

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, February 16, 2017, from 5:30-8:30 p.m. PDT in Dana Point, California

Meeting Minutes and Action Items

1) Community Engagement Panel (CEP) Member Attendance

- a) Present: Dr. David Victor (CEP Chairman/University of California, San Diego), Hon. Tim Brown (CEP Vice Chairman/San Clemente City Council), Dan Stetson (CEP Secretary/Nicholas Endowment), Ted Quinn (American Nuclear Society), Garry Brown (Orange County Coastkeeper), Glenn Pascall (Sierra Club, Angeles Chapter), Hon. Pam Patterson (Mayor Pro Tem, San Juan Capistrano), Hon. Jerome "Jerry" M. Kern (Oceanside City Council), Rich Haydon (California State Parks), Tom Caughlan (Camp Pendleton), Donna Boston (Orange County Sheriff's Department), Jim Leach (South Orange County Economic Coalition), Hon. Martha McNicholas, (Capistrano Unified School District Board of Trustees), and Hon. Paul Wyatt, (Dana Point City Council)
- b) Absent: Hon. Bill Horn (San Diego County Board of Supervisors), Valentine "Val" Macedo (Laborers' International Union of North America, Local 89) and Hon. Lisa Bartlett (Orange County Board of Supervisors)
- c) Guests: Matt Marston (Senior Vice President, SONGS Decommissioning Solutions (SONGS DS)) and Dr. Neal Driscoll (Scripps Institution of Oceanography)
- d) Southern California Edison (SCE) Representative: Tom Palmisano (Vice President Decommissioning & Chief Nuclear Officer)

2) Meeting Convened by Chairman Victor at 5:35 p.m.:

- a) The focus of tonight's meeting is to look at seismic and tsunamic risks associated with the San Onofre Nuclear plant.
- b) Chairman Victor reminded the audience that the CEP is not a decision-making body nor an oversight body. It was set up by Southern California Edison with volunteer members from the communities that are affected by the operation and decommissioning of the plant, and is designed to open up a two-way conduit between the operators of the plant and the public.
- c) The presentations and technical papers from tonight's meeting can be found on SONGScommunity.com, as well as live streaming, links for signing up for public walking tours of the plant site, and more; the next San Onofre Nuclear Generating Station (SONGS) public walking tours are scheduled for March 8 and March 18.
- d) SCE information booths, staffed by SCE personnel, and other community booths are available before the meeting and during the break.
- e) A structured public comment period follows the presentations. There is a sign-up list outside for those attending who wish to make a comment. Comments may be submitted any time to nuccomm@songs.sce.com. Those comments submitted within 5 business days of the CEP meeting will be made part of the official record for the meeting and we will make sure the topics raised during those comments will get answered.
- f) Chairman Victor introduced new CEP members Hon. Martha McNicholas, President, Capistrano Unified School District Board of Trustees, and Hon. Paul Wyatt, Mayor Pro Tem, Dana Point City Council. Chairman Victor thanked Dana Point Councilmember, Paul Wyatt, and Dan Stetson, former CEO of the Ocean Institute, for hosting the Community Engagement Panel meeting. Chairman Victor also introduced guests: Matt Marston, Senior Vice President, SONGS DS, Tom Palmisano (SCE VP Decommissioning & Chief Nuclear Officer), and Dr. Neal Driscoll, Scripps Institution of Oceanography.

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, February 16, 2017, from 5:30-8:30 p.m. PDT in Dana Point, California
Meeting Minutes and Action Items

NOTE: VIDEO OF THIS MEETING, SPEAKER PRESENTATIONS, AND TRANSCRIPTS ARE AVAILABLE ON SONGScommunity.com AND THEREFORE DETAILED CONTENT IS NOT REPEATED IN THIS DOCUMENT

- 3) Decommissioning Update: Tom Palmisano (SCE VP Decommissioning & Chief Nuclear Officer)**
[Please refer to the *Decommissioning Update* presentation on SONGScommunity.com]
- a) Hon. Tim Brown asked if the current technical specifications were being replaced.
 - i) Tom Palmisano responded by explaining the technical specifications are an attachment to the license and were changed to reflect the decommissioning state, and they would change again, once the fuel is in dry cask storage. The Emergency Plan and Security Plans will also change to reflect the status of the plant.
 - b) Chairman Victor asked about the decommissioning project being on schedule.
 - (1) Tom Palmisano responded that the target date for the construction of the ISFSI and the offload of fuel is 2019. The ISFSI construction is expected to complete earlier than the target date.
 - c) Tom Palmisano discussed the Decommission General Contractor (DGC) selection
 - i) The major decommissioning work being performed by 3rd party decommissioning general contractor (DGC).
 - ii) SONGS Decommissioning*Solutions* was selected as DGC via competitive bid process.
 - iii) It is a joint venture of AECOM and Energy*Solutions*.
- 4) SONGS Decommissioning*Solutions* (SONGS DS): Matt Marston, Senior Vice President, SONGS DS**
[Please refer to the presentation on SONGScommunity.com]
- a) Matt Marston provided an overview of AECOM, Energy*Solutions* and SONGS DS. He discussed his team and the plan for the first year. The first year is all about planning the work. He also discussed jobs for the local community. He expects three quarters of the SONGS DS staff and labor force will be from the local community.
 - b) Chairman Victor asked that Matt Marston address jobs and organized labor in greater depths during future presentations of the broader decommissioning process. He also mentioned that questions will be organized and addressed in those future CEP meetings.
 - c) Glenn Pascall asked how SONGS DS will dispose of the reactor.
 - (1) Matt Marston responded that there are many ways to address that task. SONGS-DS will be finalizing that work over the next year and will share that information in future presentations.
- 5) San Onofre Seismic Introduction – New Analysis of Seismic Faults Near San Onofre: Tom Palmisano (SCE VP Decommissioning & Chief Nuclear Officer)**
[Please refer to the presentation on SONGScommunity.com]
- a) Tom Palmisano discussed the purpose of the seismic research, summarized SONGS original seismic design basis, subsequent seismic studies, the ISFSI seismic design basis, and provided a preview of the new Scripps seismic studies.
 - b) Chairman Victor discussed the amount of technical information being presented, the panel's plans to ask questions regarding the seismic study and that more questions from the community would be gathered and addressed. He also discussed the importance of presenting scientifically

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, February 16, 2017, from 5:30-8:30 p.m. PDT in Dana Point, California

Meeting Minutes and Action Items

assessed technical papers that have been peer reviewed and published in leading scientific journals in the field.

- c) Tom Caughlan asked Dr. Driscoll to compare a 7.5 earthquake to the Northridge or San Francisco earthquakes.

- (1) Dr. Driscoll provided an overview of some of the largest earthquakes of California; the 1906 San Francisco, the Fort Tejon in 1857, and Lone Pine in 1872, which were all close to eight 8.0 on the Richter scale. Every increase in 1 is a 10-fold increase in the amplitude in the earthquake from which you can derive energy.

6) New Scripps Seismic Research: (Dr. Neal Driscoll, Scripps Institution of Oceanography)

[Please refer to the presentation on SONGScommunity.com]

- a) Dr. Neal Driscoll introduced his team as one of the best teams in the world to address the seismic issues. He provided a presentation on “Characterizing the Seismic Setting Offshore Southern California.”
- b) Hon. Tim Brown asked about a single fault strand rupture off of the coast of San Onofre and the expected magnitude of the earthquake.
 - (1) Dr. Driscoll stated a single stand rupture would be 6.0 or more on the Richter scale.
- c) Hon. Pam Patterson discussed the fact that in litigation both parties get to present their sides using their experts. She stated the community was not being allowed to participate and present their side. She stated Robert Pope was an expert geologist and present in the audience, but only one party was allowed to present their information. She asked how the Community Engagement Panel’s agendas are determined and what the agenda is for the rest of the year. She discussed safety at San Onofre and the canisters the fuel is stored in.
- d) Chairman Victor asked Pam Patterson if she had a question regarding the information being presented. He reminded the audience this is not a litigation and suggested moving on to the other panel member’s questions.
- e) Hon. Martha McNicholas asked about clarification regarding the gaps between the strands.
 - (1) Dr. Driscoll stated it can be a gap, a stop, bend, an off-set, step over, or discontinuity. Faults are often segmented, but to make it clear on the maps the faults are shown as single lines.
- f) Ted Quinn asked about the multiple stands in parallel.
 - (1) Dr. Driscoll described them as distributed or splayed out as horsetails. As the fault ends, the slip on the fault is distributed to smaller faults.
- g) Dan Stetson asked about the peak ground acceleration possible for a maximum of 7.3 or 7.4 magnitude earthquake.
 - (1) Dr. Driscoll stated it is a complicated calculation. His team is working on a paper and they have a model to transfer the Richter scale to peak ground acceleration. He did not want to discuss the details, until the paper was peer reviewed.
- h) Chairman Victor requested an action be taken to provide how the calculation was done for the San Onofre original design basis and to provide Dr. Driscoll’s calculation once it is peer reviewed.
- i) Glenn Pascall asked about the Scripps Institution’s report on the potential for a 6.5 to 7.4 earthquake being close to the plant, what kind of tsunami event that might cause and what the consequences might be.
 - (1) Dr. Driscoll said the next portion of the presentation was on tsunamic risks and would help answer Glenn’s question. Dr. Driscoll presented the tsunami hazards along the inner California borderlands: near versus far field sources.

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, February 16, 2017, from 5:30-8:30 p.m. PDT in Dana Point, California

Meeting Minutes and Action Items

- j) Hon. Jerry Kern mentioned that most of the information presented has been focused on offshore faults. He asked if there was site specific research performed onshore.
 - (1) Dr. Driscoll said their research was mostly focused on offshore. He believed that the San Onofre Nuclear Generating Station conducted a number of onshore experiments. He said SONGS has looked at terraces, uplift rates, and trenches. They installed GPS instruments to document the motion of the plates and seismometers. He mentioned some of the seismometers that were planned may not have been installed on site due to the time window for the decommissioning of the plant.
 - (2) Chairman Victor added the panel would get that information from Tom Palmisano or follow-up.
- k) Hon. Jerry Kern asked about soil samples taken on site.
 - (1) Dr. Driscoll discussed soil borings and samples for ground motion were collected and studied by Geopentech, and the GPS were installed on site and on Camp Pendleton.
- l) Hon. Tim Brown asked Dr. Driscoll to speak to a report by Mr. Pope which was submitted to the panel by the Public Watchdogs. The report references Dr. Driscoll's study and the United States Geological Survey (USGS) assertions regarding the probabilities of earthquakes in Southern California.
 - (1) Dr. Driscoll discussed the differences between his study, the mapping technique, defining the faults calculation, determining what the earthquake magnitude would be, putting it into a ground motion model, and the USGS numbers. He discussed the USGS numbers were consistent with theirs, but USGS makes predictions of earthquakes and budget. Dr. Driscoll's report provides more confidence in trying to calculate earthquake magnitudes.

7) San Onofre Seismic Wrap-Up: Tom Palmisano, Vice President Decommissioning & Chief Nuclear Officer) [Please refer to the presentation on SONGScommunity.com]

- a) Tom Palmisano presented the implications of the seismic findings for San Onofre. The new findings support a reduced seismic risk at San Onofre.
- b) Hon. Pam Patterson asked for a response regarding the report by University of Southern California geologist, James Dolan.
 - (1) Dr. Driscoll stated the numbers they have reported are consistent with James Dolan's speculation, but his team has observations and constraints from data at an unprecedented scale. The data can be input into the earthquake models, so they have confidence in the calculations.
 - (2) Tom Palmisano added that the numbers quoted and the magnitudes as you go farther south for the Newport Inglewood and Rose Canyon faults are the numbers SONGS has assumed could occur, and are accounted for in the seismic design for the facility.
- c) Garry Brown discussed not being able to predict earthquakes, the spent fuel pools being critical and have to be protected, and the effects of the variances in earthquakes ranging from 7.4 to 7.5 on the Richter scale.
- d) Tom Palmisano discussed the plant having very robust structures that will withstand greater than a 7.5 magnitude earthquake. There is margin there that is not credited. The analysis for the NRC is conservative and estimated on the high side for the earthquake and low side for the structure. The fuel has not operated for over five years, and there is a decay curve. To protect

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, February 16, 2017, from 5:30-8:30 p.m. PDT in Dana Point, California

Meeting Minutes and Action Items

the fuel they simply must stay intact and covered with water. There is robust margin in the pools.

- e) Garry Brown asked if there was a Richter scale that the plant structures were built to.
 - (1) Tom Palmisano stated the original assumption and design basis was based on 7.0 magnitude earthquake for the Newport Inglewood and Rose Canyon faults.
- f) Hon. Tim Brown asked when the spent fuel pools will be empty.
 - (1) Tom Palmisano said the pools will be empty by the middle of 2019 or earlier on the current schedule. He added that the right thing to do is empty the pools as soon as they can safely empty them.
- g) Hon. Tim Brown asked what happens to the fuel inside the casks during an earthquake and is there an opportunity for movement of the fuel inside the casks.
 - (1) Tom Palmisano responded by stating the casks were analyzed for an earthquake scenario. The peak ground acceleration input to the canister system was analyzed to withstand 1.5 G in the horizontal direction and 1 G in the vertical direction, and shows that the fuel assemblies would stay intact inside the canisters.
- h) Chairman Victor added that the next meeting will be about consolidated interim storage and the panel will continue the focus of what defense in depth means, understanding the long term stewardship as long as the canisters are here, and our obligations to the canisters if they go to an interim facility.
- i) Hon. Jerry Kern asked if SONGS and Camp Pendleton have seismic monitoring devices on site and who monitors them.
 - (1) Tom Palmisano said there have been seismic detectors on site when the plant was operating, to trigger an alert for a seismic event. They will be retired after the spent fuel pools are emptied. Tom Palmisano added he will confirm that they are still active on site.
 - (2) Tom Caughlan will find out if Camp Pendleton has seismic monitors.

8) CEP General Updates

- a) Chairman Victor gave an update on Consolidated Interim Storage (CIS), State-Level Transportation Planning, and topics for future meetings.
 - i) Chairman Victor discussed Congressman Darrell Issa's reintroduction of H.R.474 Interim Consolidated Storage Act of 2017, into the House of Representatives and other related legislation pending in the Senate. He also discussed Congressman Issa's recent tour of the San Onofre Nuclear Plant.
 - ii) Hon. Jerry Kern added that next week he, David Victor and Manuel Camargo would be meeting with Congressman Scott Peters. Jerry has been meeting with local elected officials in regards to the fuel transportation plans.
 - iii) Tom Palmisano discussed congressmen who are interested in moving Consolidated Interim Storage to a reality. He has been in touch with the entities behind both consolidated interim storage projects, including Waste Control Specialists in Texas, whose license requests have been accepted by the Nuclear Regulatory Commission (NRC) for review, and Holtec in New Mexico, which expects to submit its license request with the NRC in March. Tom Palmisano will be in Washington DC to meet with congressional and senatorial staff on the issue of federal action in support of Consolidated Interim Storage.

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, February 16, 2017, from 5:30-8:30 p.m. PDT in Dana Point, California

Meeting Minutes and Action Items

- iv) Glenn Pascall discussed the Sierra Club's support of Consolidated Interim Storage, and new public polling data that supports a permanent storage facility and interim solutions.
- v) Chairman Victor thanked Dr. William Parker, University of California, Irvine, for all of his support.
- vi) Chairman Victor discussed the 2017 Upcoming Topics.
 - (1) Tom Palmisano added that he expects the State Lands Commission to issue the draft environmental impact report in June / July 2017. The report will be posted for public comment in that time frame. He suggested adding the environmental impact report as a topic in the August or October time frame.
 - (2) Hon. Pam Patterson asked when the community will get an opportunity to engage in this discussion, and expressed her concerns.
 - (3) Chairman Victor provided an overview of how the Community Engagement Panel is set up to provide information, address the concerns of the community, and respond to questions by the community.
 - (4) Hon. Jerry Kern discussed his efforts and others who are reaching out to communities in smaller groups and gathering questions to be answered by the panel.

9) Chairman Victor Facilitated the Public Comment Period

- a) Public Comments were made by the following individuals:
 - i) Vinod Arora, P.E. (AVP Arora International): San Onofre closure and waste
 - ii) Gary Headrick (San Clemente Green): earthquakes safety
 - iii) Ed Schlegel (San Clemente Green): earthquake safety
 - iv) Laurie Headrick (San Clement Green): safety questions
 - v) Judy Jones (Alliance for Nuclear Responsibility (A4NR)): safety planning
 - vi) Angela Mooney D'Arcy (Sacred Places Institute for Indigenous People): tribal consultation
 - vii) Bob Pope (Public Watchdogs): geology
 - viii) Nina Babiarz (Public Watchdogs): risk
 - ix) Charles Langley (Public Watchdogs): cask safety
 - x) Doug Applegate: (Public Watchdogs): interim and permanent storage
 - xi) Roger Johnson (San Clement Green): consolidated interim storage
 - xii) Marni Magda (Sierra Club): consolidated interim storage
 - xiii) Ray Lutz (Citizens' Oversight Projects (COPS)): lawsuit
 - xiv) Torgen Johnson (San Clemente Green): waste
 - xv) Kevin Higgins (San Clemente Green): nuclear waste
 - xvi) Tom Whitten: Yucca Mountain
 - xvii) Jennifer Massey (San Onofre Safety): Emptying Fuel Pools
 - xviii) Ricardo Nicol: Consolidated Interim Storage
- b) Dan Stetson and Hon. Tim Brown facilitated dialogue based on themes conveyed during the Public Comment Period:
 - i) Explain how the plant was initially designed to a magnitude 6.0 Richter scale and then upgraded to 7.0.
 - (1) Tom Palmisano explained that he was referring to Units 2 and 3 when they were licensed by the NRC to operate and the magnitude 7.0 corresponds to the 0.67 peak ground acceleration.

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, February 16, 2017, from 5:30-8:30 p.m. PDT in Dana Point, California

Meeting Minutes and Action Items

- ii) Explain how the new 7.4 magnitude would apply to the San Onofre seismic evaluation.
 - (1) Tom Palmisano explained that the plant was re-evaluated to withstand a 7.5 magnitude earthquake for the Rose Canyon, Newport Inglewood faults of interest.
- iii) Explain the differences between the seismic effects for an operating plant versus dry cask storage.
 - (1) Tom Palmisano provided an overview of the differences between seismic effects for an operating plant versus dry cask storage and offered to speak at length on the topic during a future meeting.
 - (2) Chairman Victor discussed devoting a meeting segment on how the casks would perform during an earthquake.
- iv) Should the spent fuel pools be maintained in case a canister was to leak, in the future?
 - (1) Tom Palmisano offered to devote a segment to a future meeting to discuss how the dry casks were tested and are expected to perform.
- v) When is Southern California Edison (SCE) no longer liable and does Federal Emergency Management Agency (FEMA) play a part in this?
 - (1) Tom Palmisano explained that SCE is responsible for the site and the spent fuel until the fuel is removed from the site by the Department of Energy (DOE).
- vi) Can you speak to Pacific Gas & Electric (PG&E) Company's joint proposal to retain a commitment to emergency services and planning?
 - (1) Tom Palmisano discussed maintaining the current level of funding thru 2020, as well as maintaining the siren systems, and will negotiate the longer term local needs after 2020, because it is important to SCE and the communities.
- vii) Does San Onofre monitor the level of radiation off of San Onofre?
 - (1) Tom Palmisano discussed the environmental monitoring program for the plant decommissioning and offered to provide what their monitoring has found over the decades.
- viii) Are the dry casks tested for degradation and earthquakes?
 - (1) Tom Palmisano suggested a 3rd quarter defense in depth presentation to cover those questions.
- ix) Is Dr. Neal Driscoll available for question and answers and are his reports available?
 - (1) Dr. Neal Driscoll's data is publically available and he would welcome the scientific process.
- x) How high is the tsunami wall at the San Onofre Nuclear Generating plant?
 - (1) Tom Palmisano discussed the height of the wall is 30 feet and was designed for the maximum tsunami, with some margin.
 - (2) Dr. Neal Driscoll discussed tsunami deposits, dating, sea terraces and sea level.
 - (3) Hon. Tim Brown discussed consolidated interim storage.

10) Closing Remarks

- a) Chairman Victor discussed the next meeting will be on consolidated interim storage.

11) Meeting adjourned at 8:45 p.m.

San Onofre Decommissioning Community Engagement Panel

REGULAR MEETING

Thursday, February 16, 2017, from 5:30-8:30 p.m. PDT in Dana Point, California

Meeting Minutes and Action Items

12) Action Items:

	Action Item Description	Comments
1	Share SCE to share the ground acceleration motion calculation with CEP members	Chairman Victor requested an action be taken to provide how the calculation was done for the San Onofre original design basis and Dr. Driscoll's calculation once it is peer reviewed. (Video 01:18:10)
2	SCE to post on SONGScommunity.com the ground motion acceleration paper Neal Driscoll mentioned, once peer-reviewed and published	Chairman Victor added the panel would get that information from Tom Palmisano or follow-up. (Installation of seismometers and GPS instrumentation that did not get installed and (SONGS & Camp Pendleton) co-location of ground seismometers did not done) (Video: 01:30:09)
3	SCE to look into the Geopentech analysis performed in the past for the SONGS area (land)	Dr. Driscoll discussed soil borings and samples for ground motion were collected and studied by Geopentech, and the GPS were installed on site and on Camp Pendleton. (Video 01:30:56)
4	SCE to advise panel on what seismic instrumentation is in place on and around the SONGS site and being monitored; likewise, Tom Caughlan was asked what seismic instrumentation was in place on Camp Pendleton	Tom Palmisano stated historically there has been seismic detectors on site when the plant was operating to trigger an alert for a seismic event. They will be retired after the spent fuel pools are emptied. Tom Palmisano added he will confirm that they are still active on site. Tom Caughlan will also find out if Camp Pendleton has seismic monitors. (Video: 01:49:06)