



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 22, 2013

LICENSEE: Pacific Gas and Electric Company

FACILITY: Diablo Canyon Power Plant, Units 1 and 2

SUBJECT: SUMMARY OF FEBRUARY 12, 2013, PRE-LICENSING MEETING WITH PACIFIC GAS AND ELECTRIC COMPANY ON DEGRADED VOLTAGE PROTECTION AND CONTROL ROOM DOSE ANALYSIS (TAC NOS. MF0545 AND MF0546)

On February 12, 2013, the U.S. Nuclear Regulatory Commission (NRC) staff conducted a Category 1, pre-licensing public meeting with representatives of Pacific Gas and Electric Company (PG&E), the licensee for Diablo Canyon Power Plant (DCPP), Units 1 and 2 (U1 and U2), at NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The meeting notice and agenda, dated January 30, 2013, is available in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML13030A246. The purpose of the meeting was to discuss license amendments PG&E intends to submit regarding degraded voltage protection, component actuation time delays, and radiological dose consequence analysis for DCPP U1 and U2. A list of attendees is provided in the Enclosure.

As background, PG&E previously submitted the license amendment request (LAR), "Revision to Technical Specification 3.3.5, 'Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation'," to the NRC on October 24, 2011 (ADAMS Accession No. ML113010200). This LAR intended to revise Technical Specification (TS) Surveillance Requirement (SR) 3.3.5.3.a Load Shed Allowable Values for first level undervoltage relays (FLUR); revise engineered safety feature (ESF) component delay times in the Final Safety Analysis Report Update (FSARU) to bound the second level undervoltage relay (SLUR); and revise FSARU calculations regarding loss-of-coolant accident (LOCA) control room and offsite dose. PG&E withdrew this LAR via letter dated September 27, 2012 (ADAMS Accession No. ML12272A098), citing discrepancies with the current licensing basis and the control room dose analysis of record. PG&E committed to submit a LAR to address the issues in the original LAR and these discrepancies, and this pre-licensing meeting was intended to discuss this potential LAR.

The licensee presented information in a briefing titled, "Pre-Application Meeting, Degraded Voltage Protection LAR Revision and new LAR for AST [Alternate Source Term] Dose Consequence Analyses," dated February 12, 2013 (ADAMS Accession No. ML13044A735). The licensee discussed the two violations/non-conforming conditions initiating the degraded voltage protection concern; reviewed the background and scope of the original LAR as discussed above; discussed additional identified non-conforming conditions; and provided LAR submittal options with the PG&E proposed plan. A summary of these discussed topic areas is provided below:

PG&E reviewed two violations received during the 2010 Component Design Basis Inspection (CBDI) (ADAMS Accession No. ML102040823) that identified non-conforming conditions related

to degraded voltage allowed time duration and impacts to ESF components and the allowable SLUR delay exceeding FSARU assumptions resulting in potential control room dose consequence. The licensee discussed the October 2011 LAR submission that intended to correct non-conservative Diesel Generator Start Instrumentation TS values; revise the FSARU to increase ESF component delay times to bound SLUR actuation time delay; and revise control room LOCA dose analysis to bound the SLUR actuation time delay. Following LAR submission, PG&E's Licensing Basis Verification Project (LBVP) revealed additional non-conforming conditions related to unapproved atmospheric dispersion factors and non-conservative analysis assumptions related to leakage source release points, Auxiliary Building ventilation, containment purge releases, and control room ventilation. PG&E withdrew the original LAR based on the impact of this new information from the LBVP.

In anticipation of complying with the revised LAR submission commitment in its September 2012 LAR withdrawal letter, PG&E discussed two submission options it considered. Its first option consisted of a two LAR, phased approach as follows. The first LAR would address the FLUR non-conservative TS with an anticipated submittal time frame of June 2013. The second LAR would request approval of full implementation of the Alternate Source Term (AST) Methodology with updated Dose Consequence Analysis which would include ESF component delay time and SLUR related FSARU updates. The AST methodology and resulting dose calculation analysis updates would address the control room LOCA dose and other non-conservative analysis assumptions identified by the LBVP. This second LAR would be expected for submission in middle of 2014. PG&E's second submission option consisted of all facets of the first submission option within a single LAR to be submitted in mid-2014 with the AST methodology driving the submission timeline. PG&E stated that the first submission option of two LARs a year apart was its intended plan.

PG&E discussed other considerations and advantages of this phased submission approach. First, PG&E discussed adding an upper limit to the TS for both the FLUR and the SLUR portion of the first proposed LAR with the intention of aligning with Standard TSs. Next, PG&E reviewed its perceived advantages of the two phased LAR submission approach which would allow resolution of the degraded voltage FLUR non-conservative values initially while allowing time for AST dose analysis for greater operating margin in the long term. PG&E stated that adoption of the AST methodology provides the offsite and control room dose consequence analysis for those design basis accidents discussed in the original inspection and LBVP identified non-conforming conditions.

The NRC staff provided the following comments and questions in response to PG&E's presentation as summarized above. First, the NRC staff concurred with the licensee's understanding of the additional LBVP identified non-conforming conditions in terms of the use of incorrect and non-NRC endorsed methodologies for atmospheric dispersion and dose analysis assumptions and calculations. The NRC staff discussed additional analysis areas PG&E stated will be incorporated in the analysis to include containment spray and small-break LOCA (SBLOCA). PG&E responded to the NRC staff's question regarding LAR related plant modification and/or design changes by reviewing intended changes to the control room ventilation system (booster fan); three-step FLUR relay hardware change requiring a major bus outage; and the setpoint temporary modifications currently in place that will be resolved by adopting the AST methodology. The NRC staff noted that there are different types of undervoltage events that are not event independent. Following an NRC staff question, PG&E

stated that thermal conductivity degradation analysis related to the AST and SLUR portion of the LAR will be accounted for in the submittal.

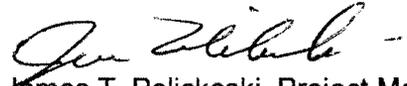
The NRC staff provided additional insights and observations as follows. In considering the relay modification and related FLUR TS change, the NRC staff discussed that further information will be needed regarding the relay setpoint methodology uncertainty in terms of single or double sided, the confidence factor, taking advantage of multiple channels, and the methodology's approval from the NRC staff. Regarding the atmospheric dispersion aspects of adopting the AST methodology, the NRC staff expressed interest in the meteorological historical database PG&E will use in terms of the original licensing and design basis; the location of the source of this meteorological data in terms of nearby buildings and parking lots; the necessity of a full set of historical data potentially being required depending upon the source; and that the delta-temperature (ΔT) method as the preferred for dispersion among the other usable methods. Regarding atmospheric dispersion, the NRC staff mentioned the applicability of Regulatory Guide (RG) 1.145, "Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants," February 1983 (ADAMS Accession No. ML003740205), RG 1.194, "Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plant," June 2003 (ADAMS Accession No. ML031530505), and RG 1.23, "Meteorological Monitoring Programs for Nuclear Power Plants (Safety Guide 23)," March 2007 (ADAMS Accession No. ML070350028).

The NRC staff provided further comments and questions. The NRC staff indicated that as with the original LAR, it is helpful for the licensee to provide a discussion of FLUR, SLUR, and AST related changes not requiring NRC approval in the submittal for the purposes of technical and historical context. The NRC staff stated that previous licensee submissions requesting AST methodology implementation had utilized a tabular format that was preferred in facilitating the review in comparing current licensing basis values with revised AST methodology values and its accompanying basis. Additionally and as with other licensee AST methodology submittals, the NRC staff expects discussion of environmental qualification impacts should the AST methodology provide changed dose values. The NRC staff stated that the DCCP control room habitability current licensing basis accounts for both access dose and occupancy dose and would anticipate both access and occupancy being addressed in the AST LAR submittal.

As mentioned in the discussion with the NRC staff, PG&E indicated it would request pre-application public meetings with the NRC staff prior to each of the two anticipated LAR submissions.

No members of the public were in attendance. Public Meeting Feedback forms were not received.

Please direct any inquiries to Jim Polickoski at 301-415-5430 or james.polickoski@nrc.gov.



James T. Polickoski, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-275 and 50-323

Enclosure:
List of Attendees

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LIST OF ATTENDEES

FEBRUARY 12, 2013, MEETING WITH PACIFIC GAS AND ELECTRIC COMPANY

U.S. NUCLEAR REGULATORY COMMISSION

DOCKET NOS. 50-275 AND 50-323

NRC Participants:

Headquarters:

Travis Tate, Chief, Accident Dose Branch, NRR/DRA
John Parillo, Senior Reactor Engineer, Accident Dose Branch, NRR/DRA
Leta Brown, Physical Scientist, Accident Dose Branch, NRR/DRA
Jen Gall, Engineer, Reactor Systems Branch, NRR/DSS
Subinoy Mazumdar, Electrical Engineer, Instrumentation and Control Branch, NRR/DE
Norbert Carte, Senior Electronics Engineer, Instrumentation and Control Branch, NRR/DE
Prem Sahay, Electrical Engineer, Electrical Engineering Branch, NRR/DE
Gerald Waig, Senior Reactor Systems Engineer, Technical Specifications Branch, NRR/DSS *
Michael Markley, Chief, Plant Licensing Branch IV, NRR/DORL
Joe Sebrosky, Senior Project Manager, Plant Licensing Branch IV, NRR/DORL
James Polickoski, Project Manager, Plant Licensing Branch IV, NRR/DORL

Region IV:

Tom Hipschman, Senior Resident Inspector, Diablo Canyon Power Plant *

Pacific Gas and Electric Company Participants:

Jerry Ballard, Transient Analysis
Stephen Baker, Design Engineering
Gregg Reimers, Design Engineer *
Akbar Moarefy, Design Engineer *
Philippe Soenen, Licensing Supervisor, Regulatory Services
Daniel Gibbons, Engineer, Regulatory Services

* denotes participating via teleconference

Please direct any inquiries to Jim Polickoski at 301-415-5430 or james.polickoski@nrc.gov.

/RA/

James T. Polickoski, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-275 and 50-323

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RidsNrrLAJBurkhardt Resource
RidsNrrPMDiabloCanyon Resource
RidsResDe Resource
RidsOcaMailCenter Resource
RidsOpaMail Resource

RidsRgn4MailCenter Resource
JParillo, NRR/DRA/AADB
TTate, NRR/DRA/AADB
JGall, NRR/DSS/SRXB
LBrown, NRR/DRA/AADB
SMazumdar, NRR/DE/EICB
PSahay, NRR/DE/EEEE
NCarte, NRR/DE/EICB
GWaig, NRR/DSS/STSB
DHuyck, EDO RIV
VDricks, OPA RIV
JPolickoski, NRR

ADAMS Accession Nos.: Meeting Notice ML13030A246; Meeting Summary ML13109A016

OFFICE	NRR/DORL/LPL4/PM	NRR/DORL/LPL4/LA	NRR/DORL/LPL4/BC	NRR/DORL/LPL4/PM
NAME	JPolickoski	JBurkhardt	MMarkley	JPolickoski
DATE	4/22/13	4/19/13	4/22/13	4/22/13

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