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FEB - 8 2019

DNMS

Jan. 31, 2019

Linda Howell  
Deputy Director  
Division of Nuclear Materials Safety  
US NRC Region IV  
1600 E. Lamar Blvd.  
Arlington, TX 76011-4511

Re: San Onofre Potential Load Drop Incident & Canister Damage

Dear Deputy Director Howell,

I have participated in NRC presentations and an enforcement conference related to the August Potential Load Drop Incident at San Onofre. I have written up my concerns related to the underlying engineering problems and the need for them to be addressed, instead of treating the issues as merely operational and management problems. Please see attached.

Thank you for your attention.

Sincerely,

A handwritten signature in cursive script that reads "Barbara J. Warren".

Barbara J. Warren, RN, MS  
Executive Director



The incident in question was the potential drop of a canister loaded with Spent Nuclear Fuel on August 3, 2018. It was reported to the public by a whistleblower at a public meeting. Since that time NRC has held a public information session and on January 24<sup>th</sup>, 2019 NRC held a Pre-Decisional Enforcement Conference with Southern California Edison (SCE) only. The meeting on January 24<sup>th</sup> had 400 people registered for the webinar. We don't know how many attended the meeting in person. This was a lengthy meeting yet the key issue was only briefly mentioned as an aside—the engineering design change. Instead the majority of the meeting focused on the operational improvements Southern California Edison has made to their procedures. Holtec Intl. was not in attendance and their role and their subsequent analysis was only briefly summarized.

**I The root of the misalignment problem is an Engineering Design problem related to an added component, the Shield Ring, which was apparently never adequately evaluated.**

At the meeting the mention of this engineering design problem lasted only a couple of minutes—skipping to other topics quickly. The shield ring was a late amendment to the UMAX storage system.

It is critical here to note that years earlier the San Onofre Nuclear plant attempted to replace steam generators in both units that were not “like for like” replacements. The design had been substantially changed and instead of going through the normal review process, San Onofre officials claimed the new generators were essentially the same as the originals. Obviously we are not going to review the entire history of this very serious error and fraud. However, the fact that a second engineering design problem has reared its head at the same reactor facility is very disturbing.

However, even more disconcerting is the fact that NRC is treating this entire episode as an operational problem involving only SCE, the utility. We have struggled to find and review relevant documents. We could not locate the HI-Storm UMAX System FSAR, Rev. 4, dated Aug. 14, 2017, referenced in the NRC special inspection report. However, we did find the HI-Storm UMAX System FSAR, Rev. 5, dated June 27, 2018. Notably the procedure in this document for downloading starts with using the same procedure as for the HI-STORM FW which does not have a shield ring. It describes the entire procedure, but fails to even mention the shield ring in the UMAX system and the major constraints related to clearance of only 0.25 inches for the entire circumference of the canister. The date of this document was in the summer of 2018, preceding the potential load drop by only a few months. This engineering change, the addition of the shield ring, carried over to deficient worker training when workers were trained on simulator canisters that had 0.75 inches more clearance space than the actual canisters which had only 0.25 inches of clearance. The size of the actual clearance allowance compared to the enormous size of the canister should have alerted everyone involved to the difficulties associated with transfer operations. This is not a highly technical issue. Common sense was needed.

Recommendation: The Final Safety Analysis Report should be withdrawn and a full engineering review should take place.

**II A Root Cause Evaluation was prepared by Holtec Intl., but that analysis has been labeled proprietary and it therefore is not being made available to the public. The public has a right to adequate information about the root of the problem, as well as to the adequacy of corrective measures. The summary of Holtec's evaluation is insufficient.**

The summary of the root cause evaluation shows that the root cause was failure to implement the necessary level of oversight for the level of complexity and risks associated with downloading. However, Contributing Cause #2 finds fault with the design review process because it failed to identify and address unintended consequences. We call that a fundamental engineering design problem, which requires further action.

NRC's review of Holtec's root cause evaluation and SCE's apparent cause evaluation identified multiple operational issues: inadequate training, inadequate procedures, poor utilization of corrective action program and insufficient oversight.

Even if proprietary issues exist, the scope of the analysis and the findings of the root cause analysis should be made available so the public can play its legitimate role in our democracy. Unfortunately, Holtec's Responsibility around the Design Change and the adequacy of NRC's review are not being examined at all.

Holtec should be held responsible for this Design Problem that has caused permanent damage to 29 canisters, and required to take corrective action for the engineering design.

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Finally NRC in the absence of solid information about the extent of damage is allowing the canister damage to merely be entered into an aging management program. It is not clear that the canisters will ever be examined as there is no facility on-site that would enable workers to view the exterior of the canisters without obtaining excessive radiation exposure. This problem could be solved by building a small room with radiation-shielded walls and shielded windows to enclose the canister, so it could be fully viewed on all sides. Instruments could be added to measure the gouging and scratching.

Stainless steel canisters at San Onofre are in an ideal environment for corrosion of steel canisters to be initiated and to proceed more rapidly than at other locations around the country. Failing to examine the scratching and gouging damage now deprives the nation of important information about the rapidity of corrosion in a salt air environment given this damage.

These canisters have cost millions of dollars and 29 have already been damaged due to gross negligence. Why would NRC allow another 44 to also be damaged, because the corrective measures identified do not really solve the problem? The public is ultimately being billed and if these partial measures prove inadequate the bill will dramatically escalate. High costs would be a situation where the canisters must be replaced because of this damage prior to transport elsewhere. Even higher costs would involve unknown cracks through the entire canister wall that release the radioactive contents.

**V NRC by focusing solely on operational and management issues at SCE is failing to understand the importance of this engineering design problem and ensuring that it is properly addressed. This impacts the safety of the San Onofre facility and the ultimate costs of solving the problem. Even more far reaching-- this UMAX system is what Holtec, Intl. plans to use for a Consolidated Interim Storage facility in New Mexico, which is currently undergoing NRC review.**

The only reasonable path forward is to fully analyze the engineering design problem to determine whether the shield ring should be removed altogether; this design change was clearly not adequately reviewed. The use of an automatic system for loading would possibly be capable of perfectly aligning the canister rigidly to avoid gouging or scratching. However, another solution may be needed. Only thorough analysis and correction of the engineering design problems associated with the UMAX system are appropriate given all the facts learned at San Onofre and for any future operations using the UMAX system by Holtec elsewhere in the country.



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Director  
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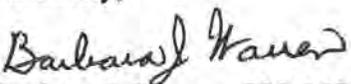
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Stainless steel canisters at San Onofre are in an ideal environment for corrosion of steel canisters to be initiated and to proceed more rapidly than at other locations around the country. Failing to examine the scratching and gouging damage now deprives the nation of important information about the rapidity of corrosion in a salt air environment given this damage.

These canisters have cost millions of dollars and 29 have already been damaged due to gross negligence. Why would NRC allow another 44 to also be damaged, because the corrective measures identified do not really solve the problem? The public is ultimately being billed and if these partial measures prove inadequate the bill will dramatically escalate. High costs would be a situation where the canisters must be replaced because of this damage prior to transport elsewhere. Even higher costs would involve unknown cracks through the entire canister wall that release the radioactive contents.

**V NRC by focusing solely on operational and management issues at SCE is failing to understand the importance of this engineering design problem and ensuring that it is properly addressed. This impacts the safety of the San Onofre facility and the ultimate costs of solving the problem. Even more far reaching-- this UMAX system is what Holtec, Intl. plans to use for a Consolidated Interim Storage facility in New Mexico, which is currently undergoing NRC review.**

The only reasonable path forward is to fully analyze the engineering design problem to determine whether the shield ring should be removed altogether; this design change was clearly not adequately reviewed. The use of an automatic system for loading would possibly be capable of perfectly aligning the canister rigidly to avoid gouging or scratching. However, another solution may be needed. Only thorough analysis and correction of the engineering design problems associated with the UMAX system are appropriate given all the facts learned at San Onofre and for any future operations using the UMAX system by Holtec elsewhere in the country.