http://steamshovel2002.blogspot.com/2014/03/the-amazing-collaspe-of-palisades.html>

The research concluded that the cause of the failures is fatigue-related effects from the operation of the pumps in conditions beyond the maximum flow rates and below the minimum net positive suction head recommendations as described in the UFSAR and other design documentation.

I’ll just say, San Onofre came to the end through many years of horrendous maintenance and operational problems. The last straw came from poor maintenance and bum engineering associated with the new generators. I think if San Onofre had a sterling NRC and public record...they would have survived.

Do you even want one nuclear plant operating in the USA if the agency allows a corporation to operate a nuclear plant in such a sloppy manner...indeed the NRC’s ROP accommodates this sloppiness over and over again?

SUBJECT: PALISADES NUCLEAR PLANT INTEGRATED INSPECTION REPORT
05000255/2012003

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR 50 Appendix B, Criterion III, Design Control, for the failure to operate the Primary Coolant Pumps (PCPs) in accordance with their design operating criteria. In October 2011, a slight rise in vibration levels on the ‘C’ PCP occurred and was sustained for approximately 24 hours. This was followed by a short spike in vibrations and a return to a lower stabilized value than what had been previously observed. Investigation by the licensee revealed it was likely a piece of an impeller vane which had deformed and broken free. Based on a review of operating experience associated with impellers and further licensee investigation, the inspectors concluded that the PCPs had been operated outside of their license/design basis as stated in the Updated Final Safety Analysis Report (UFSAR) with regard to minimum net positive suction head and maximum flow. Further,

based on impeller-like pieces found in the reactor vessel in 2007 (which an apparent cause stated likely came from a PCP), and an operating history which indicated past occurrences of vane breakage and degradation, the inspectors concluded the licensee had the ability to foresee and correct the condition affecting the PCPs prior to the release of a piece in October 2011. The licensee entered the issue in their Corrective Action Program (CAP) as CR-PLP-2011-5744 and performed additional research into the phenomena leading to the impeller degradation. The PCP operating sequence was changed, an Operational Decision Making Issue was implemented, and efforts to explore further procedural changes are on-going to mitigate degradation of the impellers.

Criminal and malicious facilitative assumptions never backed up by science and evidence...judgments dictated by self-interest and massive political corruption. The utilities get to write the rules and control the agency.

2012-003: Investigation by the licensee with the assistance of outside consultants concluded it was likely that a piece of the 'C' PCP impeller deformed and broke free. There was no indication of degradation to the primary coolant system or reactor core components as a result of this postulated failure. NRC inspectors, including experts at the Offices of Research and Nuclear Reactor Regulation (NRR) reviewed the data gathered by the licensee and concluded that the pump was safe to operate until the refueling outage in April 2012 with the monitoring plan that the licensee had put in place.

This is a huge piece of metal.

The metal is 5 inches by 12 inches long..

"Lindsay Rose, spokeswoman for Entergy Corp"...why do we let these officials speak to us so plausibly stupid. Why are they so ill prepared with the history of the issue when they talk to the public? I think this is purposeful. Why aren't they technical people talking to us instead if highly paid corporate spokesmen paid to talk stupid to us! This was intentional she didn't have the history on the impellers.

Rose said she did not have any information about when the metal piece might have broken off the impeller, which has been replaced. An impeller is a rotor that is used to pump water within the reactor.

This exactly like the "safety injection refueling water tank", which took them decades of leaks and half ass fixes before they discovered the tanks weren't constructed as designed (constructed poorly). Don't forget about the massive self-destruction of the CRDMs Palisades is dealing right now. The repetitive nature of flaws, cracks, leaks and shutdowns...the obscene nature of the exact same NRC violations and failed revolutionary alloy designs repeated over and over again derived from poor quality maintenance and plant operations! The impeller weld job from the Walmart Superstore Automart known to be a lessor quality than the Primary Coolant Pump initial design requirements.

The NRC accommodates plant and corporate destructive behavior...they aren't in the game of mandating a change of bad behavior! The NRC isn't in the game of picking up the easily

detectable early stages of bad behavior...then turning it into good business behavior towards the better interest of the USA and our communities. Believe me we get it, this is a political congressional and presidential prerogative.

The licensee identified impeller cracking had been observed at Palisades on several occasions since 1984, when the pumps had been removed for inspection and refurbishment/replacement.

How many total pieces? Obviously they falsified past investigations and searches for broken impeller pieces...knowing the current piece was unrecoverable or not removable. At worst, they were incompetent with past searches.

Additionally, pieces suspected to be from impellers were discovered in the bottom of the reactor vessel in 1984 and 2007.

The broken impeller and cracked CRDM are terrible and dangerous news...but all the things that has happened in last four years at this plant is much worst?

Epic non-conservative judgments! It is systemic engineering certainty and uncertainty gaming. Why didn't the agency stop Palisades...make them inspect all the PCP impellers considering all this history upon the first detached impeller vane? Why wasn't this reportable to the public. What else is not openly disclosed to the public. The 2011 ~~Red~~ ~~Finding~~ yellow finding spoke of endemic and habituated non conservative judgments (a pattern). They are doing the same engineering and regulatory gaming with the massive and repeated CRDM cracks and the broken off impeller vanes...the yellow finding medicine through 2012 absolutely did not take hold. It was all a fake phony facade.

I'll put it in the grid and ISO perspective. Exelon is threatening to shut down an assortment of nuclear plants within a short period of time because of low ISO market price and unfair competition from green electricity. Palisades is situated in the same market and undergoing the same pressure. Well, except it is a merchant plant. The NRC is severely pulling their punches because they know Palisades is so economically vulnerable. Why didn't we ever know what the true motives with the decision the NRC and Entergy makes? Why is everything always hidden from us? Why is our electricity market so Soviet style when we are supposed to be the most open society in the world?

Approx. May 2012: In response to the discovery of two pieces that resembled the PCP impeller composition during reactor vessel inspections in 2007, the licensee conducted an apparent cause analysis. The conclusion was that the pieces were most likely from the 'D' PCP. Additionally, the analysis explored the history of Palisades' PCP impeller conditions which included repeat occurrences of cracking having been identified and an instance of "heavy recirculation damage," which rendered an impeller unfit for continued use. The pump manufacturer, Flowserve, also released a Tech Alert due to the Palisades PCP vane cracking history. The apparent cause analysis implied that the pieces were fatigue generated and that additional vane breakage was possible. Despite this, the PCPs were not declared as non-conforming nor were any compensatory measures taken. When the 'D' PCP was

later inspected after removal during the 2009 refueling outage, it did not have any pieces of impeller missing. Inspections of the other PCPs, which were recommended in the apparent cause and had been planned to be executed if the 'D' PCP was not the source of the 2007 pieces, were cancelled. The cancellations were based, in part, on thoughts that the pieces may have originated elsewhere. However, vessel inspections done in 2007 revealed no deficiencies that would infer the pieces were generated somewhere within the reactor vessel, and the 2007 apparent cause analysis had essentially ruled out other sources.

Come on, the inspection was cancelled because they were trying to save a few pennies by not lengthening an outage. The pressures on making a short refueling outage is going to be very damaging to the USA someday...

Right, the above is engineering certainty/uncertainty language gaming...found impeller pieces in 2007, opened one pump in 2007, found no damaged impeller, assumed they found nothing broken in the primary piping system and core...thus all the other pumps must have no broken impeller. Conservative judgment would consist of finding one piece of impeller...then opening up all the PCP pumps and replacing all the impellers with good quality impellers... matching up the broken pieces with impellers.

Remember, I talked about beautiful science and technology. Why the fixes coming out of the 2012 NRC inspection didn't put an end of with vane damage. They inspected the impeller this outage and then found this huge piece of metal at the bottom of the vessel. It seems like the opened up pump didn't have the damaged impeller. How do we know right now there is not another broken impeller in a non-inspected pump? Obviously the pump is a defective design...not good for the duty intended. We still don't know why Palisades operated this pump outside the manufacture recommendations and plant designs.

I try to use science and engineering to anticipate problems and fix them early...Palisades and the NRC uses science and engineering to justify not fixing defects and running equipment irresponsibly. Science is just a tool...you can use any tool to do good or evil. Or just plain "bullshit" the outside with disconnected scientific and engineering talk and rationalization. Dressed up disconnected corporatese public relations talk. It is just a choice!

Rose said the impeller piece was from one of the plant's four main coolant system pumps. That impeller was recently replaced during this outage, she said.

Personally in the below, I'd be worried PCP seal damage with a damaged off balanced impeller...that is in the accident studies with the largest risk to the community. I wouldn't trust the accuracy of the installed vibration detectors.

Any good corporate citizens would immediately recognize weld repairing a safety related nuclear pump impeller in a high temperature environment is just plain crazy science and engineering talk. Where is the NRC in establishing standards! Maybe the pump is so obsolete they didn't have new impeller in stock? Why has the NRC allowed Entergy to weld repair PCP impellers? Ah, the codes are god...you can't question the store bought corporate engineering code.

The licensee noted, based on metallurgical examination of a previous fragment, previous pump inspection findings, and the mechanism by which the cracks propagate, that weld-refurbished impellers were particularly susceptible to degrading to a point where a piece could be released.

Entergy always knew where to look.

Additionally, pieces suspected to be from impellers were discovered in the bottom of the reactor vessel in 1984 and 2007.

I think this all is a broad corporate business philosophy...Entergy is Systematically Destroying Nuclear Plants through a Run-to-Failure Philosophy. Here is a new Pilgrim nuclear plant NRC inspection report. The agency speaks of a non-safety component run-to-failure philosophy. It does get you wondering, will the non-safety equipment run-to-failure-philosophy cause the public to lose faith in the safety of a plant? Does Entergy even care? It might be legal to the corporatized NRC, but it not be accepted by the public?

New Pilgrim Plant inspection-The following observations have been noted by the inspectors: SRV performance was a driver for several down powers and forced outages in 2012 and into 2013; a number of unplanned down powers and shutdowns were the result of non-safety-related equipment failures; it appears that non-safety-related equipment that was characterized as a **run-to-failure** is starting to reach the end of their service life and can likely become contributors to such events.

Do you want anything nuclear to ever run-to-failure? Are these guys so smart to completely understand the complexity of the reality inside these plants? If they did these guys would operate these plants without blemish. We would be here today. They think we can see a god's eye granularity...or at least they pretend to speak to us outsiders that way.

This is a prime example with the NRC inspection, licensee notification system to the public and the ROP. What is the agency covering up? Why hasn't every flaw or crack in PCP impeller thoroughly covered in a Licensee Event Report? Why wasn't all the broken off vanes thoroughly covered in a LER. Why wasn't every flaw or worst in an impeller thoroughly covered in an inspection report? What you hide, you repeat, what you openly disclose, you fix and begin repairing the organization.

Further, this is question if the NRC is selectively releasing troubling information at the all the plants. That is, what information disclosures are required and what info actually gets released. It invalidates the ROP and the trustworthiness of the NRC. In an open democracy like the great USA, so they say...there should have been a public document trail from the moment the first impeller flaw showed up in the NRC and Entergy. I get the NRC has the power of kings...they get to decide what rules are valid for the agency and utility irrespective of the rules on the books. The rules are secretly situational for the agency. They all razzmatazz corruption up with phony scientific and engineering language.

The worst agency sin of all, why wasn't there a follow up report on "NRC Enforcement Policy (NCV 05000255/2012003-02, Operation of Primary Coolant Pumps Outside the Design Basis"?

Basically the NRC and Entergy are saying it is safe to operate these components outside their manufacturer and plant designs...even after repetitive damage. Even after the manufacturer told them to knock it off. It is self-destruction on a massive scale! The NRC allows a utility to run- to-failure safety components. This is a run-to-failure philosophy just like Pilgrim except it is actually safety related. Are components ever designed, tested and licensed to run to failure...where we know by engineering how it happens? You notice the NRC never gets to the bottom of it...public democratic disclosure...the ultimate rationale or justification with why Entergy was operating these components to damage outside the manufacturer's recommendation. Oh brother, we know why they are doing it. This looks terrible on the nuclear industry to the outsiders...they are protecting themselves through high powered Soviet style secrecy and deception.

The research concluded that the cause of the failures is fatigue-related effects from the operation of the pumps in conditions beyond the maximum flow rates and below the minimum net positive suction head recommendations as described in the UFSAR and other design documentation. These conditions are present when operating only one or two PCPs during reduced temperatures and pressures (typically during startup and shutdown activities). Cyclic pressure pulses and stresses are created under these reduced pressure conditions that act on the leading edges of the impellers, which can ultimately lead to vane cracking and the release of impeller fragments. The licensee noted, based on metallurgical examination of a previous fragment, previous pump inspection findings, 18 Enclosure and the mechanism by which the cracks propagate, that weld-refurbished impellers were particularly susceptible to degrading to a point where a piece could be released. Currently, none of the PCPs contain any remaining weld-repaired impeller areas (ones that did are postulated to have released pieces already). Also, at normal operating temperature and pressure, there is adequate net positive suction head on all PCPs, so these additional stresses are not present.

In response to the discovery of two pieces that resembled the PCP impeller composition during reactor vessel inspections in 2007, the licensee conducted an apparent cause analysis. The conclusion was that the pieces were most likely from the 'D' PCP. Additionally, the analysis explored the history of Palisades' PCP impeller conditions which included repeat occurrences of cracking having been identified and an instance of "heavy recirculation damage," which rendered an impeller unfit for continued use. The pump manufacturer, Flowserve, also released a Tech Alert due to the Palisades PCP vane cracking history. The apparent cause analysis implied that the pieces were fatigue generated and that additional vane breakage was possible. Despite this, the PCPs were not declared as non-conforming nor were any compensatory measures taken. When the 'D' PCP was later inspected after removal during the 2009 refueling outage, it did not have any pieces of impeller missing. Inspections of the other PCPs, which were recommended in the apparent

cause and had been planned to be executed if the 'D' PCP was not the source of the 2007 pieces, were cancelled. The cancellations were based, in part, on thoughts that the pieces may have originated elsewhere.

Engineering and scientific certainty/uncertainty gaming is pernicious engineering language corruption. It is stealing community security and lying to the CEO and stockholders.

However, vessel inspections done in 2007 revealed no deficiencies that would infer the pieces were generated somewhere within the reactor vessel, and the 2007 apparent cause analysis had essentially ruled out other sources.

In response to the October 2011 event and subsequent research conducted to better understand the phenomena affecting the PCPs, the licensee has instituted a monitoring plan, changed the preferred sequence for starting/stopping PCPs during startups and shutdowns, and has corrective actions to explore further procedure changes regarding operation of the PCPs and the resultant impact on other aspects of plant operation.

Yet here we sit in 2014 with a broken impeller and a blade stuck in the vessel. They don't know where the broken blade came from and there is no engineering proof it didn't come from a non inspected pump impeller. There is no proof that the corrective action coming from this actually fixed the problems. If the problems was so easy to fix as to the "properly sequence the RCP pumps" during heat up and cool down operation, why didn't they do this easy and cheap fix three decades ago?

Since the licensee was intending to have this non-conformance on the C pump (missing impeller pieces) the entire cycle, the inspectors (including experts at the Offices of Research and NRR) reviewed the impact of this non conformance on the PCP safety functions. Key safety functions of the pump are to provide a coolant pressure boundary and ensure an adequate coast down of flow. The review indicated there were no current safety issues with this non-conformance. The inspectors are evaluating the monitoring plan to determine its long-term effectiveness.

You get it, no intent in 2012 to inform the public and its being repeated in March start-up?

How do we know what the forces are holding the broken vane between the reactor vessel and vessel skirt? Everyone in New Hampshire this winter knows the power of water and ice expanding and contracting. We are inundated with frost heaves and frozen broken pipes. So what about the difference of contraction between the vessel and flow skirt from 550 degrees/2250 psi to room temperature? In other words, there could be tremendous forces squeezing the broken vane between the vessel and the flow skirt solely due to the cold down. How do we know if a bolt isn't snapped or if there is weld failure attaching the skirt to the vessel or other components? How do we even know if the cladding has been penetrated into the vessel alloy by the broken vane. How do we know if some corrosion mechanism on steroids secretly takes place at power and normal temperature? What if leads

to a vessel penetration the then onto a LOCA? Would it get past a vessel design max flow leading to a vessel LOCA?

So you tried yanking out the broken vane. What if all you did is just loosened it? The vessel and skirt re-expands upon heat-up and normal flow vibration releases the errant impeller vane. It then travels into a centerish high powered fuel assembly inlet and blocks off coolant flow? What if it blocks off flow to two fuel assemblies? What if we wake up one morning and two fuel assemblies have been destroyed. They have melted down two fuel assemblies. It would be a tremendous internal release of radioactive. Most likely it will be an insignificant release of radioactivity to the outside. It would destroy the core and the operability of the plant. Hope your steam generators are tight. It would probably take out many other plants in the USA. It would be a media circus much worse than TMI and massive re-regulation.

I would characterize this off normal event as extremely complex and there is an assortment of barriers preventing from seeing what is going. Palisade has once again over stated their granularity with understanding of what is going ...predicting future interactions. These guys think they have turned water into wine again. If these palisades engineers are so good at predicting the future...why did they allow the impeller even crack and break off? Why didn't Palisades and the NRC prevent the impeller damage based solely on science and engineering? These guys can't even control and predict human behavior...why did they tolerate operating outside the plant designs. There is just so much complexity here...the future of this is not understandable or predictable!

Engineers make sense out of the apparent available evidence...I worry about the unknown unknowns (http://en.wikipedia.org/wiki/There_are_known_knowns).

DonaldRumsfeld: 'Reports that say that something hasn't happened are always interesting to me, because as we know, there are known knowns; there are things we know that we know. There are known unknowns; that is to say, there are things that we now know we don't know. But there are also unknown unknowns – there are things we do not know we don't know'.

You guys are running is the greatest "confidence game" the world has ever known (professionalism and educational). A confidence game is words and utterances by the NRC or a licensee not backed by true science, engineering or the facts. More, situational quasi science, engineering or the facts...ghost truth and evidence!

confidence game, any elaborate swindling operation in which advantage is taken of the confidence the victim reposes in the swindler.

I respectfully request the following.

- 1) The NRC and Entergy hold a mandatory public meeting before start-up and disclose at the facts surrounding this. The NRC has a well-known path with only disclosing the dirty laundry months after start-up, if ever.

- 2) Palisades and the NRC explain why the plant was allowed operate outside its design bases for so long. Why did the NRC allow this violation until damage show up?
- 3) Palisades pop open every pump for an inspection...all flaws cleared up with new impeller.
- 4) Palisades explain why they went to dangerous weld repair instead of new impellers. Please detail how all the other plants repaired their impellers...weld or new impellers?
- 5) Request a ten million dollar fine over these events.
- 6) Palisades is mandated to remove the broken vane before start-up.
- 7) Please detail all activities to prevent going beyond the design basis. Has it been proven this "explored different sequencing of PCP operation during subsequent startups" has prevented further violations of the design basis.
- 8) Please disclose all plant information and investigatory information associated the damaged impellers. Have there been any flaws post new "sequencing of the PCP" discovered?
- 9) Were there any Entergy internal reports or concerns made before the 2012003 NRC inspection that Entergy was operating outside it design bases? Please disclose all documents associated with this.
- 10) Please disclose all information associated with the CRDMs flaws and crack replacement activities this outage. Request that Palisades not startup until all the CRDMs are replaced. God help you if the eight or so CRDMs not replaced develops a leak during this next operation period. Please disclose the reasons and resource limitations preventing the replacement of said CRDMs.
- 11) Please disclose the date and time when the broken vane was reported to the NRC.
- 12) Is this going to be an LER or event notification...please explain why it is not reportable?
- 13) I Request Palisades be returned to the yellow or red status...intensification of NRC monitoring! This plant continues to be a very dangerous plant to the community of US nuclear plants. This plant has a recent history of excessive shutdowns, taking dangerous shortcut risking human life and plant safety (DC) and the uncontrollable intensification of component flaws, cracks and leaks. Entergy has a known run-to-failure philosophy to the NRC and it clearly has been defusing into safety systems at Palisades.
- 14) Please list all the plant debris...especially metal shards and pieces discovered in the primary side of the steam generators. Please list and explain any debris discovered anywhere in the primary system for the last ten years.
- 15) Please replace the Primary Coolant Pumps with a design for its intended duty!

This rises to the level where the public is not being adequately apprised of the conditions of the nuclear plants. Members of the public are being systemically denied an adequate democratic process within the nuclear industry. If big and important events are being withheld from public view. I hereby declare, we are pre TMI with mandated public disclosures!

Palisades spokeswoman Lindsay Rose tells WSJM they have "determined there will be no impact on safe operations." She went on to say the piece is separated from the

fuel and the material "does not rise to the level of being reportable to the Nuclear Regulatory Commission."

Sincerely,

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