DOCKETED

Docket Number:	15-IEPR-12
Project Title:	Nuclear Power Plants
TN #:	206809
Document Title:	Diablo Canyon Power Plant, Unit 2 - Inservice Inspection Program Relief Request - ML14255A232
Description:	Letter to PG&E from NRC approving the proposed alternative for flaw analysis of the pressurizer nozzles
Filer:	Justin Cochran
Organization:	U.S. Nuclear Regulatory Commission/Michael Markley
Submitter Role:	Public Agency
Submission Date:	12/1/2015 2:33:57 PM
Docketed Date:	12/1/2015

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

October 14, 2014

Mr. Edward D. Halpin
Senior Vice President and Chief Nuclear Officer
Pacific Gas and Electric Company
Diablo Canyon Power Plant
P.O. Box 56, Mail Code 104/6
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON POWER PLANT, UNIT 2 – INSERVICE INSPECTION PROGRAM RELIEF REQUEST SWOL-REP-1 U2 FOR APPROVAL OF AN ALTERNATIVE TO THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS CODE, SECTION XI, FOR PREEMPTIVE FULL STRUCTURAL WELD OVERLAYS (TAC NO. MF3891)

Dear Mr. Halpin:

By letter dated April 7, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14101A245), as supplemented by letters dated June 11, August 5, September 15, and September 25, 2014 (ADAMS Accession Nos. ML14171A237, ML14217A407, ML14259A226, and ML14268A578, respectively), Pacific Gas and Electric Company (the licensee) requested relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, IWA-4611.1(a), at Diablo Canyon Power Plant (DCPP), Unit 2 by relief request (RR) SWOL-REP-1 U2 for U.S. Nuclear Regulatory Commission (NRC) review and approval. Relief is requested from the requirements of RR REP-1 U2, Revision 1 authorized by the NRC staff by letter dated February 6, 2008 (ADAMS Accession No. ML080110001). Portions of the letter dated April 7, 2014, contain sensitive unclassified non-safeguards information (proprietary) and have been withheld from public disclosure.

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(ii), the licensee requested approval to use alternative acceptance criteria to permit Unit 2 to remain in service with the detected laminar indications on the basis that complying with the specified ASME Code requirement to remove the laminar indications would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

As set forth in the enclosed safety evaluation, the NRC staff has determined that the licensee's proposed alternative provides reasonable assurance of structural integrity and leak tightness of the subject overlaid welds. The NRC staff concludes that complying with the specified ASME Code requirements and NRC-approved RR REP-1 U2, Revision 1, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(ii). Therefore, the NRC authorizes use of RR SWOL-REP-1 U2 at the DCPP, Unit 2, for the expected life of the overlays, which is August 26, 2045.

All other requirements in ASME Code, Section XI and NRC-approved RR REP-1 U2, Revision 1, for which relief was not specifically requested and approved in this RR remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

If you have any questions, please contact the NRC project manager, Eric Oesterle, at 301-415-1014 or via e-mail at Eric.Oesterle@nrc.gov.

Sincerely,

CFlynn for

Michael T. Markley, Chief
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-323

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST SWOL-REP-1 U2

ALTERNATIVE ACCEPTANCE CRITERIA FOR PRESSURIZER NOZZLE WELD FLAWS

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON POWER PLANT, UNIT 2

DOCKET 50-323

1.0 INTRODUCTION

By letter dated April 7, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14101A245), as supplemented by letters dated June 11, August 5, September 15, and September 25, 2014 (ADAMS Accession Nos. ML14171A237, ML14217A407, ML14259A226, and ML14268A578, respectively), Pacific Gas and Electric Company (the licensee) requested relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, IWA-4611.1(a), at Diablo Canyon Power Plant (DCPP), Unit 2 by relief request (RR) SWOL-REP-1 U2 for U.S. Nuclear Regulatory Commission (NRC) review and approval. Relief is requested from the requirements of RR REP-1 U2, Revision 1, which was authorized by the NRC staff by letter dated February 6, 2008 (ADAMS Accession No. ML080110001). Portions of the letter dated April 7, 2014, contain sensitive unclassified non-safeguards information (proprietary) and have been withheld from public disclosure.

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(ii), the licensee requested approval to use alternative acceptance criteria to permit Unit 2 to remain in service with the detected laminar indications on the basis that complying with the specified ASME Code requirement to remove the laminar indications would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

2.0 REGULATORY EVALUATION

The licensee requested relief from the ASME Code, Section XI, IWA-4611.1(a), which requires removing the unacceptable laminar indications detected in the overlaid Dissimilar Metal Welds (DMWs).

Paragraph 10 CFR 50.55a(g)(4) states that ASME Code Class 1, 2 and 3 components (including supports) will meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for

Inservice Inspection (ISI) of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components.

RR REP-1, U2, Revision 1, contains the acceptance criteria for examinations and was approved by the NRC on February 6, 2008.

Paragraph 10 CFR 50.55a(a)(3) states, in part, that alternatives to the requirements of 10 CFR 50.55a(g) may be used when authorized by the NRC if the applicant demonstrates that: (i) the proposed alternatives provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Based on the above, and subject to the following technical evaluation, the NRC staff concludes that regulatory authority exists for the licensee to request the use of an alternative and the NRC to authorize the alternative proposed by the licensee.

3.0 TECHNICAL EVALUATION

3.1 Relief Request SWOL-REP-1 U2

ASME Code Component Affected

(a) Weld No. WIB-369SE Safe End-to-8010A Safety Nozzle Weld and adjacent Pipe-to-Safe End Weld No. WIB-369, Line Identifier 2-S6-729-6 (Safety Nozzle A)

(b) Weld No. WIB-423SE Safe End-to-8010B Safety Nozzle Weld and adjacent Pipe-to-Safe End Weld No. WIB-423, Line Identifier 2-S6-728-6 (Safety Nozzle B)

(c) Weld No. WIB-345SE Safe End-to-Spray Nozzle Weld and adjacent Pipe-to-Safe End Weld No. WIB-345, Line Identifier 2-S6-15-4SPL (Spray Nozzle)

Applicable Code Edition and Addenda (as stated by the licensee)

> DCPP Unit 2 is currently in the third 10-year inservice inspection (ISI) interval. The ASME Boiler and Pressure Vessel Code (Code) of record is Section XI, 2001 Edition, including Addenda through 2003 (Reference 8.1 [of Enclosure to letter dated April 7, 2014]) for the current 10-year ISI interval and the Repair/Replacement Program. ASME Code Section XI, 2001 Edition, no Addenda, Appendix VIII, Supplement 11 (Reference 8.2 [of Enclosure to letter dated April 7, 2014]) as implemented by the Performance Demonstration Initiative (PDI) Program, is used for ultrasonic testing (UT) qualification for SWOLs [full structural weld overlays]. ASME Code Section XI, Appendix Q, 2004 Edition with 2005 Addenda (Reference 8.5 [of Enclosure to letter dated April 7, 2014]) is used for SWOL ISI requirements for the remainder of the third inspection interval, nominally scheduled to end June 30, 2016.

Reason for Request

The licensee preemptively applied SWOLs on six DMWs and adjacent stainless steel pipe-to-safe end similar metal welds. These welds were safety valves A, B, and C; power-operated relief valve; and the pressurizer spray and surge nozzles. The SWOLs were installed in accordance with NRC-approved RR REP-1 U2, Revision 1, during the Unit 2 14th refueling outage, 2R14, in 2008. Immediately following the installation of the six weld overlays, the licensee performed acceptance and preservice inspection examinations using a manual, conventional UT process in accordance with PDI generic procedure, PDI-UT-8 Revision F. In 2008, the licensee detected two acceptable indications, each approximately 1 inch in length, near the weld overlay to base-material interface and over the low-alloy steel nozzle forging at safety nozzle A.

In October 2009, during refueling outage 2R15, the licensee examined all six weld overlays. The results were identical to the acceptance examinations conducted in 2008.

In the 2013 refueling outage, 2R17, the licensee detected laminar indications associated with the overlaid DMWs at safety nozzles A, B, and C and the spray nozzle using qualified phased array UT. The licensee did not detect these indications in either 2008 or 2009. In 2013, the licensee did not detect any recordable indications in the overlaid welds associated with relief valve and surge line nozzles. For the 2013 inspection results, the licensee reported that the indications in the weld overlay installed on safety nozzles A and B and spray nozzle exceeded the acceptance standards for the acceptance examinations in RR REP-1, U2, Revision 1, which the NRC approved by letter dated February 6, 2008.

By letter dated March 5, 2013 (ADAMS Accession No. ML130780374), as supplemented by letter dated March 7, 2013 (ADAMS Accession No. ML13067A343), the licensee submitted for NRC review and approval RR REP-1 U2, Revision 2 to permit the detected flaws to remain in service without repair. On March 8, 2013, the NRC verbally authorized the use of RR REP-1 U2, Revision 2, for one fuel cycle only following 2R17. The NRC issued the associated safety evaluation on August 28, 2013 (ADAMS Accession No. ML13232A308). To permit the detected indications to remain in service for the remaining life of the plant, the licensee submitted RR SWOL-REP-1 U2 on April 7, 2014.

Proposed Alternative

The proposed alternative is to permit the indications identified in the subject overlaid pressurizer nozzle welds in refueling outage 2R17 to remain in service for the remaining life of the plant without repair. The licensee proposed that the alternate criteria be applied in lieu of removing the indications from these overlaid nozzle welds in accordance with ASME Code, Section XI, IWA-4611.1(a) which states in part that "Defects shall be removed in accordance with IWA-4422.1. A defect is considered removed when it has been reduced to an acceptable size."

Technical Basis of the Proposed Alternative

The proposed alternative is supported by the flaw evaluations, root cause evaluation, and enhanced nondestructive examinations.

Flaw Evaluations

The licensee combined the detected laminar indications per the ASME Code, Section XI proximity rule and analyzed the bounding laminar flaws. The licensee also analyzed the laminar indications located near the safety nozzle A as axial and circumferential planar flaws. In addition, the licensee postulated both circumferential and axial planar flaws in the occluded zones of 2R17 phased array inspections of the overlaid welds at safety nozzles B and C, and the spray nozzle.

For the crack growth, the licensee used the center-cracked panel model solution in the linear elastic fracture mechanics and applied stress intensity factors of the center-cracked panel model on the bounding flaws. The licensee assumed the crack growing along the width of the flaws (i.e., longitudinally along the axis of the pipe) based on the radial (tensile) and shear stresses.

To calculate crack growth, the licensee considered the growth of laminar and planar flaws due to cyclic loadings under the presence of residual stress from the welding processes and design transients for the 38-year design life of the weld overlay, which includes the remaining years of the operating license plus additional 20 years of the license renewal period. The licensee used the finite element model to analyze weld residual stresses for the safety and spray nozzle welds. The licensee simulated various stages of the welding processes for the structural components, the weld repair, and the weld overlay, including the intervening load histories in the finite element analysis.

The licensee added the amount of crack growth to the initial bounding flaws to obtain the final flaw size. The final flaw size was compared with the allowable flaw size to demonstrate the acceptability of the bounding flaws over the 38-year design life of the weld overlay.

For bounding laminar flaws, the licensee demonstrated that the final flaw size and flaw areas satisfy the acceptance standards of the ASME Code, Section XI, IWB-3514-3. For bounding planar flaws, the licensee demonstrated that the final planar flaws satisfy the requirements of ASME Code, Section XI, IWB-3612 and IWB-3640.

To evaluate the structural integrity of the subject weld overlays that contain all the detected laminar indications, the licensee calculated the effective overlay length and compared the effective length with the required overlay length. The overlay effective length is the actual overlay length minus the laminar indication length. In accordance with the ASME Code, Section III, article NB-3227.2, the licensee demonstrated that the weld overlay length is sufficient to transfer the load through shear back to the base metal considering a 100 percent through-wall crack in the original DMW.

Based on the above analysis, the licensee proposed that the laminar indications detected in the overlaid welds at safety nozzles and spray nozzle are acceptable because the overlaid DMWs containing these indications maintain sufficient structural margin.

Root Cause

The licensee stated that the root cause for the missed indications in the examinations performed in 2008 and 2009 is that the same examination rigor applied in UT qualification testing was not applied in the field. First, the licensee determined that the scanning speed used in the 2008 examinations was excessive. The licensee noted that slower scan speeds were required to detect indications with easily recognizable signal to noise ratios and to trace the extent of the indications with the 0-degree transducer.

Second, the licensee found that the contributing cause is inattentive error by examiners in 2008 and 2009. This assessment applies to both 0 degree and angle beam examinations and is based on the 2013 re-inspection of safety nozzle A. During both the acceptance and first ISI examinations in 2008 and 2009, two small indications were recorded with both 0- and 45-degree search units. The 2013 reinvestigation with the original 2008 examination equipment and procedure found that indications were detectable and could be traced to extents comparable to the phased array UT results.

With regard to the welding issue, the licensee explained that welding overlays on the pressurizer nozzle welds encountered various challenges. First, the weld metal has to be in a 45-degree angle position (i.e., the 6G position). The weld position ranging from flat to horizontal as the weld is applied around the nozzle circumference. Thus, the weld pool is continuously altering its orientation relative to gravitational forces. With the weld pool's centroid continually changing position as it traverses around the 6G nozzle orientation, there is more risk of weld discontinuity. Second, the weld metal used (Alloy 52M) which has 30 percent chromium is a very sluggish (low fluidity and high viscosity) filler metal to weld. This may create incompletion fusion defects.

Nondestructive Examinations

To ensure reliability of the subsequent pressurizer nozzle weld examinations, the licensee will use the same phased array UT procedure that detected the missed indications, Electric Power Research Institute (EPRI)-WOL-PA-1 Revision 2, "Procedure for Manual Phased Array Ultrasonic Examination of Weld Overlaid Similar and Dissimilar Metal Welds," or a later revision (not publicly available).

The licensee stated that the manual phased array procedure used for the 2013 examinations, EPRI-WOL-PA-1 has been proven effective in qualification testing in accordance with the rules of the ASME Code, Section XI, Appendix VIII, Supplement 11 and has detected laminar reflectors in the field. The phased array examination process that identified the previously undetected flaws has distinct advantages that enhance the examiner's ability to detect and size flaws.

The licensee has implemented enhanced procedures to control and monitor UT activities with special considerations for plant-specific and industry operating experience related to missed indications. The licensee stated that its new, enhanced procedures contain the latest industry guidance developed by the NDE [non-destructive examination] Improvement Focus Group (NIFG) initiated by the industry.

The licensee will examine overlaid welds at safety nozzle A, B, and C, and the spray nozzles during the next three ISI periods in accordance with the ASME Code, Section XI, IWB-2420 to confirm that the identified reflectors have not exceeded the acceptance criteria being established in the RR. The licensee stated that the reexaminations will also include those indications that are located outside the defined ISI volume.

According to the licensee, the subject pressurizer nozzle welds are also subject to visual VT-2 examinations during pressure tests associated with startup every refueling outage.

Hardship Justification

The licensee stated that repairs of the subject overlays in accordance with the ASME Code, Section XI, or NRC-approved RR REP-1 U2, Revision 1, will present following hardship (as stated by the licensee):

1. Repairs to the weld overlay would be required on Safety Nozzle A, Safety Nozzle B, and spray nozzle. These nozzles are located at the top of the pressurizer, which is approximately 25 feet from the containment floor with intervening hazards. Repair of the overlays will expose personnel to potential fall hazards. Exacerbating the fall hazard, is the tight and awkward environment in which the work is required to be performed, requiring workers to maneuver around pipes and openings in grating.

2. Completion of the repair would incur increased dose. Although the average effective dose rate is not excessive in the area (approximately 4.5 mR [millirem] per hour), the amount of work and number of people required to prepare, perform, monitor, inspect and demobilize from the repair is such that the total dose accumulated is high. Based on schedule and personnel estimates, the total dose required to perform the repair work is at least 2.6 Rem. This would result in this single activity being approximately 10 percent of the total dose expected for an entire refueling outage.

3. The installation of the original weld overlays required rework of pipe hangers and realignment of piping. Although the repair work is not as extensive as the original overlay work, it does have the potential to require rework of some pipe hangars and cutting and re-welding to realign the discharge piping for the two safety relief valve SWOLs that would require repairs. This would further increase personnel exposure to fall hazards and radiation.

Duration of Proposed Alternative (as stated by the licensee)

The alternative examination acceptance criterion of this request will be applied to the subject SWOLs for the expected life of the overlays, which is 20 years beyond the current license expiration date of August 26, 2025.

3.2 NRC Staff Evaluation

The NRC staff reviewed the flaw evaluations, the root cause evaluation, and nondestructive examinations of the overlaid welds to determine the acceptability of the proposed alternative.

Flaw Evaluations

The NRC staff determines that for a given nozzle weld; the licensee analyzed bounding flaws which were combined in accordance with ASME proximity rules. Also, the licensee comprehensively analyzed the indications as laminar flaws and planar flaws.

The indications that the licensee detected are all embedded in the weld overlay or the interface between the weld overlay and the base metal. Therefore, the crack growth, if any, would be caused by fatigue. The NRC staff determines that it is acceptable that the licensee analyzed crack growth based on the fatigue degradation mechanism. The NRC staff concludes that the licensee calculated fatigue flaw growth to the end of plant life in 38 years which is consistent with the end of the license renewal period for the unit and that the amount of crack growth is reasonable.

The NRC staff determines that the licensee has used rigorous finite element modeling and linear elastic fracture mechanics to obtain stresses and stress intensity factors to demonstrate the structural integrity of the subject welds.

The NRC staff verified that the licensee used the ASME Code, Section III, article NB-3227.2 to demonstrate that the weld overlay length, considering the indications, of the overlaid welds at pressurizer safety and spray nozzles is sufficient to transfer the load through shear back to the base metal. The NRC staff concludes that the licensee has demonstrated the structural integrity of the overlaid welds at pressurizer safety and spray nozzles in accordance with the ASME Code, Section III.

The NRC staff determines the final flaw areas and flaw length of the laminar indications are within allowable limits as specified in ASME Code, Section XI, IWB-3514-3. The NRC concludes that the licensee has demonstrated that the postulated planar flaws in the overlaid welds at safety and spray nozzles are acceptable in accordance with the ASME Code, Section XI, IWB-3600.

Root Cause

The NRC staff reviewed the description of the licensee's root cause evaluation contained in the RR. This review was primarily focused on whether the inspection procedures which will be used by the licensee in the future can be expected to identify defects and/or growth in defects in the weld overlays. Based on both the success of the last inspections as well as the issues identified in the licensee's root cause evaluation, the NRC concludes that the licensee's inspection procedures provide reasonable assurance that defects in the weld overlays will be identified in future inspections.

Nondestructive Examinations

The NRC staff notes that the licensee is required to perform periodic UT of the subject welds in accordance with ASME Code Case N-770-1, "Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds Fabricated with UNS N06082 or UNS W86182 Weld Filler Material With or Without Application of Listed Mitigation Activities, Section XI, Division 1," as conditioned in 10 CFR 50.55a(6)(g)(II)(F).

In addition, the licensee is required to perform three successive UT examinations of the overlaid pressurizer nozzle welds that contain the unacceptable indications in accordance with the ASME Code, Section XI, IWB-2420. The licensee also is required to perform visual VT-2 examinations when performing system leakage testing in accordance with the ASME Code, Section XI, IWA-5000 in every refueling outage. Based on the proposed inspection procedures and anticipated growth of the indications, the NRC staff concludes that augmentation of the mandatory inspections is not required.

Hardship Determination

The NRC staff concludes that the repair of the subject weld overlays in accordance with the requirements of the ASME Code, Section XI, and NRC-approved RR REP-1 U2, Revision 1 would generate adverse stresses on the subject overlaid DMWs. This would not enhance the safety of the plant. Additionally, repairing the weld would involve personnel hazards associated with making the repair as well as radiation dose. Therefore, the NRC staff concludes that compliance with the specified requirements would result in hardship.

Summary

Based on the above, the NRC staff concludes that the licensee has provided reasonable assurance of the structural integrity and leak tightness of the subject pressurizer safety and spray nozzle welds based on flaw evaluations, root cause evaluation, and enhanced UT. Additionally, the NRC concludes that, when compared to the proposed alternative, making the repair as required by the ASME Code does not provide a compensating increase in the level of quality and safety.

4.0 CONCLUSION

As set forth above, the NRC staff has determined that the licensee's proposed alternative provides reasonable assurance of structural integrity and leak tightness of the subject overlaid welds. The NRC staff has also determined that complying with the specified ASME Code requirements and NRC-approved RR REP-1 U2, Revision 1, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(ii). Therefore, the NRC authorizes use of RR SWOL-REP-1 U2 at the DCPP, Unit 2, for the expected life of the overlays, which is August 26, 2045.

All other requirements in ASME Code, Section XI and NRC-approved RR REP-1 U2, Revision 1, for which relief was not specifically requested and approved in this RR remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: John Tsao, NRR/DE/EPNB

Date: October 14, 2014

All other requirements in ASME Code, Section XI and NRC-approved RR REP-1 U2, Revision 1, for which relief was not specifically requested and approved in this RR remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

If you have any questions, please contact the NRC project manager, Eric Oesterle, at 301-415-1014 or via e-mail at Eric.Oesterle@nrc.gov.

Sincerely,

/ RA C. Fred Lyon for /

Michael T. Markley, Chief
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-323

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv

DISTRIBUTION:
PUBLIC
LPL4-1 Reading
RidsAcrsAcnw_MailCTR Resource
RidsNrrDeEpnb Resource
RidsNrrDorlLpl4-1 Resource
RidsNrrLAJBurkhardt Resource
RidsNrrPMDiabloCanyon Resource
RidsRgn4MailCenter Resource

ADAMS Accession No.: ML14255A232 *SE via email dated

OFFICE	NRR/DORL/LPL4-1/PM	NRR/DORL/LPL4-1/PM	NRR/DORL/LPL4-1/LA	NRR/DE/EPNB/BC	NRR/DORL/LPL4-1/BC
NAME	BSingal	EOesterle	JBurkhardt	DAlley*	MMarkley FLyon for
DATE	10/14/14	10/14/14	9/18/14	9/10/14	10/14/14

OFFICIAL RECORD COPY