



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

October 4, 2021

Mr. David P. Rhoades  
Senior Vice President  
Exelon Generation Company, LLC  
President and Chief Nuclear Officer  
Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

**SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2 – BIENNIAL  
PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT  
05000317/2021012 AND 05000318/2021012**

Dear Mr. Rhoades:

On September 3, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed a problem identification and resolution inspection at your Calvert Cliffs Nuclear Power Plant, Units 1 and 2 and discussed the results of this inspection with Mr. Joseph Dullinger, Plant Manager, and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspection team reviewed the station's corrective action program and the station's implementation of the program to evaluate its effectiveness in identifying, prioritizing, evaluating, and correcting problems, and to confirm that the station was complying with NRC regulations and licensee standards for corrective action programs. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

The team also evaluated the station's processes for use of industry and NRC operating experience information and the effectiveness of the station's audits and self-assessments. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

Finally the team reviewed the station's programs to establish and maintain a safety-conscious work environment, and interviewed station personnel to evaluate the effectiveness of these programs. Based on the team's observations and the results of these interviews the team found no evidence of challenges to your organization's safety-conscious work environment. Your employees appeared willing to raise nuclear safety concerns through at least one of the several means available.

No findings or violations of more than minor significance were identified during this inspection.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

Matt R. Young, Chief  
Projects Branch 5  
Division of Operating Reactor Safety

Docket Nos. 05000317 and 05000318  
License Nos. DPR-53 and DPR-69

Enclosure:  
As stated

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SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2 – BIENNIAL  
PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT  
05000317/2021012 AND 05000318/2021012 DATED OCTOBER 4, 2021

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**U.S. NUCLEAR REGULATORY COMMISSION  
Inspection Report**

Docket Numbers: 05000317 and 05000318

License Numbers: DPR-53 and DPR-69

Report Numbers: 05000317/2021012 and 05000318/2021012

Enterprise Identifier: I-2021-012-0030

Licensee: Exelon Generation Company, LLC

Facility: Calvert Cliffs Nuclear Power Plant, Units 1 and 2

Location: Lusby, MD

Inspection Dates: August 16, 2021 to September 3, 2021

Inspectors: R. Clagg, Senior Resident Inspector  
S. Haney, Senior Project Engineer  
Z. Hollcraft, Senior Reactor Operations Engineer  
M. McLaughlin, Senior Enforcement Specialist

Approved By: Matt R. Young, Chief  
Projects Branch 5  
Division of Operating Reactor Safety

Enclosure

## **SUMMARY**

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a biennial problem identification and resolution inspection at Calvert Cliffs Nuclear Power Plant, Units 1 and 2, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

### **List of Findings and Violations**

No findings or violations of more than minor significance were identified.

### **Additional Tracking Items**

None.

## **INSPECTION SCOPES**

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards. Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the coronavirus (COVID-19), inspectors were directed to begin telework. In addition, regional baseline inspections were evaluated to determine if all or a portion of the objectives and requirements stated in the IP could be performed remotely. The following inspection activities were conducted in accordance with the IP on site. The inspections documented below met the objectives and requirements for completion of the IP.

### **OTHER ACTIVITIES – BASELINE**

#### 71152B - Problem Identification and Resolution

#### Biennial Team Inspection (IP Section 02.04) (1 Sample)

- (1) The inspectors performed a biennial assessment of Exelon's corrective action program, use of operating experience, self-assessments and audits, and safety conscious work environment.
  - Corrective Action Program Effectiveness: The inspectors assessed the corrective action program's effectiveness in identifying, prioritizing, evaluating, and correcting problems. The inspectors also conducted a five-year review of corrective actions for issues identified in the Unit 1 and 2 fire protection systems, and issues related to the performance of the Unit 1 and 2 service water heat exchangers.
  - Operating Experience, Self-Assessments and Audits: The inspectors assessed the effectiveness of the station's processes for use of operating experience, audits and self-assessments.
  - Safety Conscious Work Environment: The inspectors assessed the effectiveness of the station's programs to establish and maintain a safety conscious work environment.

## INSPECTION RESULTS

Assessment	71152B
Corrective Action Program Effectiveness –	
<p><u>Problem Identification</u>: The inspectors determined that, Exelon appropriately identified issues and entered them into the corrective action program at a low threshold.</p> <p><u>Problem Prioritization and Evaluation</u>: Based on the samples reviewed, the inspectors determined that, Exelon appropriately prioritized and evaluated issues commensurate with the safety significance of the identified problem. Exelon appropriately screened issue reports (IRs) for operability and reportability, categorized IRs by significance, and assigned actions to the appropriate department for evaluation and resolution.</p> <p>However, the inspectors identified one minor performance deficiency regarding Exelon's performance of a root cause evaluation. The details of the minor performance deficiency are documented in the applicable section below.</p> <p><u>Corrective Actions</u>: The inspectors determined that the overall corrective action program performance related to resolving problems was effective. In most cases, Exelon implemented corrective actions to resolve problems in a timely manner.</p>	

Assessment	71152B
Use of Operating Experience -	
<p>The team determined that Exelon appropriately evaluated industry operating experience for its relevance to the facility. Exelon appropriately incorporated both internal and external operating experience into plant procedures and processes, as well as lessons learned for training and pre-job briefs.</p> <p>Self-Assessments and Audits -</p> <p>The team reviewed a sample of self-assessments and audits to assess whether Exelon was identifying and addressing performance trends. The team concluded that Exelon had an effective self-assessment and audit process.</p>	

Assessment	71152B
Safety Conscious Work Environment -	
<p>The team interviewed a total of 25 individuals across different functional areas to determine the adequacy of the safety conscious work environment. The purpose of these interviews was: (1) to evaluate the willingness of the Exelon staff to raise nuclear safety issues, (2) to evaluate the perceived effectiveness of the corrective action program at resolving identified problems, and (3) to evaluate Exelon's safety conscious work environment. The personnel interviewed were randomly selected by the inspectors from the Operations, Engineering, Maintenance, Security, Chemistry, and Radiation Protection work groups. To supplement these discussions, the team interviewed the Employee Concerns Program (ECP) representative to assess his perception of the site employees' willingness to raise nuclear safety concerns. The team also reviewed the ECP case log and select case files.</p>	

All individuals interviewed indicated that they would raise safety concerns. All individuals felt that their management was receptive to receiving safety concerns and generally addressed them promptly, commensurate with the significance of the concern. Most interviewees indicated they were adequately trained and proficient on initiating condition reports. All interviewees were aware of the Exelon's ECP, stated they would use the program if necessary, and expressed confidence that their confidentiality would be maintained if they brought issues to the ECP. When asked whether there have been any instances where individuals experienced retaliation or other negative reaction for raising safety concerns, all individuals interviewed stated that they had neither experienced nor heard of an instance of retaliation at the site. The team determined that the processes in place to mitigate potential safety conscious work environment issues were adequately implemented.

Minor Performance Deficiency	71152B
<p>Minor Performance Deficiency: The inspectors identified a minor performance deficiency related to an incorrectly performed safety culture assessment. The inspectors reviewed the root cause analysis performed under IR 4410594, which evaluated a Unit 2 manual reactor trip due to lowering steam generator level that occurred on March 21, 2021. PI-AA-125-1001, "Root Cause Analysis Manual," directs the performance of a safety culture review in accordance with PI-AA-125-1006, "Investigation Techniques Manual," to ensure that the investigation adequately addresses the NRC Safety Culture as defined in NRC IMC 0310, "Aspects Within the Cross-Cutting Areas."</p> <p>Exelon incorrectly determined there were no applicable safety culture attributes in their completion of the safety culture assessment due to a misinterpretation of how to perform the assessment. PI-AA-125-1006, Attachment 17, "Safety Culture Assessment," directs, "Upon determination of the team conclusions, identify which, if any, of the [root cause report] causes/findings fit into one or more of the safety culture aspects listed." Exelon believed that the causes evaluated had to be systemic in order for there to be a gap that needed to be addressed, when in fact, each individual cause should have been evaluated specific to the event.</p> <p>Exelon entered this performance deficiency into their corrective action program under IR 4443495, and took actions to reperform the safety culture assessment and revise the root cause report, as applicable. Additionally, the corrective action program manager shared lessons learned with all root cause lead investigators and organizational advocates at Calvert Cliffs and with their corrective action program manager peer group</p> <p>Screening: The inspectors determined the performance deficiency was minor. Specifically, although assigning applicable safety culture cross-cutting aspects can result in generation of additional corrective actions and serves as a data point for trending in accordance with PI-AA-1012, "Safety Culture Monitoring," flagging that attribute would not have identified any additional actions, and the issue was included as a process input in the Nuclear Safety Culture Review Meeting for trending.</p>	



## **EXIT MEETINGS AND DEBRIEFS**

The inspectors verified no proprietary information was retained or documented in this report.

- On September 3, 2021, the inspectors presented the biennial problem identification and resolution inspection results to Mr. Joseph Dullinger, Plant Manager, and other members of the licensee staff.

## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71152B	Calculations	CA03477	Service Water Heat Exchanger Thermal Performance Evaluation	2
	Corrective Action Documents		1700159, 2398885, 2663759, 2736009, 3983764, 3986935, 4015314, 4094397, 4212617, 4218408, 4227867, 4228299, 4235711, 4255190, 4259835, 4281429, 4286658, 4286743, 4290194, 4294357, 4294903, 4296565, 4304109, 4304274, 4305217, 4307603, 4318618, 4321514, 4324175, 4325204, 4325473, 4328782, 4338038, 4343324, 4351144, 4361393, 4364989, 4367814, 4368466, 4369686, 4384711, 4384715, 4385647, 4386088, 4387328, 4387873, 4388602, 4390309, 4391803, 4396036, 4396038, 4396365, 4400101, 4400211, 4400313, 4408970, 4409105, 4410557, 4410594, 4416237, 4417389, 4422152, 4423842, 4428393, 4428640, 4429419, 4432151, 4434456, 4436068, 4440285, 4440581, 4441308, 4441396, 4443708	
		CR-2013-006198		
	Corrective Action Documents Resulting from Inspection		4441215, 4441365, 4441396, 4441414, 4441416, 4442904, 4443495, 4443512, 4443777, 4443983	
	Drawings	60731SH0002	Operations Drawing Safety Injection & Containment Spray Systems	51
		62731SH0002	Safety Injection & Containment Spray Systems	50
	Miscellaneous		Calvert Cliffs Fire Drill Job Familiarization Guide	
			Fire Drill Monitor Required Reading 18-04 Roster	8/30/21
			Security Department PI MRM	4/30/2021
			2013-2020 Annual Radioactive Effluent Release Reports	
			Health Group Health Report, EDG - Diesel Generator	8/11/21
		21-03	Fire Drill Scenario: Unit 2 Lube Oil Conditioner	8/20/2021
		CY-CA-170-301	Offsite Dose Calculation Manual	3
	Procedures	EOP-01-2	Reactor Trip	17
		NISP-PI-02	Conduct of Self-Assessments and Benchmarks	0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		OI-12A-2	Feedwater System	05500
		OI-17B	Waste Gas System	02500
		OI-29-1	Saltwater System	08400
		OI-29-2	Saltwater System	07700
		OI-35	Radiation Monitoring System	04800
		OP-02-2	Plant Startup from Hot Standby to Minimum Load	04900
		OP-03-2	Normal Power Operations	056
		OP-AA-102-103	Operator Work Around Program	4
		PI-AA-101-1001	Performance Monitoring and Analysis Manual	3
		PI-AA-1012	Safety Culture Monitoring	3
		PI-AA-115	Operating Experience Program	5
		PI-AA-115-1001	Processing of Level 1 and 2 OPEX Evaluations	3
		PI-AA-115-1003	Processing of Level 3 OPEX Evaluations	5
		PI-AA-115-1004	Processing of NEB and IRIS Reports	7
		PI-AA-120	Issue Identification and Screening Process	11
		PI-AA-125	Corrective Action Program (CAP) Procedure	7
		PI-AA-125-1001	Root Cause Analysis Manual	6
		PI-AA-125-1003	Corrective Action Program Evaluation Manual	6
		PI-AA-125-1004	Effectiveness Review Manual	2
		PI-AA-125-1006	Investigation Techniques Manual	5
	PI-AA-126-1001	Self-Assessments	4	
	Self-Assessments	4233822	Pre-NRC Problem Identification and Resolution (PI&R) Inspection Assessment	10/17/2019
		4390498	2021 Preparation for NRC Problem Identification and Resolution (PI&R) Inspection (Inspection Manual 71152 Effective 01/01/2015)	06/24/2021
Work Orders		C93739475, C93739566, C93741840, C93743491, C93746932, C93746933, C93746940, C93747900, C93784739		