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Gregory Jaczko, Chairman
c/o Eliot Brenner, Director of the Office of Public Affairs
United States Nuclear Regulatory Commission
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Dear Chairman Jaczko:

Thank you very much for your personal involvement with the review of the safety of the San Onofre Nuclear Generating Station (SONGS) and the meeting you had with the community members on Friday, April 6, 2012 at the Doubletree Hotel in Dana Point.

I think I speak for everyone in the room that we got the sincere feeling that you and your staff at the NRC are working for the safety of everyone and have the best interests of everyone at heart. Our group, Citizens Oversight Projects (COPS – CitizensOversight.org) works to increase the involvement of the public in the operation of their government. To that end, it appeared necessary for us to follow up with this letter to more clearly state the position of many in the community, at least from our perspective.

It is the responsibility of the public utilities to provide needed power to the community safely. Unfortunately, the profit motive included in the for-profit nature of our energy companies frequently is an obstacle for these companies to make decisions that are in the best interest of the community at large. This conflict of interest is the reason regulatory agencies – such as the NRC – are necessary, and we can only hope that your commission will perform this function such that the best in interests of the community are put before corporate profits.

The consensus in our community organization after review of all relevant information is that these reactors can no longer be operated safely, and should be systematically decommissioned. The basis for this consensus can be described by the points below. It is our hope that your commission will do what is necessary to reach this ultimate outcome, and we stand ready to help you in any way we possibly can.

1. **Root cause of steam generator failures** – We support the notion that the reactors should not be restarted before engineers completely understand the cause of the steam generator failures, and this cause is confirmed by disinterested third parties, and exposed to the public. We understand that the manufacturer of these components, Mitsubishi Heavy Industries, is performing their own inquiry into the failure, and expect to complete their inquiry perhaps by the "end of May and August."[1] Restarting these PRIOR TO getting their report as to the cause of the failure is absolutely inappropriate.

2. **Corrective Action –** Understanding the root cause is clearly not enough. It is also necessary to correct the design of the steam generators to avoid further radioactive releases. Any such correction of the design must be performed in an open process with full NRC oversight.

3. **No accelerated restart of Unit 2** – On Wednesday, April 11, 2012, Southern California Edison (SCE)

stated that it had found "additional minor tube wear" in Unit 2 of a type that is "similar to the type of wear that was seen in Unit 3, but at a very low level."

Indeed, this makes sense, because both steam generators were designed with the same changes, by the same designers, and produced by the same production facility. If these steam generators did not perform similarly, it would indeed be much more remarkable than the highly likely outcome that they perform -- and therefore fail -- in a similar fashion.

Thus we support the notion that no restart of either reactor is possible in advance of a full understanding and corrections are applied.

4. **No Work Arounds.** SCE may be tempted to plug worn tubes and declare that the steam generators are "good enough" for operation with reasonable risk. This is unacceptable and must not be allowed by the NRC. Plugging steam generator tubes while they continue to rub and degrade does not correct the underlying problem and does not provide adequate confidence that the plant is safe.

5. **Review of Steam Generator Design Process** – We understand now that SCE engineers worked to avoid NRC review of the design changes to the steam generators by meeting "form, fit, function" criteria[1]. It is now abundantly clear that the number and magnitude of the changes to the steam generators exceeded the intent of the like-for-like criteria. Furthermore, the steam generators are very large reactor components that comprise a large fraction of the active elements within the containment structure, and were not originally intended to be replaced. These factors should have been enough to force NRC and public review during the design process.

   If SCE exceeded the limits of the intent of the form, fit, and function criteria to avoid NRC review, they should not only be punished for this violation, but also the criteria for review must be modified to avoid a repeat of this avoidance of NRC and public oversight.

6. **NRC Oversight of Root Cause analysis and Corrective Action** – Even though the NRC was not involved in sufficient oversight of the original design, it must be involved in all stages of the root cause analysis and corrective action determination process that are now or soon to be underway.

7. **No Trial and Error Design** – The public is not a petri dish for experimentation by designers. No design can be applied without being absolutely certain that the design will operate as intended. In the article "Improving Like-for-like RSGs," the engineers that designed the many changes to the Replacement Steam Generators (RSGs) said "it was not known if the as- designed and fabricated RSGs would eventually perform as specified." [1]

   Instead of sufficient testing in a full-scale non radioactive testing platform, the designers decided they would just install them and perform functional "hot" tests to make sure they performed as specified. Obviously, their testing fell far short because they had no tests for many of the design parameters, such as tube vibration, hammering, etc. that were specified in the redesign goals. Instead, they installed the steam generators, turned on the reactor, and hoped the tubes would last without any checking until the tube failure occurred.

8. **Address Post-Fukushima Safety Issues –** There is a culture in the nuclear industry that even unsafe plants can continue to operate once they are given an initial license. This culture must change to embrace safety issues at all times. Unsafe plants should not be allowed to continue to operate, including the use of new information about plant safety that was unknown when the plants were first designed.

   The recent disaster at the Fukushima Daiichi TEPCO plant provided such new information, namely regarding the possible severity of both earthquakes and tsunamis, and the hazards of storing spent fuel in fuel pools.

   The San Onofre Plant, given its location in an earthquake zone and on the coast, subject to tsunamis, does

not have sufficient immunity to failure due to these natural events.

For example, SONGS was originally built to withstand a 6.0 magnitude earthquake, and later retrofitted to withstand a 7.0 magnitude quake. However, in 2010, a 7.2 earthquake struck in nearby faults in Mexico, confirming the inadequacy of that design parameter. The Lake Wohlford dam, an earthen dam north of Escondido and within 25 miles of the San Onofre plant, is rated to withstand a 7.0 earthquake. Officials realize that is insufficient and so it is currently being rebuilt. Why then, do we continue to allow a nuclear plant to operate that is only rated for 7.0?

Recently, a magnitude 3.9 quake occurred along the San Joaquin Hills Thrust Fault on April 23, 2012, with epicenter within 15 miles of the plant[3]. This fault was discovered 13 years ago, AFTER the initial licensing of the San Onofre plant. This underlines the potential danger of these events which should be reviewed before restarting.

The peak of the tsunami wave in Japan was 133 feet. When this is compared with the sea wall and location of the plant at San Onofre, you realize the location of this plant within a couple of dozen feet from sea level does not provide any real immunity to massive waves that could occur here.

Kenichi Ohmae, a nuclear core designer with Ph.D. from the Massachusetts Institute of Technology in nuclear engineering provided a thorough review of the situation at the Fukushima Daiichi plant including minute by minute details in how the nuclear reactors were actually disabled[6]. He encouraged the use of "computer simulation-type stress tests as a precondition for restarting a nuclear power plant."[6 pg 281] He says we should "redefine the design philosophy and fundamental safety principle of nuclear power to: 'Power sources and cooling functions have to be secured under any severe circumstance'. In other words, 'severe accidents must be prevented no matter how severe the event that occurs.' Any plant which can not fulfill this condition should not be reactivated."[6 pg. 279]

Given the initial design criteria at San Onofre (magnitude 6.0) and subsequently upgraded to magnitude 7.0, it is doubtful that the plant can be argued to be safe if properly analyzed. Not performing stress testing as recommended by this expert amounts to putting blinders on and is not the way we should make decisions when public safety is at stake.

Please confirm that such computer simulation stress testing will be performed at the plant prior to restart.

9. **Unsafe Events --** Member of the public are worried about the "electrical fire" which occurred on April 20, 2012, which burned for 45 minutes[4]. It goes without saying that fires should never happen at a nuclear plant like San Onofre, and leads one to wonder how such a fire would be possible, given that the plant was not operating at the time, and hopefully, electrical equipment is constructed to avoid such events, and should be frequently inspected, etc. to avoid debris and other flammable material near power lines. Officials say there is "no risk to the public" but no one really believes this. This report only underlines the poor operating conditions at this plant that are putting everyone at severe risk.

Given the failures of the steam generators, earthquake upgrades, and tsunami threat upgrades required to bring this plant into compliance with reasonable safety expectations, it become abundantly clear that seeking a resolution to these problems is a fools errand that will result in expenses which far exceed any benefit that could be realized for the community. Therefore, the only reasonable and rational conclusion is that this plant should remain closed.

We appreciate the dialog started with the community at the April 6 meeting. Please accept this submission from our organizations as we attempt to perform our duty to provide oversight to this important issue. Again, if there is any way we can help move this toward permanent shut down, please let us know.

We are looking forward to the open public meeting that was originally suggested as your intention in the media. Although we appreciated the private meeting, it is important for your commission to conduct open public meetings on this issue to allow everyone to have their say and become incorporated in the official public record, and indeed support the correct decision for the community.

Sincerely,

Raymond Lutz
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MS Electrical Engineering

References:
[1] http://www.copswiki.org/Common/M1252 -- "Improving Like-for-like RSGs" from Nuclear Engineering International

[2] http://www.utsandiego.com/news/2012/apr/24/manufacturer-also-probing-san-onofre-nuclear-outag/ "Manufacturer also probing San Onofre nuclear outage"

[3] http://latimesblogs.latimes.com/lanow/2012/04/orange-county-quake-san-joaquin-hills-thrust-fault.html -- "Orange County quake could be first on recently discovered fault"

[4] http://latimesblogs.latimes.com/lanow/2012/04/san-onofre-fire.html -- "Fire breaks out at San Onofre; no risk to public, officials say"

[5] http://www.japantimes.co.jp/text/eo20120418a4.html -- "Fukushima: Probability theory is unsafe"

[6] http://pr.bbt757.com/eng/pdf/finalrepo_111225.pdf -- "What should we learn from the severe accidents at the Fukushima Daiichi Nuclear Power Plant?" (2011-12-21) -- http://pr.bbt757.com/eng/ -- other references including YouTube videos of the research.