

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, October 9, 2014, from 6:00-9:00 p.m. PDT in San Juan Capistrano, California
Meeting Minutes and Action Items

I) Community Engagement Panel Member Attendance

- a) Present: Dr. David Victor (CEP Chairman/UCSD), Mayor Tim Brown (CEP Vice Chairman/San Clemente), Dan Stetson (CEP Secretary/Ocean Institute), Ted Quinn (American Nuclear Society), Valentine "Val" Macedo (Laborers' International Union of North America Local 89), City Council Member Jerome M. "Jerry" Kern (Oceanside), Gene Stone (Residents Organized for a Safe Environment), Dr. William Parker (University of California, Irvine), Donna Boston (Orange County Sheriff's Department), Garry Brown (Orange County Coastkeeper), President John Alpay (Capistrano Unified School District Board of Trustees), Larry Rannals (Camp Pendleton), Jim Leach (South Orange County Economic Coalition), Mayor Pro Tem Larry Kramer (San Juan Capistrano)
- b) Absent: Supervisor Bill Horn (San Diego County), Mayor Lisa Bartlett (Dana Point), Rich Haydon (California State Parks), Supervisor Pat Bates (Orange County)
- c) Guests: Joe Anderson (Nuclear Regulatory Commission), Jeremy Kirchner (Interjurisdictional Planning Committee)
- d) Southern California Edison Representatives: Tom Palmisano (VP and Chief Nuclear Officer), Chris Thompson (VP Decommissioning)

II) Convened by Chairman David Victor at 6:05 p.m.

- a) Tonight's meeting will focus on emergency planning and the processes around emergency planning
- b) The CEP is not a decision making body but a conduit of communication between the communities and the co-owners, particularly SCE
- c) The SONGScommunity.com website has been overhauled to make it easier to get information from that site. You can sign up there for the next walking tour which is Saturday, October 18. It also contains documents from prior meetings, videos, and will eventually include meeting transcripts. The website includes live streaming as well as functions that enable the public to send messages to the CEP, request SCE speakers for community events, etc.
- d) Three guests tonight:
 - i) Joe Anderson from the NRC Office of Nuclear Security and Incident Response, and
 - ii) Mary Woollen, Policy Advisor for External Engagement, NRC, is in the audience and we met just prior to this meeting to discuss community engagement, and
 - iii) Jeremy Kirchner from the Interjurisdictional Planning Committee
- e) As this is a regularly scheduled meeting, there is a public comment period tonight. Please sign up for that if you'd like to ask questions or tell us what's on your mind
- f) Tuesday, October 14, there is a special meeting of the CEP scheduled from 10:00-12:30 in this same location. Two cask vendors will make presentations and we'll be able to ask questions about long term aging management. We have a group of CEP members who have been working intensely on this issue the last several months. This is an area where the CEP has already had a very large impact on how SCE has been thinking about these issues, the amount of information SCE and the cask vendors have on information the communities care about, and we'll have a lot more impact in the coming months as we try to determine what long term aging management programs look like

III) Chris Thompson (VP of Decommissioning) – Decommissioning Core Principles and Values

- a) Our core principles are safety, stewardship, and engagement

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REGULAR MEETING

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Meeting Minutes and Action Items

- b) At least two of those core principles are embodied in the subject matter of tonight's meeting on emergency planning: safety and engagement. The Community Engagement Panel is one of our main conduits for engaging with the communities and the public at large, which as David has mentioned is intended to be a two-way flow of information

IV) Tom Palmisano (VP and CNO of San Onofre) – San Onofre Permanently Defueled Emergency Plan (PDEP)

- a) Tonight's discussion is about the Permanently Defueled Emergency Plan. As background, San Onofre is currently using the operating plant Emergency Plan which is designed for a full scale emergency with an operating reactor. Both reactors were defueled in 2012 and 2013 and we've certified they're permanently defueled. Many of the elements of the plan we are under today are no longer applicable. In order to propose a plan more appropriate to a defueled decommissioning facility which is basically the spent fuel pool and related systems, we had to prepare a plan which we took most of 2013, into 2014, and most importantly we have to submit the plan for review and approval by the NRC. We submitted the Permanently Defueled Emergency Plan (PDEP) to the NRC on March 31, 2014
- b) Joe Anderson is going to talk about the NRC structure and regulation but today's NRC regulations are written for operating plants without a specific allowance for decommissioning plants, so the exemption process is a necessary part of the regulatory protocol. It typically takes 12 to 18 months for the NRC to approve a PDEP and we're in the middle of that timeframe
- c) We are currently working under the Operating Plan
- d) Currently responding to the NRC's Requests for Additional Information (RAI's) and we're about one-third of the way through them; by the end of the month we'll have sent in all of the initial responses for review
- e) NRC approval of the EP License Amendment Requests expected March, 2015 (based on our submittal of March 2014)
- f) NRC approval of the EP exemptions expected December, 2014, but we can't implement those exemptions until we have the entire approval package

V) Joe Anderson (Nuclear Regulatory Commission) – NRC Emergency Planning Regulations and Process

- a) Introduction
 - i) I have had the opportunity to be at the SONGS site for a number of Interjurisdictional Planning Committee meetings and in my personal opinion this committee has served as a model on how a licensee could engage the various local and state emergency response agencies. I am pleased to see a panel like this, which shows the continued engagement of local and state officials as well as the community. A lot of what we do at the NRC is outreach and the establishment of a group such as the Community Engagement Panel assists the NRC with our outreach efforts to explain our processes and why we do what we do
 - ii) Perception of safety is a very personal issue. The goal tonight is not to convince anyone that their concerns are unfounded, but rather to inform and provide insight on the current NRC process for the technical review of exemptions to emergency preparedness requirements related to decommissioning nuclear power plant sites

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, October 9, 2014, from 6:00-9:00 p.m. PDT in San Juan Capistrano, California
Meeting Minutes and Action Items

- iii) This discussion will focus on the overall NRC review process; SCE will discuss specific exemptions being requested for the San Onofre site
 - iv) The evaluation of exemptions to emergency preparedness requirements involves various NRC staff technical disciplines, including health physics, spent fuel storage, probability analysis, etc. I will focus on how we plan to apply inputs from these various disciplines into the evaluation of emergency preparedness exemption requests
 - v) A panel of various NRC subject matter experts will be available to answer questions later this month at a public meeting (October 27 at the OMNI La Costa in Carlsbad) to discuss the proposed San Onofre Post-Shutdown Decommissioning Activities Report (PSDAR)
- b) Regulatory Process
- i) NRC regulations for Emergency Planning (EP) do not distinguish between an operating power reactor and one that is permanently shutdown/defueled
 - ii) After shutdown, the risks associated with potential accidents are significantly reduced
 - iii) Historically, exemption requests have been used to seek regulatory relief on a case-by-case basis (site specific). Until an exemption is issued, onsite and offsite EP programs must be maintained and all EP regulatory requirements met, including exercises
 - iv) The exemption process (10 CFR 50.12) applies to licensees seeking regulatory relief, or in plain terms, the need to comply with or meet a regulatory requirement
 - v) Application of regulations may not be necessary to achieve the underlying purpose due to reduced risks once a power reactor is permanently shutdown and defueled. However, an exemption to EP regulations contained in 10 CFR 50.47(b) and Appendix E to Part 50 requires Commission approval
 - vi) Documents supporting implementation of exemptions, if granted, include:
 - Permanently Defueled Emergency Plan (PDEP), and
 - Emergency Action Level Scheme (permanently defueled)San Onofre has submitted these documents for formal NRC approval. The NRC staff's review of these documents will be based on Commission approval of requested exemptions (approval of exemptions come first, before approval of the PDEP or defueled emergency action level scheme)
- c) Accident Considerations
- i) As indicated earlier, the risks associated with a spent fuel pool accident versus an operating power reactor, are affected by different accident conditions
 - Once a power reactor is permanently shutdown and defueled, the traditional accidents that dominate risk are no longer applicable and risk to the public is primarily associated with the spent fuel stored in the Spent Fuel Pool
 - Operating power reactors are defined by specific design basis accidents, which are postulated accidents that a nuclear facility must be designed and built to withstand without the loss of systems, structures, and components necessary to assure public health and safety. These generally involve a power reactor at elevated temperatures and pressures, which would no longer be applicable
 - The consequences of a Spent Fuel Pool (SFP) event do not equate directly to a core damage accident or a large early release as modeled for an operating reactor, specifically in regards to accident timing and driving force for a possible release
 - ii) Short-term radioisotopes are no longer of concern (radioiodine) and distribution of potassium iodide (KI) is not necessary

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, October 9, 2014, from 6:00-9:00 p.m. PDT in San Juan Capistrano, California
Meeting Minutes and Action Items

- iii) SFP accident would evolve slowly versus an accident at an operating reactor, and would provide adequate time to initiate mitigation measures, or if necessary, protective actions
- iv) Chairman David Victor asked for confirmation that the Spent Fuel Pool is what the NRC is most worried about and that after all the fuel is out of the SFP, SCE will ask for another exemption when transitioning to dry cask storage alone, once spent fuel has been removed from the SFP
 - Joe Anderson confirmed that this would occur as part of transition from part 50 requirements to part 72
- d) Exemption Considerations
 - i) NRC considered past EP exemptions: Zion (8/31/99), Big Rock (9/30/98), Maine Yankee (9/3/98), and Haddem Neck (8/28/98)
 - ii) Proposed Integrated Rulemaking Plan for Nuclear Power Plant Decommissioning (SECY-00-145), June 28, 2000 was based on NUREG-1738, "Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants," February 2001; this proposed rulemaking was subsequently withdrawn as at the request of NRC staff, following the events of September 11, 2001, to allow the refocusing of staff resources
 - iii) Informed by recent SFP Studies – NUREG-2161, "Consequence Study of a Beyond Design Basis Earthquake Affecting the Spent Fuel Pool for a US Mark I Boiling Water Reactor," September 2014. Although the spent fuel pools and used fuel assemblies stored in the pools were determined to have remained intact during the March 11, 2001 event at the Fukushima Dai-ichi Nuclear Power Station, the event led to questions about the safe storage of spent fuel. This report documents the consequence study that continues our examination of the risks and consequences of postulated spent fuel pool accidents
 - The study evaluated whether a severe, though unlikely, beyond-design-basis earthquake would damage the spent fuel pool to the point of leaking
 - The study shows the likelihood of a radiological release from the SFP (for the analyzed severe earthquake at a reference plant) to be about one time in 10 million years, or lower
 - Vice Chairman Tim Brown asked if exemptions are specific to each plant, regardless of what's been decided for other plants
 - (a) Joe Anderson stated that yes, each stands alone (site-specific justification)
 - Ted Quinn asked if the NRC had received the Kewaunee exemption request
 - (a) Joe Anderson confirmed that it was received. NRC staff has provided a paper (SECY-14-0066) for the Commission's decision, and the Commission has voted to approve the staff's recommendation to move forward with those exemptions. Currently the staff is developing the safety evaluation before granting those exemptions for Kewaunee
- e) Exemption Precedent
 - i) Licensee site-specific SFP analyses demonstrate that:
 - Applicable Design Basis Accident(s) would not result in projected doses to public exceeding US Environmental Protection Agency (EPA) protective action guides at the sites exclusion area boundary; AND
 - Spent fuel is not susceptible to a zirconium fire or sufficient time would be available to take mitigation measures, and if needed, implement offsite protective measures – on an "all hazards" basis

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, October 9, 2014, from 6:00-9:00 p.m. PDT in San Juan Capistrano, California
Meeting Minutes and Action Items

- (i) A zirconium cladding fire may occur as fuel heats up, where the zirconium cladding may reach a point of rapid oxidation with air producing heat; the energy release from this reaction, if sustained, could cause a self-sustaining reaction igniting cladding (an unlikely situation)
 - (ii) While the risk from a possible zirconium cladding fire is considered low due to probability (highly unlikely), as indicated by recent studies, the NRC considered it prudent to establish reasonable measures in responding to this unlikely scenario due to potential consequences
- f) Exemption Criteria
- i) Examples of applicable Design Basis Accident(s)
 - Radioactive waste system leak or failure (from tanks or demineralizers, for example)
 - Spent fuel cask drop accident (very site specific depending on the design of the plant)
 - Fuel handling accident
 - ii) Examples of SFP accidents considered:
 - Complete loss of SFP water inventory with air cooling
 - (a) NUREG-2161 shows that, for the scenarios and reference plant studied, spent fuel is only susceptible to a radiological release within a few months after fuel is moved from the reactor to the spent fuel pool. After that time, the spent fuel is air coolable for at least 72 hours. [Assumes a complete drain down of spent fuel pool due to a liner failure.]
 - Complete loss of SFP water inventory with no air cooling
 - (a) NUREG-1738 shows that where spent fuel has decayed at least 60 days, the time available to take actions before fuel is uncovered, due to boil-off following a loss of spent fuel pool cooling is at least 100 hours of > 4 days (for a Pressurized Water Reactor, PWR) / 145 hours or > 6 days (for a Boiling Water Reactor, BWR)
 - Loss of SFP normal cooling
 - (a) While highly unlikely, a complete loss of all cooling was selected as the limiting scenario for evaluation of emergency preparedness exemptions
 - (i) Assumes blocked air flow from a partial drain down event
 - (b) Ted Quinn commented that the fuel has clearly passed sixty days, and asked if SCE gets credit for the top of active fuel being below grade
 - (i) Joe Anderson stated that SCE would have to take credit for that in their site-specific justification for NRC consideration in its technical evaluation
 - (c) Gene Stone asked for an explanation of slow draining and how many gallons per minute
 - (i) Joe Anderson stated that the volume of SFP water inventory lost would be based on size of leak in SFP liner. However, the most limiting scenario would be a drain down involving a rapid loss of SFP water inventory
 - (d) Chairman David Victor asked Tom Palmisano if he would be talking about actual temperature calculations that you've done on the fuel in the pool
 - (i) Tom Palmisano responded that he would not be discussing temperatures, but time frames
 - iii) Sufficient time available to take mitigation measures:
 - Minimum of 10 hours
 - (a) T+0: Time ALL cooling is lost

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, October 9, 2014, from 6:00-9:00 p.m. PDT in San Juan Capistrano, California

Meeting Minutes and Action Items

- (b) $T+ \geq 10$ hours: 900 degrees C (zirconium cladding ignition temperature)
 - Conservatively does not consider time from initiating event to point where loss of all SFP cooling occurs
 - Historically takes 15-20 months from time of shutdown to meet this criterion
- iv) In evaluating the capability to take prompt SFP mitigation measures, the NRC staff considers:
 - Licensee identified SFP mitigation strategies, which are analyzed by NRC staff, and
 - Availability of “on-shift” staffing (not augmented staffing) and equipment to promptly initiate mitigation
- v) Focus on initial mitigation actions is on providing cooling to spent fuel (spraying, etc.), not necessarily on repairs to SFP liner
- g) Exemption Precedent
 - i) Past exemptions reduced EP requirements similar to that for an Independent Spent Fuel Storage Installation (ISFSI)
 - Operating Reactors are focused on response to a variety of emergencies related to an operating reactor
 - (a) Formal offsite Radiological Emergency Preparedness (REP) plans, including Emergency Planning Zone (EPZ) and Alert and Notification System (ANS)
 - (b) Event Classification – Notification Of Unusual Event (NOUE) to General Emergency
 - (c) Notification of event classification – 15 minutes (state/local counties) – must have staff in place to be able to notify designated off-site agencies of an event classification within 15 minutes
 - (d) Dedicated on- and off-site facilities
 - (e) Joint, biennial exercises
 - Decommissioning Sites are focused on SFP events (permanently shutdown/defueled reactor)
 - (a) Comprehensive (“all hazards”) planning – coordination with firefighting, medical, etc., responding on-site
 - (b) Event Classification – Notification Of Unusual Event (NOUE) to ALERT
 - (c) Notification of even classification – “prompt” (designated agencies)
 - (d) On-site “Command Center”
 - (e) On-site biennial exercise – with opportunity for off-site response organizations to participate
 - h) Decommissioning: Emergency Plan (EP) Inspection Program
 - i) Resident Inspector will typically remain on-site for a period of 6 to 12 months after reactor is permanently shutdown/defueled
 - ii) Inspection program will continue, comprising two major elements
 - Baseline inspection
 - Discretionary inspection (i.e., reactive and initiative inspections)
 - iii) Inspection program will remain until the license is terminated
 - iv) Dr. Bill Parker asked for examples of events other than SFP leaks
 - Joe Anderson stated cask drop, fuel handling accidents, potential gas or liquid release
 - v) Chairman David Victor asked what type of RAI’s have been needed

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, October 9, 2014, from 6:00-9:00 p.m. PDT in San Juan Capistrano, California
Meeting Minutes and Action Items

- Joe Anderson stated that due to the lack of specific NRC guidance, SCE used recent precedent as model. The RAI's will ask for specifics to better clarify and document requested exemptions and technical basis.
- vi) Ted Quinn asked how often discretionary inspections take place and examples of findings
 - Joe Anderson deferred to Greg Warnick, Senior Resident Inspector for the NRC at San Onofre who stated that with support from Region IV staff, he was present for activities such as radioactive waste removal and resin removal. Daily inspections are conducted. He will likely be staying on-site for a year, but once regulatory significant activities are completed, he will be pulled away. At that time, inspectors from the region will likely visit once every other month for a week, but it's really activity-based
- vii) Gene Stone asked about Elmo Collins' recent statement on steam generator issues and asked about regulations for mitigation plan for dry cask accidents
 - Joe Anderson responded that he had no details on dry cask regulations but that he could look it up and get back to the Panel
- viii) Hon. Larry Kramer asked if the NRC had looked at someone deliberately trying to cause damage
 - Joe Anderson stated that physical security would be looked at in the Security Plan, not the Emergency Plan
- i) Moving Forward
 - i) Possible Decommissioning Rulemaking
 - SRM to SECY-14-006 (Kewaunee EP Exemption Request):
"Based on lessons learned from the most recent operating plant closures, the staff should report to the Commission in January 2015 its views on the need for an integrated rulemaking for decommissioning and, as appropriate, provide the potential schedule and resources required for completion."
 - Interim Staff Guidance NSIR/DPR-ISG-02, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants" – captures how we should do these exemption reviews

VI) Tom Palmisano (VP and CNO of San Onofre) – Review of San Onofre Emergency Plans

- a) We are continuing under the operating plant Emergency Plan which would recognize accidents that would occur in the reactor all the way through issues with spent fuel and dry cask storage and that staffing is maintained accordingly. The proposed plan is under review. I'll touch on the physical security aspect because that's a separate plan that's still in place and there are triggers from the Emergency Plan based on security events
- b) Basis for Permanently Defueled Emergency Plan (PDEP)
 - i) Basis
 - 10 CFR 50.47(b): "Emergency Plans"
 - 10 CFR 50 Appendix E: "Emergency Planning and Preparedness for Production and Utilization Facilities"
 - NUREG-0654/REMA-REP-1: "Criteria for Preparation of Radiological Emergency Response Plans and Preparedness of Nuclear Power Plants"
 - NSIR/DPR-ISG-02: "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants"
 - ii) Background and Purpose:

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, October 9, 2014, from 6:00-9:00 p.m. PDT in San Juan Capistrano, California
Meeting Minutes and Action Items

- Plan for responding to emergencies to minimize damage to property
 - Off-site response organizations will maintain emergency management plans to implement off-site protective measures in the event of a beyond design bases event
 - Describes process for communication with off-site response organizations
 - Plan covers conditions when used nuclear fuel is stored in the Independent Spent Fuel Storage Installation (ISFSI) or in the Spent Fuel Pool
 - For the few remaining possible events, pre-planned response measures are maintained for on-site areas only; there are no possible releases that can affect off-site
 - (a) the plant has been shut down for over 30 months and the fuel has decayed to the point where the radiological hazard is significantly reduced so no pre-planned off-site response measures are required
- iii) NRC Interim Staff Guidance Basis:
- NRC Emergency Planning (EP) Guidance for decommissioning
 - Interim Staff Guidance (ISG) provides the technical bases for NRC approval of EP exemptions, which includes:
 - (a) Radiological releases do not exceed the limits of the US Environmental Protection Agency (EPA) Protective Action Guidelines (PAG) at the site's boundary
 - (b) Spent fuel will not reach the zirconium ignition temperature in fewer than 10 hours
 - ISG applies to facilities that:
 - (a) Have notified the NRC that it has permanently ceased operation(s)
 - (b) Have certified permanent removal of fuel from the reactor vessel
 - (c) Storing used nuclear fuel in a Spent Fuel Pool
- iv) Accident Analysis: Operating versus Decommissioning
- Operating Reactor
 - (a) Potential accidents that create the possibility of a radiological release and could impact the public are:
 - (i) High pressure steam line breaks
 - (ii) Reactor coolant system line breaks
 - (iii) Control rod ejection with a power excursion and a subsequent loss of coolant
 - (iv) Loss of steam generator feedwater, undercooling of the fuel
 - Permanently Defueled Reactor / Decommissioning
 - (a) Hazards are greatly reduced resulting in low probability of an accident
 - (b) Primary risk is associated with used nuclear fuel stored in the Spent Fuel Pools
 - (c) Risk is reduced:
 - (i) Spent Fuel Pool is at atmospheric pressure and low temperature
 - (ii) Heat source is low
 - (iii) Significant mitigation time
 - (d) Vice Chairman Tim Brown asked for a complete understanding of exemptions and ultimately what is the risk to community
 - (i) Tom Palmisano stated that the hazard is significantly reduced because the fuel is much less radioactive and there is minimal energy or pressure to drive material out into the environment. The SFP is at atmospheric pressure and has very little energy. The risk to the public is analyzed and the plan changed to match the hazards that are there today
 - (e) Gene Stone asked if it is safe to reduce the EP while fuel is in the pools

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, October 9, 2014, from 6:00-9:00 p.m. PDT in San Juan Capistrano, California

Meeting Minutes and Action Items

- (i) Tom Palmisano stated this it is absolutely safe and that's why SCE is proposing it and it's under review. The hazard is significantly reduced
 - (f) Gene Stone asked what would happen in the in the case of a fire
 - (i) Tom Palmisano stated a fire is the beyond design basis event that Joe Anderson just discussed
- v) Spent Fuel Pool Design and Protection (must be site specific)
 - Robust, thick steel-reinforced concrete walls and stainless steel liner
 - Designed for earthquakes and external events
 - Contains approximately 500,000 gallons of water, which cools the fuel and provides radiation shielding
 - More than 5 days to heat up to 200 degrees
 - Multiple sources of water available to fill or spray the Spent Fuel Pool
 - Security protection and controls – physical security is the same as when we were operating, same depth of protection. For hostile actions, the Security Plan is linked with the EP
 - Some other information about the Emergency Plan. The operating plant Emergency Plan had classifications based on what was happening to the reactor, what was happening to the spent fuel, what could happen to the ISFSI. It had triggers for events starting in the plant; it had triggers based on external events, such as an earthquake or tsunami. The PDEP has similar categories. What is out of the PDEP are things related to the reactor and associated systems, but it has triggering events related to the spent fuel pools, related to the ISFSI, related to security, related to external events. In one of the two license amendment requests there is something called an emergency action level table. Those are the trigger points in which you enter the Emergency Plan; very similar triggering events based on external events and other things that could occur in a defueled plant
- vi) Spent Fuel Zirconium Fire Analysis
 - Zirconium is the tube material that encases the uranium fuel in each fuel pin (cladding)
 - Spent Fuel Zirconium Fire Analysis
 - (a) Beyond design bases event occurs that causes the Spent Fuel Pools to drain and uncover the used nuclear fuel
 - (b) Same event causes the fuel building to fail in a way that air cooling of the fuel is prevented after pool draining
 - (c) Analysis shows the fuel cannot heat up to ignition temperature in less than 10 hours
 - (i) That analysis looks at how hot is the fuel, how long have you been shut down, how quickly will it reach that 900 degrees centigrade temperature that would result in a zirconium fire
 - NRC Interim Staff Guidance: 10 hour minimum window is sufficient for plant operators to take mitigating actions and communicate with off-site agencies
- vii) Spent Fuel Zirconium Fire Analysis Conclusion
 - For San Onofre, specifically, in August 2013, it would take more than 10 hours to reach the zirconium fire temperature; we met this requirement over a year ago

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, October 9, 2014, from 6:00-9:00 p.m. PDT in San Juan Capistrano, California
Meeting Minutes and Action Items

- Today, in October 2014, SONGS has more than 17 hours to reach the zirconium fire temperature; so we more than meet the NRC requirement for adequate time to take action and mitigate
- With air cooling (a more realistic analysis), the fuel never reaches the temperature to initiate a zirconium fire at SONGS
- Chairman David Victor asked about the confidence in the 900 degree temperature and who reviews the calculations
 - (a) Tom Palmisano responded that he was confident in the number and that National Labs have verified the calculations and also two independent checkers
 - (b) Joe Anderson confirmed that the NRC also reviews the calculations
- Ted Quinn asked for the basis for the 10 hours
 - (a) Joe Anderson stated it was based on precedence established in the past. No detailed technical analysis or factors involved; it is highly conservative
- Gene Stone asked how many hours it would take to resolve a fire, what is the process and what do we do in that worst case scenario
 - (a) Tom Palmisano responded that he was about to get to that on the next slide
- viii) Spent Fuel Pool Mitigating Strategies (for any scenario that requires adding water)
 - Permanently installed plant equipment available to fill or spray the Spent Fuel Pool:
 - (a) Normal spent fuel pool cooling and fill systems
 - (b) Approximately 1.5 million gallons of tank capacity
 - (c) Two electric-driven fire pumps and one diesel engine-driven fire pump are available
 - On-site “portable” equipment available to fill or spray the Spent Fuel Pool:
 - (a) Two portable engine-driven pumps are maintained as part of SONGS Spent Fuel Pool mitigation strategies
 - (b) Equipment is pre-staged or stored at a location near the connection points for refill of the Spent Fuel Pool
 - (c) Additional near-site equipment that could be used to fill the Spent Fuel Pool includes Camp Pendleton fire trucks, which are available to provide support in a timely manner
 - Multiple sources of electrical power including continued diesel backup
 - Secretary Dan Stetson asked how the 1.5 million gallons was stored
 - (a) Tom Palmisano responded that it was stored in various tanks, in addition to what is in the pools
 - Gene Stone asked how difficult is it to put out a zirconium fire; does it burn under water?
 - (a) Tom Palmisano stated he would have to get back to him on that; that would get into a class D or special fire
 - Vice Chairman Tim Brown asked if a zirconium cladding fire was the worst-case fire
 - (a) Tom Palmisano responded that it was identified as limiting beyond the design basis for the NRC through their studies
 - Chairman David Victor asked if based on Tom Palmisano’s experience does this limiting beyond the design basis event sound right

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, October 9, 2014, from 6:00-9:00 p.m. PDT in San Juan Capistrano, California
Meeting Minutes and Action Items

- (a) We started out with design basis events but over the years, particularly after 9/11, we started thinking beyond design basis, when normal systems are unavailable, put into place mitigating equipment that is both portable and flexible
- (b) Chairman David Victor asked Joe Anderson if the NRC was looking at other beyond design basis events
 - (i) Joe Anderson stated that since Fukushima, the NRC is trying to get a better understanding of beyond design basis events and what reasonable measures should be taken to address potential beyond design basis events
 - (ii) Tom Palmisano added that in San Onofre's case, a decommissioned plant, the strategies are focused around the spent fuel pools and the ability to add water and cool that
- Dr. Bill Parker asked how SCE incorporated into the planning deliberate and malicious acts of sabotage by individuals who have authorized access (internal threats)
 - (a) Tom Palmisano explained that's designed in terms of the Security Plan and the screening and access process for workers. We have a physical Security Plan designed for an external event and there are aspects of the plan related to authorizing employees to into areas only if they have a need. San Onofre workers go through extensive background checks and are highly screened; those workers that have access to vital areas are both screened and are under behavioral observation
- Chairman David Victor stated the Security Plan is very important and we should hear about it in the future
- Hon. Larry Kramer asked about boron levels and what would be the effect if the boron level was reduced to zero
 - (a) Tom Palmisano took an action to get an answer
- Gene Stone commented that since Fukushima we have to seriously consider beyond design basis accidents and is the NRC taking appropriate actions to ensure that happens
 - (a) Joe Anderson agreed and stated that the NRC, as a learning organization, is continuously looking at what possible events we could have that would be in that beyond design basis realm. One of the biggest differences from the prior exemptions that we have granted would be the need for the licensee to designate specific SFP mitigating actions and ensure adequate on-shift staffing to promptly implement. The NRC will evaluate what those mitigating actions are, verify that staffing and equipment are in place, and verify how long it will take to implement these mitigating actions
 - (b) Gene Stone asked Joe Anderson for concurrence that it is appropriate for the CEP to look at beyond design basis accidents
 - (c) Chairman David Victor agreed and that it is appropriate for the Panel to review
 - (i) Tom Palmisano clarified that it's been a condition of the San Onofre operating license for over a decade to have mitigating strategies in place for beyond design basis events, based on 9/11, and that will continue in the defueled state
- ix) Spent Fuel Pool Mitigating Strategies Conclusion
 - Spent Fuel Zirconium Fire Analysis Conclusion – 17 hours for San Onofre to take action, in the worst-case scenario

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, October 9, 2014, from 6:00-9:00 p.m. PDT in San Juan Capistrano, California
Meeting Minutes and Action Items

- Actual Performance and Capability – San Onofre can mitigate events in both Spent Fuel Pools within 2 hours
- x) Interjurisdictional Planning Committee (IPC) Responsibilities
 - The IPC has been held up as a model of the industry in terms of how a licensee should and could cooperate and partner with local authorities to ensure adequate public health and safety and Emergency Plan implementation
 - The IPC is comprised of representatives of the counties of Orange and San Diego, the cities of Dana Point, San Clemente, and San Juan Capistrano, the Camp Pendleton Marine Corps Base, the State Department of Parks and Recreation, and Southern California Edison
 - The IPC maintains integrated plans and procedures to ensure that prompt and effective actions occur to protect the health and safety of the public
 - Participates in drills and exercises with SONGS
 - Conducts monthly meetings to ensure preparedness and response of Emergency Plans are well integrated
 - SCE is committed to continued funding of the IPC
- xi) Permanently Defueled Emergency Plan Responsibilities
 - Much of what is in the Emergency Plan does not change; the key thing that does change is what's called pre-planned offsite actions. SCE is still responsible for working with agencies, notifying them of what's going on and the off-site agencies are responsible for taking the appropriate actions to protect the health and safety of the public
 - Organization / Responsibilities
 - (a) SONGS:
 - (i) Control and operation of station activities
 - (ii) Mitigate emergency condition
 - (iii) Protect station personnel
 - (iv) Classify emergency event
 - (v) Assess and monitor radiological conditions
 - (vi) Notify federal, state, and local agencies
 - (vii) Coordinate emergency support for fire, security, and rescue/first aid
 - (b) Local Agencies:
 - (i) Orange County
 - 1. Orange County Sheriff's Department is responsible for off-site coordination and response in unincorporated Orange County. Activates Emergency Operations Center (EOC) at an Alert declaration
 - 2. Member of the IPC
 - (ii) San Diego County
 - 1. San Diego County Office in Emergency Services is the lead governmental agency for off-site coordination and response in San Diego County. Activates EOC at an Alert declaration
 - 2. Member of the IPC
 - (c) State Agency:
 - (i) Governor's Office of Emergency Services (OES)
 - 1. Designated state authority for coordination of all state level response

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2. Primary state response agency that coordinates the state's response to requests for assistance from local jurisdictions
 3. Member of the IPC
- (d) Federal Agencies:
- (i) NRC
 1. Assess licensee Emergency Plans for adequacy
 2. Make decisions with regard to the overall state of emergency preparedness and issuance of operating licenses
 3. Coordinates with other federal response agencies
 4. Acts as the lead federal agency with regard to technical response during a nuclear incident including radiological assistance
 - (ii) Department of Homeland Security (DHS)
 1. Responsible for the overall coordination of a "multi-agency" federal response to a radiological incident
 2. Primary role is to support local agencies by coordinating delivery of federal non-technical assistance
 - (iii) Marine Corps Base, Camp Pendleton
 1. Provides fire, medical, and rescue response to SONGS. Participates in annual drills
 2. Member of IPC
 - (iv) Federal Bureau of Investigation (FBI)
 1. Acts as the lead agency for the coordination of law enforcement agencies responding to security related events at SONGS
 2. Response actions to security events are addressed in the SONGS Safeguards Contingency Plan
- The PDEP is not yet implemented as it is undergoing NRC review (earliest is approval in 6 months). It is based on the current condition of the plant, the future condition of the plant. The defueled Emergency Plan provides the appropriate level of protection for on-site and off-site personnel
 - (a) Garry Brown asked what would happen if, as described by Joe Anderson, the pool was physically damaged and there was a pool drain down
 - (i) Tom Palmisano responded that SCE would continue to fill the pool
 - (ii) Garry Brown asked about air cooling if there was a lack of water
 1. Tom Palmisano responded that the pool can be empty of water for 17 hours and that with air cooling it will never reach temperature, but SCE would still get the pool refilled
 - (b) Hon. Larry Kramer asked if the cities are still involved in the IPC
 - (i) Tom Palmisano said they were but he would defer to Jeremy Kirchner
 - (c) Larry Rannals asked if there has ever been in the history of the industry a zirconium fire in a spent fuel pool
 - (i) Joe Anderson responded no
 - (ii) Tom Palmisano responded not to his knowledge, and that includes anywhere in the world
 - (d) Vice Chairman Tim Brown asked if there are any other worst-case scenarios to consider

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- (i) Tom Palmisano stated that the zirconium fire is the worst-case

VII) Jeremy Kirchner (Interjurisdictional Planning Committee) – IPC Overview

- a) About the IPC
- i) Established in 1982
 - ii) Meets monthly
 - iii) Entire purpose of the IPC is to prepare and plan for an emergency at San Onofre
 - iv) Unique partnership between government and private industry
 - v) Dedicated to ensuring public health and safety
 - vi) Writes and approves joint policies, plans, and procedures
 - vii) Mission – promote nuclear power preparedness through agency coordination and integration of Emergency Plans
 - viii) Objectives/Goals
 - Coordinate planning efforts
 - Purchase equipment
 - Conduct training
 - Participate in drills and exercises
 - Identify and implement corrective actions
 - ix) Primary Members
 - City of Dana Point
 - City of San Clemente
 - City of San Juan Capistrano
 - County of Orange
 - County of San Diego
 - California Department of Parks and Recreation
 - Marine Corps Base Camp Pendleton
 - Southern California Edison
 - x) Associate Members
 - American Red Cross
 - California Department of Public Health
 - California Department of Transportation
 - California Highway Patrol
 - Capistrano Unified School District
 - Federal Emergency Management Agency
 - Governor’s Office of Emergency Services
 - Mission Hospital and Regional Medical Center
 - Nuclear Regulatory Commission
 - Oceanside Fire Department
 - Orange County Fire Authority
- b) Jurisdictional Emergency Plans
- i) Emergency Operations Plan
 - Basic Plan – sets up the initial framework for all emergencies
 - Functional Annexes
 - Hazard-Specific Appendices

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- ii) Emergency Plans are based on all-hazards approach
- iii) Annexes and appendices address specific hazards, including SONGS
- iv) Supplemented by Interjurisdictional Policies
- v) Key current plan components
 - Basic All-Hazards Plan
 - Nuclear Power Plan Emergency
 - Evacuation Time Estimate
 - Reception and Decontamination Center
 - Independent Dose Assessment
 - Ingestion Pathway Exposure
 - Emergency Alert System/Alert and Warning
 - Joint Information System
 - Recovery Plan
- vi) Key Future Permanently Defueled Emergency Plan (PDEP) Components (three activities removed)
 - Basic Plan
 - Nuclear Power Plant Emergency
 - Independent Dose Assessment
 - Emergency Alert System/Alert and Warning
 - Joint Information System
 - Recovery
- c) Emergency Response Actions
 - i) Key Current Procedures
 - Law Enforcement
 - Fire/Rescue
 - Medical (EMS)
 - Medical/Public Health
 - Off-site Radiological Plume Monitoring
 - Emergency Operations Center Activation
 - Multi-Agency Coordination
 - Exercises and Drills
 - Decontamination
 - Public Information/Notification
 - Training
 - ii) Key Future (PDEP) Procedures – same as the current procedures:
 - Law Enforcement
 - Fire/Rescue
 - Medical (EMS)
 - Medical/Public Health
 - Off-site Radiological Plume Monitoring
 - Emergency Operations Center Activation
 - Multi-Agency Coordination
 - Exercises and Drills

San Onofre Decommissioning Community Engagement Panel

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- Decontamination
 - Public Information/Notification
 - Training
- iii) Chairman David Victor commented that the risk scenarios requiring the three components, 1) Nuclear Power Plant Emergency, 2) Evacuation Time Estimate, and 3) a Reception and Decontamination Center, are no longer plausible in any way
- Jeremy Kirchner confirmed and added that those risks are established by the NRC and they partner with FEMA to determine how the public health and safety is protected
- iv) Gene Stone asked if the IPC has its own monitoring equipment
- Jeremy Kirchner stated that they are not dependent on SCE; three agencies have offsite monitoring equipment
 - Gene Stone asked if the monitoring results were posted on-line
 - (a) Jeremy Kirchner responded that they haven't looked into it yet, but that it's certainly possible
 - (b) Gene Stone encouraged him to do so
- v) Hon. John Alpay asked if the Fallbrook School District was involved in the IPC
- Jeremy Kirchner believes that school district is not within the 10-mile emergency planning zone
 - Larry Rannals mentioned that the Fallbrook School District's San Onofre school (K-8), located on Camp Pendleton, is the closest to the plant and their involvement is through the USMC
 - (a) Chairman David Victor asked Jeremy Kirchner to follow up with the San Onofre school and make sure they haven't fallen through the cracks in regards to emergency planning
 - Hon. Jerry Kern asked if the Oceanside schools are outside the 10 mile radius
 - (a) Larry Rannals confirmed they are
 - Jeremy Kirchner stated he would provide the CEP with a map of the emergency zones
- vi) Ted Quinn asked how IPC performance is measured
- Jeremy Kirchner stated that a number of agencies review their performance, such as FEMA, through bi-annual exercises
- vii) Vice Chairman Tim Brown asked how private schools in the area were coordinated
- Jeremy Kirchner stated that the IPC reaches out to them, as does SCE, and encourages them to participate; they are provided with a private school plan
- viii) Donna Boston asked about the change for off-sites as it relates to FEMA regulations and the graded performance
- Jeremy Kirchner stated the FEMA requirements will go away, as will reviews and evaluations, but that the IPC has committed to continuing emergency response and they will look into having evaluations performed
- d) Public Education and Outreach
- i) Education and Outreach Programs
- Joint IPC Efforts
 - (a) Community Newsletter
 - (b) Siren Test Mailer
 - Agency-Specific Efforts

San Onofre Decommissioning Community Engagement Panel

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- (a) Websites
 - (b) Community Meetings
 - (c) Emergency Expos and Fairs
 - (d) Homeowner Association Meetings
 - (e) Community Emergency Response Team Programs
- ii) Outreach Methods
- Printed Materials (Handouts/Mailers)
 - Presentations and Training
 - Mass Notification (AlertOC, AlertSanDiego, etc.)
 - Social Media
- iii) Material Content
- Nuclear Focus
 - All Hazards Focus
- iv) Ted Quinn asked if personnel were employees or volunteers
- Jeremy Kirchner stated that Community Emergency Response Team is comprised of volunteers
- e) Community Preparedness
- i) www.readyoc.org
 - ii) www.alertoc.com
 - iii) www.readysandiego.org
 - iv) www.alertsandiego.org
 - v) Chairman David Victor asked how the IPC knows what the public wants
 - Jeremy Kirchner stated that they obtain information at public meetings and talk to the public as much as possible

VIII) Public Comment Period:

[A public comment period included comments from 7 members of the public. Their verbatim comments are captured in a video recording of the meeting, which is posted at www.SONGScommunity.com.

Following is a list of the speakers.]

- a) Ray Lutz (Citizens Oversight)
- b) Richard Gardener
- c) Ace Hoffman
- d) Marni Magda
- e) Donna Gilmore
- f) Gary Headrick (San Clemente Green)
- g) Pat Beardon (San Juan Capistrano resident)

IX) Panel Comments:

- a) Vice Chairman Tim Brown asked Tom Palmisano to address the public comment regarding the source of the water for the plant and how SCE ensures a continued fresh supply, including desalinization abilities in the plant and how that works in terms of earthquakes and defense-in-depth
 - i) Tom Palmisano stated that the plant does not desalinate ocean water for makeup water; we use the city water supply system. The 1.5 million gallons is stored on site in tanks and there

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- is many years of water on site for which the volume is based on an operating plan that uses huge amounts of water
- ii) Tom Palmisano will put a list of tank ratings on the SONGScommunity website
 - b) Vice Chairman Tim Brown asked Jeremy Kirchner to reiterate that in terms of safety planning we're acting like it's an operating plant as far as public safety is concerned
 - i) Jeremy Kirchner responded that the IPC is maintaining a lot of capabilities and at the moment are still required to; as the Federal requirements go away we will likely maintain more capabilities than just about anywhere in the country surrounding a decommissioning power plant
 - c) Vice Chairman Tim Brown asked to Tom Palmisano to confirm that the plant is safer now than when it was operating
 - i) Tom Palmisano confirmed it was safer now because the number of events that can occur is much reduced and the consequences of an event are much reduced. The spent fuel must continue to be protected and continuously monitored for leakage
 - d) Secretary Dan Stetson asked Tom Palmisano if ocean cooling was still being used to cool systems and if the plan is to stop that and switch to a self-contained system
 - i) Tom Palmisano stated that an alternate cooling system will be installed that will not require ocean cooling for the spent fuel pools. That new system will come on line second quarter, early third quarter of next year, and that is one of several things we need to do to reduce and ultimately eliminate the use of ocean water for cooling
 - e) Jim Leach asked Jeremy Kirchner what kind of program is there for testing IPC's effectiveness
 - i) Jeremy Kirchner stated that a lot of testing is done on an ongoing basis (all hazards), as well as evaluated exercises every two years; comprehensive training elements
 - Jim Leach commented that he's been involved with AlertOC (www.alertoc.com) and encourages everyone to sign up
 - f) Vice Chairman Tim Brown asked Tom Palmisano to talk about an attack with a 747 airline on the spent fuel pools
 - i) Tom Palmisano responded that the Physical Security Plan, as well as the infrastructure design, and the USMC would all comprise the defense; post 9/11, plants had to put into place movable equipment for such events so that if installed equipment was damaged during an event, movable equipment could be mobilized
 - g) Vice Chairman Tim Brown asked about Ray Lutz's comment regarding spent fuel pools on cliffs
 - i) Tom Palmisano clarified that the SONGS spent fuel pools are not located on a cliff; they are below grade
 - h) Hon. Larry Kramer encouraged the public to visit the San Juan Capistrano Community Facility as often as possible

X) Closing (Chairman David Victor)

- a) On Tuesday, October 14, two cask vendors will make non-commercial presentations which will include discussions of defense-in-depth. The panel is very fortunate as it's unheard of that vendors would do something like this in the middle of an award process. There will be a public discussion period after the presentations

XI) Meeting adjourned at 8:35 p.m.

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ACTION ITEMS AND PROPOSED RESPONSE

	Action Item Description	Comments
1.	Joe Anderson to provide information on whether specific mitigation measures are required for dry cask storage	Requested by Gene Stone (46:00) Discussed b NRC presenter at 10/27/14 SONGS PSDAR Public Meeting
2.	Tom Palmisano to identify methods for extinguishing a zirconium fire	Question from Gene Stone (1:24)
3.	Provide briefing on San Onofre Security Plan at a future meeting	Per Chairman David Victor's request (1:28)
4.	Tom Palmisano to follow up on consequence of boron level reduced to zero	Question from Hon. Larry Kramer (1:29)
5.	Jeremy Kirchner to follow up with the San Onofre school regarding the Emergency Plan	Per Chairman David Victor's request (1:50)
6.	Jeremy Kirchner to provide the panel with maps of the emergency zones	Suggested by Jeremy Kirchner himself (1:52)
7.	Tom Palmisano to post a list of water tank ratings on the SONGScommunity website	Vice Chairman Tim Brown question about tank ratings (2:27)