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CALVERT CLIFFS
NUCLEAR POWER PLANT

February 13, 2014

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
License Amendment Request: Pressurizer Safety Valve Technical Specification Revision

Pursuant to 10 CFR 50.90, Calvert Cliffs Nuclear Power Plant, LLC hereby requests an amendment to the Renewed Operating License Nos. DPR-53 and DPR-69 for Calvert Cliffs Unit Nos. 1 and 2, respectively that revises Technical Specification 3.4.10, Pressurizer Safety Valves. The proposed change modifies the as-found lift tolerances in the Surveillance Requirement for the pressurizer safety valves.

This change is proposed to reduce an unnecessarily restrictive Surveillance Requirement. The change will not impact the reliability of the pressurizer safety valves or adversely impact their ability to perform their safety function.

The significant hazards discussion and the technical basis for this proposed change are provided in Attachment (1). The marked up Technical Specification and Bases pages are provided in Attachment (2). The Technical Specification Bases page is provided for information only.

In support of the License Amendment Request, analyses were performed to demonstrate Reactor Coolant Pressure Boundary integrity with a previously approved Nuclear Regulatory Commission (NRC) methodology. However, as described in Attachment (1), the NRC determined that updates to the approved methodology were necessary. A restriction provided in Appendix C of each Unit's Operating License requires prior NRC approval of a Calvert Cliffs-specific basis for the use of this methodology. Therefore, Calvert Cliffs also requests NRC approval of the methodology used for the analyses supporting this license amendment request.

Attachment (3) provides a summary of the analyses supporting the change in the pressurizer safety valve lift settings and provides information to demonstrate the use of the methodology now addresses the

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original NRC concerns. The method used to address the issue has been discussed with the NRC staff during 2012 and 2013 and the NRC staff indicated that it believed the approach proposed by AREVA is acceptable.

A summary of AREVA analyses is provided as Attachment (3). These analyses contain information that is proprietary to AREVA; therefore, it is accompanied by an affidavit signed by AREVA, the owner of the information (Attachment 5). The affidavit sets forth the basis on which the information may be withheld for public disclosure by the Commission, and address, with specificity, the considerations listed in 10 CFR 2.390(b)(4). Accordingly, it is requested that the information that is proprietary to AREVA be withheld from public disclosure. The non-proprietary version of the analysis summary (Attachment 4) is included for public disclosure.

There are no regulatory commitments associated with this proposed amendment.

Calvert Cliffs Nuclear Power Plant requests approval of this proposed amendment by April 1, 2015 with an implementation period of the end of the second refueling outage following approval. Implementation of this proposed amendment is dependent upon physically resetting the pressurizer safety valve lift setpoints prior to their installation in the Unit. The lift setpoints are set at the manufacturer following each outage. Therefore, we request an implementation period sufficient to allow the pressurizer safety valves to be set at the manufacturer prior to their installation in the Units during their next refueling outage.

Should you have questions regarding this matter, please contact Mr. Douglas E. Lauver at (410) 495-5219.

I declare under penalty of perjury that the foregoing is true and correct. Executed on February 13, 2014.

Very truly yours,

GHG/PSF/bjd

Attachments:
(1) Evaluation of the Proposed Change
(2) Marked up Technical Specification and Bases Pages
(3) Summary of Analysis Supporting the Pressurizer Safety Valve Technical Specification Change – Proprietary
(4) Summary of Analysis Supporting the Pressurizer Safety Valve Technical Specification Change – Non-Proprietary
(5) AREVA Affidavit

cc: **Without Attachment (3)**
NRC Project Manager, Calvert Cliffs
NRC Regional Administrator, Calvert Cliffs
Resident Inspector, NRC
S. Gray, MD-DNR

ATTACHMENT (1)

EVALUATION OF THE PROPOSED CHANGE

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ATTACHMENT (1)

EVALUATION OF THE PROPOSED CHANGE

1.0 SUMMARY DESCRIPTION

This evaluation supports a request to amend Renewed Operating Licenses DPR-53 and DPR-69 for Calvert Cliffs Nuclear Power Plant (Calvert Cliffs) Unit Nos. 1 and 2.

The proposed change would revise Technical Specification (TS) 3.4.10, Pressurizer Safety Valves. The proposed change increases the as-found pressurizer safety valve (PSV) lift tolerances in Surveillance Requirement 3.4.10.

2.0 DETAILED DESCRIPTION

Technical Specification 3.4.10 requires the two PSVs in each unit [1(2)RC-200 and 1(2)RC-201] to be operable during Modes 1, 2, and in Mode 3 when the Reactor Coolant System (RCS) cold leg temperature is > 365°F (Unit 1), > 301°F (Unit 2). Surveillance Requirement 3.4.10.1 establishes the lift setting limits for the PSVs as shown below:

Valve	As Found Lift Setting (psia)	As Left Lift Setting (psia)
1(2) RC-200	≥ 2475 and ≤ 2550	≥ 2475 and ≤ 2525
1(2) RC-201	≥ 2514 and ≤ 2616	≥ 2540 and ≤ 2590

A change in the as-found lift tolerances for both valves and the lift setpoint for RC-201, result in the changes to the lift settings as shown below:

Valve	As Found Lift Setting (psia)	As Left Lift Setting (psia)
1(2) RC-200	≥ 2475 and ≤ 2575	≥ 2475 and ≤ 2525
1(2) RC-201	≥ 2475 and ≤ 2600	≥ 2500 and ≤ 2550

Attachment (2) provides the existing TS page marked-up to show the proposed change. A marked-up page showing corresponding change to the TS Bases are also provided in Attachment (2) for information only. The TS Bases page is processed in accordance with the TS Bases Control Program (TS 5.5.14).

3.0 TECHNICAL EVALUATION

This change is proposed to reduce an unnecessarily restrictive Surveillance Requirement. The change will not impact the reliability of the pressurizer safety valves or adversely impact their ability to perform their safety function.

The proposed change increases the allowable as-found PSV setpoint tolerance on RC-200 from (-1% / +2%) to (-1% / +3%) and on RC-201 from (± 2%) to (-2% / +3%). The as-left tolerances remain (± 1%). The as-found lift tolerances are used for determining operability. In support of this proposed change, AREVA evaluated four non-loss-of-coolant accident transients that have a RCS pressure excursion large enough that the PSVs open. Based on these analyses, the nominal setpoint for RC-201 has been reduced from 2565 psia to 2525 psia. The nominal setpoint for RC-200 remains at 2500 psia.

The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section III, requires that the reactor pressure vessel be protected from overpressure during upset conditions by self-actuated safety valves. As part of the nuclear pressure relief system, the size and number of PSVs are selected such that peak pressure in the RCS will not exceed the ASME Code limit, defined as 110% of the RCS design limit (2500 psia). In the case of Calvert Cliffs, the RCS upset limit is 2750 psia. This limit (2750 psia) is also contained in TS 2.1.2, RCS Safety Limits.

Accident Analysis

Acceptable transient analysis must demonstrate that applicable reactor protective features serve to terminate an event and mitigate its consequences without exceeding the reactor coolant pressure boundary safety limit. The transient analysis accounts for the entire range of permissible operation and identifies the limiting transient scenario, including the limiting initiating event and limiting initial conditions. This range is defined by Calvert Cliffs TSs. There are four Updated Final Safety Analysis Report (UFSAR) Chapter 14 peak pressure events which are analyzed against the RCS upset limit. Action of the PSVs is required to mitigate the consequences of the following events: loss of electrical load, loss of feedwater flow, feedline break, and control element assembly ejection accident. Attachments (3) and (4) provide the results of those analyses.

Two safety valves located on the pressurizer provide overpressure protection for the RCS. They are totally enclosed, back pressure compensated, spring-loaded safety valves meeting ASME Boiler and Pressure Vessel Code requirements. The stress analysis for these valves included the effects of sudden opening of these valves, and support and restraint locations are selected on this basis. The safety valves pass sufficient pressurizer steam to limit the primary system pressure to 110% of design (2750 psia) for all analyzed events. To determine the maximum steam flow, the only other pressure relieving system assumed operational is the steam system safety valves. Conservative values for all system parameters, delay times, and core moderator coefficient are assumed.

Both PSVs are required to be Operable during plant operation in Modes 1 and 2 and in Mode 3 when temperatures are > 365°F for Unit 1, and > 301°F for Unit 2. Below those temperatures in Mode 3 and while in Modes 4, 5, and 6, the two PSVs are not required to be operable as overpressure protection is maintained through the low temperature over pressure Technical Specification (TS 3.4.12).

To demonstrate the PSVs ability to meet their required safety function, the PSVs are periodically tested in accordance with Surveillance Requirement 3.4.10.1.

Technical Specification Bases 3.4.10 indicates the PSVs are required in Modes 1 and 2 and portions of Mode 3 above the low temperature over pressure temperatures because the combined capacity of the two PSVs is required to keep reactor coolant pressure below 110% of its design value during certain design bases accidents. However, it also states that Mode 3 is conservatively included although the listed accidents may not require both safety valves for overpressure protection. To ensure the Unit maintains adequate reactor coolant and main steam system overpresssure protection, analyses were performed for the four design basis events that challenge peak pressure criteria. These analyses are summarized in Attachments (3) and (4) and address the following events:

1. Loss of Load (UFSAR Section 14.5)
2. Loss of Feedwater Flow (UFSAR Section 14.6)
3. Control Element Assembly Ejection Event (UFSAR Section 14.13)
4. Feedline Break (UFSAR Section 14.26)

The results of these analyses show that the RCS pressure does not exceed the RCS Safety Limit of 2750 psia with the new setpoint for RC-201 and the new setpoint tolerances for both RC-200 and RC-201.

Analysis Methodology

In Reference 1, we requested various Technical Specification changes needed to support a transition from Westinghouse nuclear fuel to AREVA nuclear fuel. In 2011, Unit 2 began operating with the first core loading of AREVA fuel. Along with the physical fuel change, a change from Westinghouse Turbo fuel design and analysis methods to AREVA Advanced CE-14 high thermal performance fuel design and analysis methods was also required. These design and analysis methods and their acceptance criteria were approved by the Nuclear Regulatory Commission (NRC) in Reference 2 with restrictions.

One restriction provided in Appendix C of each Unit's Renewed Operating License is as follows:

> *Approval of the use of S-RELAP5 (Technical Specification 5.6.5.b.8) is restricted to only those safety analyses that confirm acceptable transient performance relative to the specified acceptable fuel design limits. Prior transient specific NRC approval is required to analyze transient performance relative to reactor coolant pressure boundary pressure integrity until NRC approval is obtained for a generic or Calvert Cliffs specific basis for the use of the methodology in Technical Specification 5.6.5.b.8 to demonstrate reactor coolant pressure boundary integrity.*

Technical Specification 5.6.5, Core Operating Limits Report (COLR), lists the previously reviewed and approved analytical methods used to determine the core operating limits. It includes EMF-2310(P)(A), "SRP Chapter 15 Non-LOCA Methodology for Pressurized Water Reactors." This is the methodology used in the analysis described above and presented in Attachments (3) and (4). Because this method is used to demonstrate reactor coolant pressure boundary integrity in support of the PSV setpoint tolerance change, NRC approval is required for this Calvert Cliffs specific basis.

This License Condition is related to one aspect of the methodology used in evaluating the acceptability of limiting pressure transients in the RCS. Specifically, the NRC staff expressed concern that initial conditions prescribed by the approved methodology may not appropriately consider uncertainties, TS Limiting Safety System Settings, or TS Limiting Conditions for Operation.

The NRC Safety Evaluation Report approving EMF-2310(P)(A) states that the analyst is responsible for choosing correct input parameters that are consistent with facility licensing basis and TS requirements, and with NRC regulatory guidance. The NRC staff was concerned that Chapter 5 of EMF-2310(P)(A) is too prescriptive regarding the selection of certain input parameters. In some cases, parameters taken at the initial condition prescribed by the approved methodology may not have appropriately considered uncertainties, TS Limiting Safety System Settings, or TS Limiting Conditions for Operation.

To address this concern, AREVA has been in ongoing discussions with the NRC staff since 2012. The selection and biasing of certain input parameters for the analysis described in Attachments (3) and (4) is consistent with the NRC's Safety Evaluation Report for EMF-2310(P)(A) and the Standard Review Plan. The NRC staff indicated that it believed the approach proposed by AREVA is acceptable.

Mechanical

The PSV discharge piping has been reviewed for the effects of increasing the RC-200 as-found setpoint tolerance high side from 2550 psia to 2575 psia. All other setpoint and setpoint tolerance changes were reductions in pressure. The design basis load stresses will remain less than the original American National Standards Institute/ASME Code allowable stress. Additionally, the associated restraint loading and deflection from the increase in RC-200 setpoint tolerance were reviewed against the current restraint design and they indicate that the restraints will accommodate the effects of an increase in the RC-200 setpoint tolerance when the Technical Specification change is implemented.

The existing PSVs are tested in accordance with the ASME OM Code, Subsection ISTC and Mandatory Appendix I. The Calvert Cliffs fourth 10-year interval Inservice Testing program requires that the PSVs be tested at least once every 5 years with 20% of the valves being tested at least every 24 months. The as-found acceptance criteria for those valves is the more restrictive of either the ± tolerance limit of the owner established set-pressure acceptance criteria (i.e., currently in the TS) or ± 3% of valve nameplate set-pressure. Since the ASME OM Code allows a ± 3% limit to be used, no relief from the ASME OM Code is required with regard to the setpoint tolerance change.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

Calvert Cliffs Unit Nos. 1 and 2 were designed and constructed to meet the requirements of the Atomic Energy Commission's July 10, 1967 proposed General Design Criteria for nuclear power plants. The requirements governing the design of Calvert Cliffs Reactor Coolant System (RCS) overpressure protection include:

- Draft General Design Criterion 33, Reactor Coolant Pressure Boundary Capability. This draft General Design Criterion requires that the reactor coolant pressure boundary be capable of accommodating without rupture the static and dynamic loads imposed on any boundary component as a result of any inadvertent and sudden release of energy to the coolant.

Additionally, Standard Review Plan 5.2.2, Overpressure Protection requires RCS safety valves to be designed with sufficient capacity to limit RCS pressure to less than 110% of RCS pressure boundary design pressure during the most severe abnormal operational transient.

Since the design bases accidents that experience an overpressure condition in the RCS were evaluated and found to limit the RCS pressure to less than 110% of the design pressure, the new setpoint for RC-201 and the new setpoint tolerances for RC-200 and RC-201 are acceptable. As a result the proposed change continues to meet all applicable regulatory requirements and criteria.

4.2 Significant Hazards Consideration

Calvert Cliffs is proposing a change to Technical Specification 3.4.10, Pressurizer Safety Valves (PSVs), to modify the as-found and as-left lift settings in the Surveillance Requirement. The proposed change has been evaluated against the three standards contained in 10 CFR 50.92 and has been determined to not involve a significant hazards consideration in the operation of the facility for the reasons provided below.

1. *Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?*

   No.

   The proposed change, modifying the as-found and as-left lift settings in the Surveillance Requirement of the PSVs, does not change the design function or operation of the PSVs and it does not change the way the PSVs are maintained, tested, or inspected. The PSVs are not accident initiators, they operate in response to the pressurization of the Reactor Coolant System (RCS). They limit the pressure of the RCS to less than the allowable American Society of Mechanical Engineers Boiler and Pressure Vessel, Section III Code during an accident or transient. Analyses were performed of peak pressure events, which are evaluated against the RCS limit. Action of the PSVs is required to mitigate the consequences of these events. The change in the setpoint tolerance and a change in one valve's

nominal setpoint were explicitly considered in the analysis of these events. The RCS pressure remained below the required limits with these changes considered. Therefore, this change does not impact the ability of the PSVs to perform their safety function during evaluated accidents.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. *Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?*

   No.

   The proposed change, modifying the as-found and as-left lift settings in the Surveillance Requirement of the PSVs, does not change the PSVs design function to maintain RCS pressure below the RCS pressure Safety Limit of 2750 psia during design basis accidents nor does it affect the PSVs ability to perform this design function. The proposed change does not require any modification to the plant (other than the setpoint change) or change equipment operation or testing. It also does not create any credible new failure mechanisms, malfunctions, or accident initiators that would cause an accident not previously considered.

   Therefore the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. *Does the proposed amendment involve a significant reduction in a margin of safety?*

   No.

   The proposed change, modifying the as-found and as-left lift settings in the Surveillance Requirement of the PSVs, does not involve a significant reduction in the margin of safety in maintaining RCS pressure below Safety Limits of 2750 psia during design basis accidents. The analyses conducted in support of this proposed change evaluated the ability of the PSVs to maintain an adequate safety margin assuming the change in setpoint tolerances and a change in one valve's nominal setpoint. The analysis determined that the response of the PSVs would maintain an adequate safety margin to the reactor coolant Safety Limit of 2750 psia.

   Therefore the proposed change does not involve a significant reduction in the margin of safety of maintaining RCS pressure the below RCS pressure Safety Limit.

Based on the above, Calvert Cliffs concludes that the proposed change does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.3 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

The proposed amendment would change a requirement with respect to installed facility components located within the restricted area of the plant as defined in 10 CFR Part 20. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

1. Letter from T. E. Trepanier (CCNPP) to Document Control Desk (NRC), dated November 23, 2009, License Amendment Request – Transition from Westinghouse Nuclear Fuel to AREVA Nuclear Fuel
2. Letter from D. V. Pickett (NRC) to G. H. Gellrich (CCNPP), dated February 18, 2011, Amendment Re: Transition from Westinghouse Nuclear Fuel to AREVA Nuclear Fuel

ATTACHMENT (2)

MARKED UP TECHNICAL SPECIFICATION AND BASES PAGES

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met. OR Two pressurizer safety valves inoperable.	B.1 Be in MODE 3. AND B.2 Reduce all RCS cold leg temperatures to ≤ 365°F (Unit 1), ≤ 301°F (Unit 2).	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.10.1	Verify each pressurizer safety valve is OPERABLE in accordance with the Inservice Testing Program. The lift settings shall be within limits as specified below:	In accordance with the Inservice Testing Program

Valve	As Found Lift Setting (psia)	As Left Lift Setting (psia)
RC-200	≥ 2475 and ≤ ~~2550~~ 2575	≥ 2475 and ≤ 2525
RC-201	≥ ~~2514~~ 2475 and ≤ ~~2616~~ 2600	≥ ~~2540~~ 2500 and ≤ ~~2590~~ 2550

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.10.1

Surveillance Requirements are specified in the Inservice Testing Program. Pressurizer safety valves are to be tested in accordance with the requirements of Reference 1, which provides the activities and the Frequency necessary to satisfy the SRs. No additional requirements are specified.

The pressurizer safety valves' setpoints are 2500 psia (+3%, -2%) and 2525 psia (± 2%) for OPERABILITY; however, the valves are reset to ± 1% during the surveillance test to allow for drift.

REFERENCES

1. ASME Code for Operation and Maintenance of Nuclear Power Plants

ATTACHMENT (5)

AREVA AFFIDAVIT

AFFIDAVIT

COMMONWEALTH OF VIRGINIA)
) ss.
CITY OF LYNCHBURG)

1. My name is Gayle F. Elliott. I am Manager, Product Licensing, for AREVA Inc. (AREVA) and as such I am authorized to execute this Affidavit.

2. I am familiar with the criteria applied by AREVA to determine whether certain AREVA information is proprietary. I am familiar with the policies established by AREVA to ensure the proper application of these criteria.

3. I am familiar with the AREVA information contained in Attachment 3 to a letter from G. H. Gellrich (Calvert Cliffs Nuclear Power Plant) to Document Control Desk (NRC) entitled "License Amendment Request: Pressurizer Safety Valve Technical Specification Revision," numbered NRC 13-057 and referred to herein as "Document." Information contained in this Document has been classified by AREVA as proprietary in accordance with the policies established by AREVA for the control and protection of proprietary and confidential information.

4. This Document contains information of a proprietary and confidential nature and is of the type customarily held in confidence by AREVA and not made available to the public. Based on my experience, I am aware that other companies regard information of the kind contained in this Document as proprietary and confidential.

5. This Document has been made available to the U.S. Nuclear Regulatory Commission in confidence with the request that the information contained in this Document be withheld from public disclosure. The request for withholding of proprietary information is made in accordance with 10 CFR 2.390. The information for which withholding from disclosure is

requested qualifies under 10 CFR 2.390(a)(4) "Trade secrets and commercial or financial information."

6. The following criteria are customarily applied by AREVA to determine whether information should be classified as proprietary:

(a) The information reveals details of AREVA's research and development plans and programs or their results.

(b) Use of the information by a competitor would permit the competitor to significantly reduce its expenditures, in time or resources, to design, produce, or market a similar product or service.

(c) The information includes test data or analytical techniques concerning a process, methodology, or component, the application of which results in a competitive advantage for AREVA.

(d) The information reveals certain distinguishing aspects of a process, methodology, or component, the exclusive use of which provides a competitive advantage for AREVA in product optimization or marketability.

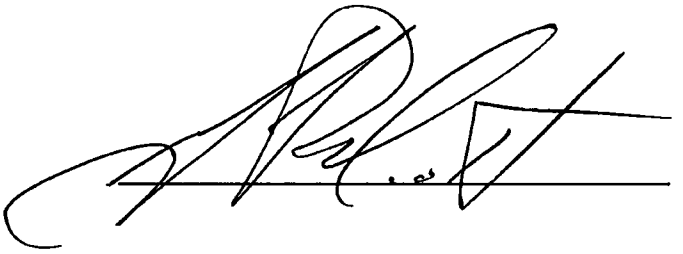
(e) The information is vital to a competitive advantage held by AREVA, would be helpful to competitors to AREVA, and would likely cause substantial harm to the competitive position of AREVA.

The information in this Document is considered proprietary for the reasons set forth in paragraphs 6(c) and 6(d) above.

7. In accordance with AREVA's policies governing the protection and control of information, proprietary information contained in this Document has been made available, on a limited basis, to others outside AREVA only as required and under suitable agreement providing for nondisclosure and limited use of the information.

8. AREVA policy requires that proprietary information be kept in a secured file or area and distributed on a need-to-know basis.

9. The foregoing statements are true and correct to the best of my knowledge, information, and belief.



SUBSCRIBED before me this 7th day of February, 2014.

Sherry L. McFaden
NOTARY PUBLIC, COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES: 10/31/14
Reg. # 7079129

SHERRY L. MCFADEN
Notary Public
Commonwealth of Virginia
7079129
My Commission Expires Oct 31, 2014