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March 19, 2008

Document Control Desk
U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C., 20555-0001

Subject: **Docket No. 50-361**
60-day Post Cycle-15 Refueling Outage
Reactor Pressure Vessel Head Inspection Report for
San Onofre Nuclear Generating Station, Unit 2

Reference: EA-03-009, Subject: "Issuance of First Revised NRC Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads At Pressurized Water Reactors", dated February 20, 2004

Dear Sir or Madam:

This letter provides the Southern California Edison Company (SCE) 60-day post-refueling outage response to First Revised NRC Order EA-03-009, (Referenced) for San Onofre Nuclear Generating Station (SONGS), Unit 2.

As required by the referenced letter, SCE completed inspections of the Reactor Pressure Vessel Head (RPVH) penetrations during the Unit 2 Cycle 15 refueling outage, which ended on January 19, 2008.

These inspections included a bare metal visual inspection of the RPVH surface including 360 degrees around all 102 RPVH penetrations, Non Destructive Examination (NDE) Ultrasonic Test (UT) and leak path assessment of all 91 Control Element Drive Mechanism (CEDM) nozzles and all 10 In-Core Instrument (ICI) nozzles, and NDE eddy current testing of the wetted surface of the vent line penetration. Visual inspections were also performed to identify potential boric acid leaks from pressure-retaining components above the RPVH. In addition to the requirements of the First Revised Order, supplementary surface examinations were performed on the inside diameter (ID) surfaces of all 91 CEDM and ten ICI penetrations.

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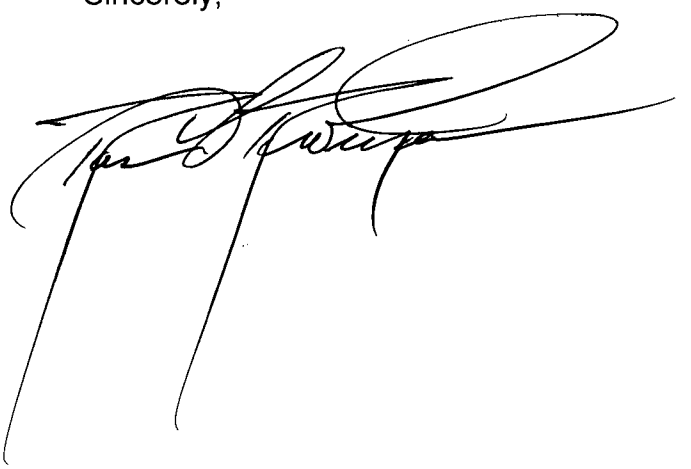
No Primary Water Stress Corrosion Cracking (PWSCC) was detected during performance of the non-visual examinations described above. In addition, no through-wall leakage was identified at any reactor vessel head penetration, no boric acid leaks were identified from pressure-retaining components above the RPVH, no deposits were found on RPVH surfaces, and no degradation of reactor vessel head base material was identified during the performance of these inspections at SONGS Unit 2.

There are no commitments contained in this letter.

If you have any questions or would like additional information concerning this subject, please call Ms. Linda Conklin (949) 368-9443.

Sincerely,



Enclosure

cc: E. E. Collins, Regional Administrator, NRC Region IV
N. Kalyanam, NRC Project Manager, San Onofre Units 2 and 3
C. C. Osterholtz, NRC Senior Resident Inspector, San Onofre Units 2 and 3

Enclosure

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Reactor Pressure Vessel Head Inspection Report
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San Onofre Nuclear Generating Station
Unit 2 Cycle-15 Refueling Outage

Enclosure

60-day Post Refueling Outage
Reactor Pressure Vessel Head Inspection Report for
San Onofre Nuclear Generating Station, Unit 2 Cycle 15

References:

1. EA-03-009, Subject: "Issuance of First Revised NRC Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads At Pressurized Water Reactors", dated February 20, 2004

2. Letter from Herbert N. Berkow (NRC) to Harold B. Ray (SCE); Subject: "Relaxation of the Requirements of Order EA-03-009 Regarding Reactor Pressure Vessel Head Inspections, San Onofre Nuclear Generating Station (SONGS), Units 2 and 3 (TAC Nos. MC5522 AND MC5523), dated June 27, 2005

3. Letter from Jack Donohew (NRC) to Harold B. Ray (SCE); Subject: "San Onofre Nuclear Generating Station (SONGS), Units 2 and 3 Re: Correction to Relaxation of the Requirements of Order EA-03-009 Regarding Reactor Pressure Vessel Head Inspections (TAC Nos. MC5522 AND MC5523), dated September 26, 2005

The following activities were completed for the San Onofre Nuclear Generating Station (SONGS) Unit 2 reactor head during the Cycle 15 refueling outage:

Using the specified equation in accordance with NRC Order EA-03-009 (Reference 1) part IV.A, Southern California Edison (SCE) calculated the susceptibility category of the SONGS Unit 2 Reactor Pressure Vessel Head (RPVH) to Primary Water Stress Corrosion Cracking (PWSCC) related degradation. This susceptibility category is represented by a value of effective degradation years (EDY) for the end of each operating cycle. As of the end of the Cycle 14 fuel cycle the calculated value for SONGS Unit 2 was 18.6 EDY.

In accordance with EA-03-009 part IV.B, SCE assigned SONGS Unit 2 to the High PWSCC susceptibility category.

In accordance with EA-03-009 part IV.C (1), SCE performed RPVH and head penetration nozzle inspections using the techniques of paragraph IV.C.(5)(a) and paragraph IV.C.(5)(b).

In accordance with EA-03-009 paragraph IV.C.(5)(a), a bare metal visual examination of no less than 95 percent of the RPVH surface (including 360° around each head penetration nozzle) was performed. The RPVH surface was found in good condition and there were no indications of any degradation or measurable boric acid deposits. SCE confirmed that the surface obscured by support structure interferences which are located at RPVH elevations downslope from the outermost RPVH penetration constitute less than 5 percent of the RPVH surface. SCE inspected those areas of the RPVH upslope and downslope from the support structure interferences. There was no evidence of boric acid or degradation of the RPVH material in any of these areas.

In accordance with EA-03-009 paragraph IV.C.(5)(b), non-visual Non-Destructive Examination (NDE) was performed on each of the 102 penetrations as described below:

Head Vent Line

The vent line was examined in accordance with method (ii), using Eddy Current Testing (ET). The ET examination included the entire wetted surface of the J-groove weld and the wetted penetration inside diameter (ID) surface to at least 2 inches above the highest point of the root of the J-groove weld. No indications of PWSCC were identified as a result of this head vent line inspection.

CEDM penetrations

All 91 Control Element Drive Mechanism (CEDM) penetrations were examined in accordance with method (i), Ultrasonic Testing (UT) examinations. The effective inspection coverage above the root and below the toe of the weld for each nozzle is provided in Attachment 1. There were no exceptions to the minimum inspection distances approved by References 2 and 3 for SONGS Units 2 and 3. No indications of PWSCC defects were identified during this inspection.

Using UT, an assessment of the annulus between each CEDM penetration and the RPVH determined that no leakage path had developed.

In addition to the examinations required by EA-03-009, supplemental ET surface examinations of the inside diameters of all 91 CEDM penetrations were performed. No PWSCC was identified by these supplemental examinations.

Incore Instrument (ICI) penetrations

All ten ICI penetrations were examined in accordance with method (i), UT examinations. These inspections included UT from the ID surface and from the ICI bottom face such that the entire ICI penetration nozzle volume was examined, from at least 2 inches above the highest point of the root of the J-groove weld to the bottom of the nozzle. No indications of PWSCC defects were identified during this inspection.

Using UT, an assessment of the annulus between each ICI penetration and the RPVH determined that no leakage path had developed.

In addition to the examinations required by EA-03-009, supplemental ET surface examinations of the inside diameters of all ten ICI penetrations were performed and supplemental ET surface examinations of all ten ICI bottom face surfaces were performed. No PWSCC was identified by these supplemental examinations.

In accordance with EA-03-009 part IV.D, visual inspections were performed to identify potential boric acid leaks from pressure-retaining components above the RPV head. There were no indications of any boric acid leakage identified.

In accordance with EA-03-009 part IV.E, SCE submits this report within 60 days after returning the plant to operation.

In conclusion, SCE found no evidence of Reactor Vessel Head degradation or boric acid leakage from the reactor coolant pressure boundary during these inspection activities.

Attachment 1:

Measured Coverage
Above and Below CEDM Welds

60-day Post Refueling Outage
Reactor Pressure Vessel Head Inspection Report for
San Onofre Nuclear Generating Station, Unit 2 Cycle 15

Attachment 1:

Measured Coverage Above and Below CEDM Weld

	Inspection Coverage	
Penetration #	Inches Above Weld	Inches Below Weld
Pen 01	3.72	1.28
Pen 02	3.44	1.28
Pen 03	3.48	1.28
Pen 04	3.52	1.24
Pen 05	3.64	1.40
Pen 06	3.56	1.40
Pen 07	3.56	1.32
Pen 08	3.76	1.16
Pen 09	3.56	1.24
Pen 10	3.68	1.28
Pen 11	3.56	1.20
Pen 12	3.76	1.28
Pen 13	3.64	1.32
Pen 14	3.60	1.28
Pen 15	3.44	1.36
Pen 16	3.56	1.32
Pen 17	3.44	1.08
Pen 18	3.80	1.32
Pen 19	3.68	1.20
Pen 20	3.56	1.12
Pen 21	3.56	1.12
Pen 22	3.76	0.96
Pen 23	3.76	1.08
Pen 24	3.84	1.16
Pen 25	3.44	1.08
Pen 26	3.84	1.20
Pen 27	4.12	0.88
Pen 28	3.72	1.24
Pen 29	3.68	1.32
Pen 30	3.48	1.24
Pen 31	3.52	1.16
Pen 32	3.60	1.28
Pen 33	3.68	1.16
Pen 34	3.76	1.16
Pen 35	3.64	1.12
Pen 36	3.64	1.20
Pen 37	3.60	1.16
Pen 38	3.64	1.12
Pen 39	3.72	0.96
Pen 40	3.60	0.92
Pen 41	3.72	0.88
Pen 42	3.80	1.12
Pen 43	4.08	0.92
Pen 44	3.72	1.24
Pen 45	3.52	1.00

	Inspection Coverage	
Penetration #	Inches Above Weld	Inches Below Weld
Pen 46	3.72	1.24
Pen 47	3.88	1.00
Pen 48	3.68	0.92
Pen 49	3.96	1.08
Pen 50	3.44	0.96
Pen 51	3.56	1.12
Pen 52	3.80	1.24
Pen 53	3.84	0.92
Pen 54	4.00	0.88
Pen 55	4.04	0.76
Pen 56	3.68	1.00
Pen 57	3.80	0.92
Pen 58	3.40	0.80
Pen 59	3.48	0.84
Pen 60	3.76	1.00
Pen 61	3.60	1.00
Pen 62	3.48	0.96
Pen 63	3.60	0.76
Pen 64	3.80	0.96
Pen 65	3.80	0.80
Pen 66	3.88	0.88
Pen 67	3.72	0.72
Pen 68	3.64	0.88
Pen 69	3.64	0.90
Pen 70	3.56	1.00
Pen 71	3.64	0.80
Pen 72	3.68	0.68
Pen 73	3.52	0.56
Pen 74	3.64	0.88
Pen 75	3.80	0.64
Pen 76	3.60	0.80
Pen 77	3.68	1.00
Pen 78	3.56	0.76
Pen 79	3.44	0.84
Pen 80	3.72	1.04
Pen 81	3.80	0.92
Pen 82	3.72	0.52
Pen 83	3.68	0.56
Pen 84	3.84	0.64
Pen 85	3.60	0.68
Pen 86	3.68	0.94
Pen 87	3.84	0.88
Pen 88	4.00	0.68
Pen 89	3.60	0.80
Pen 90	3.60	0.56
Pen 91	3.48	0.60