OTC Nuclear Review Committee 8-15-2012 Meeting Summary

Committee Chair	
Dominic Gregorio (Acting)	SWRCB
Committee Members	
David Asti	Southern California Edison (SCE)
David Barker	San Diego Regional Water Board
Melissa Jones	California Energy Commission
Jim Caldwell	Center For Energy Efficiency And Renewable Technologies
Mark Krausse	Pacific Gas and Electric (PG&E)
Peter Von Langen	Central Coast Regional Water Board
Rochelle Becker	Alliance for Nuclear Responsibility (A4NR)
Tom Luster	California Coastal Commission
Staff in Attendance	
Laurel Warddrip	SWRCB
Marleigh Wood	SWRCB
Joanna Jensen	SWRCB
Public in Attendance	
Robert J Budnitz	Lawrence Berkeley National Lab (DCISC)
Partho Raysircar	Bechtel Power Corp.
Doug Dismukes	Bechtel Power Corp.
Bryan Cunningham	Pacific Gas and Electric
Peter Wilkens	Southern California Edison
Robert Heckler	Southern California Edison
Sean Bothwell	California Coastkeeper Alliance (CCKA)
John Geesman	Alliance for Nuclear Responsibility

1. Welcome Introductions and Updates

No Updates

2. Overview of agenda

Remove review and approval of meeting notes - July 26th minutes to be circulated, posted and then approved with comments from Committee, any further revisions to minutes can be addressed at the September meeting.

3. Diablo Canyon Independent Safety Committee (DCISC) Discussion

DCISC overview was led by Robert Budnitz. DCISC has a 23-year charter to review operation and safety at Diablo Canyon Nuclear Power Plant. Reports are public and the committee consists of 3 members with overlapping 3-year terms each appointed by State of California. DCISC will be reviewing the outcomes from the Committee and is available to provide input on specific questions that may arise about DCPP, if sent to them by the utilities (SCE and PG&E).

4. Discussion on the Comments from the Committee

Closed Cycle Cooling Water Technologies (CCCWT)

DCPP does not have enough recycled water available within the specified radius for wet cooling, SONGS has enough sources potentially, but no commitment yet from the suppliers (supply is not guaranteed). Local wastewater plants may provide water, but this water would also need to be treated at the nuclear plant, if this is considered feasible as a source of reclaimed water for CCCWT. It has been concluded that only the use of "desalination technologies" are potentially feasible. (see below)

Desalination Solutions – Bechtel was not required to evaluate desalination as a stand-alone technology in the Scope of Work. CCCWT will advance to Phase 2 if there are available desalination technologies to provide fresh or reclaimed water. Desalination could provide the makeup water for DCPP/SONGS, thereby allowing some form of CCCWT to go to Phase 2 for evaluation. Desalination could use less water than what the nuclear plants intake right now if designed to provide water with the highest [ppm] allowable for the nuclear plant operation, not to a drinking standard.

Technology options need to be evaluated for 100% desalination for make-up water and for a percentage of desalination water used in combination with reclaimed water. This has now been added as part of the Phase 2 scope.

Brine disposal from a desalination operation would also need to be considered by Bechtel, since this may be a permitting issue. The brine would have to be discharged in compliance with current permitting for such operations. This is now part of the Phase 2 scope.

Condenser pressure could be a safety issue with water management in the event of a power outage. (Note that this issue should have been fully addressed as part of Phase 1, but will now need to be addressed in Phase 2.) Bob Heckler: cooling tower options for SONGS using more land from Camp Pendleton (Northern) discussed, currently this land is not leased to SONGS from Camp Pendleton and goes beyond the current property boundary. Some issues discussed were the vernal pools (fairy shrimp)/protected areas and the use of this land. Camp Pendleton voiced that leasing of more land would be unlikely when it was discussed with Bechtel. The availability of more land from Camp Pendleton is concluded to be infeasible. Bechtel commented that SONGS could relocate some buildings, and not need more land added to the lease. Elimination or moving of buildings on the Mesa Complex is highly problematic and not acceptable to SONGS. For DCPP, Bryan Cunningham stated that mountains potentially could be altered to accommodate cooling structures, but this would be an elaborate solution.

Offshore Wedge Wire Screens

Issue with biofouling for screens smaller than 6-8 mm slot size, but Impingement and Entrainment (I&E) requirements in the Policy may not be reduced if mesh is not sized for 1-2 mm. Bechtel described that I&E may be decreased with screens at 6-8mm if the current/velocities are reduced enough coming across the screening devices. Bechtel

needs to consider screen sizes of 1-2mm, and discuss what they did evaluate on the various screen sizes. The Committee would like to see an effectiveness curve on the reduction of I&E vs. the screen sizes evaluated. Studies also have shown that biofouling does not occur at the smaller (1-2mm) screen sizes (John Steinbeck, Tenera research 805-541-0310). This issue should have been addressed and resolved as part of Phase 1, but now Bechtel needs to discuss this technology with John at Tenera and evaluate smaller screen sizes for Phase 2.

- **Lunch -**

Offshore Wedge Wire Screens (con't.)

Bryan Cunningham – Is incrustacean/cropping an issue? It is sure to occur. Intake tunnels are oversized to include this issue in the final intake volume, this (cropping) can decrease survivability in the intake structures though.

Dominic – The OTC Policy assumes zero survivability upon entrainment/entrance into the intake structure so incrustacean/cropping does not affect the mortality rates that the Policy accounts for (Policy assumes 100% mortality at intake).

There are issues with Kelp deposition on screens from Kelp beds. This issue should have been addressed and resolved as part of Phase 1, but now Bechtel will need to look into further as part of Phase 2.

Analysis of Safety in Phase 2

Reliability is a huge issue when considering different technologies; also, there are concerns with the ultimate heat sink. This is a Phase 2 topic that will be discussed in great detail in the upcoming months; Robert Budnitz initiated a discussion about the significance of the ultimate heat sink to nuclear plants and how this aspect of safety cannot be compromised by any policy action. (Note: SCE has raised the significance of this issue to the SWRCB several times in the recent past; David Asti wanted it noted that he did not initiate the discussion on the ultimate heat sink, Budnitz did.)

Coastal Commission Comments: necessary changes to public access may be required since current permit does not allow access to the public being blocked, not fatal but needs to be discussed.

Source Water Substrate Filtering Collection Systems

Investigation still going on, outlook is that this will not be feasible for direct cooling at projected flow rates, may be feasible to provide make-up water. This would also be a first of a kind with the operability and maintenance associated with these Ranney Wells. Ranney wells will be discussed in Phase 2 (esp. for SONGS); however, Bechtel recommends this technology stays in Phase 1. (Note: in the final Phase 1 report, this technology did not pass to Phase 2)

Variable Speed Cooling Water Pumping Systems

This technology does not come close to meeting the Policy as a stand-alone technology. This could be considered along with other technologies, but cannot go lower than a de-rating of 80%.

Deep Water Intakes and Offshore Intakes

Bryan Cunningham: Report conflicts - Near offshore intakes and deep water intakes, not going to Phase 2, however the Phase 1 report needs to reflect that does not meet Entrainment and is a fatal design flaw for both types of intakes (both infeasible for Entrainment design).

Committee agrees that for both DCPP and SONGS both intake relocation options (deep water intakes and offshore intakes) stop at Phase 1.

Other Major Comments from Committee

David Asti: It should be recognized that Bechtel did not complete the intended scope for Phase 1, and there are many issues that, by necessity, have now been delayed to Phase 2 for assessment of feasibility even against the Phase 1 criteria.

5. Closing/next Meeting

Timeline/Next Steps
Bechtel respond to comments by end of August ► provide response to comments to utilities ► utilities send to SWRCB ► SWRCB send to the Committee ►SWRCB post the responses ► Final Report from Bechtel September 7, 2012 ► September meeting provide final resolution to outstanding issues ► November meeting kick off Phase 2.

Committee designated Dominic Gregorio to tentatively approve the Final Report from Bechtel until final committee decision is made at the next scheduled meeting.

Technologies Summary
CCCWT –viable technologies in this category need additional continuing Phase 1 assessment (pending for Phase 2)
Operational Strategies to Reduce I&E – **No** this technology stays in Phase 1
Deep Water Offshore Intakes - **No** (technology stays in Phase 1)
Source Water Substrate Filtering Collection Systems - **No** (technology stays in Phase 1)
Inshore Fine Mesh - technology requires additional/continuing Phase 1 assessment (pending for Phase 2)
Offshore Wedge Wire Screens – being re-evaluated for feasibility of 1-2mm screen size (**pending** for Phase 2)
Intake Relocation - **No** (technology stays in Phase 1)
Variable Speed Cooling Water Pumping Systems - **No** (technology stays in Phase 1)

Next Meeting

September 18, 2012 1-4 pm to discuss final Phase 1 Issues. Meeting in November (TBD) to kickoff Phase 2.

(Meeting date cancelled for September – November meeting for Phase 2 set for 11/26/2012)

6. Adjourn