



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

August 20, 2018

Mr. Brad Sawatzke, Chief Executive Officer
Energy Northwest
MD 1023
P.O. Box 968
Richland, WA 99352

**SUBJECT: COLUMBIA GENERATING STATION – INSPECTION OF THE
IMPLEMENTATION OF MITIGATION STRATEGIES AND SPENT FUEL POOL
INSTRUMENTATION ORDERS AND EMERGENCY PREPAREDNESS
COMMUNICATION/STAFFING/MULTI-UNIT DOSE ASSESSMENT PLANS –
INSPECTION REPORT 05000397/2018010**

Dear Mr. Sawatzke:

On June 14, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed the onsite portion of this inspection at Columbia Generating Station, and continued in-office review and inspection through July 2018. On August 1, 2018, the NRC inspectors discussed the final results of this inspection with Mr. B. Schuetz, Vice President – Operations, and other members of your staff in a telephonic meeting. The results of this inspection are documented in the enclosed report.

The inspection examined activities conducted under your license as they relate to the implementation of mitigation strategies and spent fuel pool instrumentation orders (EA-12-049 and EA-12-051) and Emergency Preparedness Communication, Staffing, and Multi-Unit Dose Assessment Plans, your compliance with the Commission's rules and regulations, and with the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and records, observation of activities, and interviews with station personnel.

The NRC inspectors did not identify any findings or violations of more than minor safety significance.

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 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Mark S. Haire, Chief
Project Branch A
Division of Reactor Projects

Docket: 50-397
License: NPF-21

Enclosure:
Inspection Report 05000397/2018010
w/ Attachment

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

Docket Number: 05000397

License Number: NPF-21

Report Number: 05000397/2018010

Enterprise Identifier: I-2018-010-0069

Licensee: Energy Northwest

Facility: Columbia Generating Station

Location: Richland, Washington

Inspection Dates: June 11, 2018 to July 31, 2018

Inspectors: R. Alexander, Sr. Project Engineer (Team Leader)
G. Kolcum, Sr. Resident Inspector - Columbia
D. Bradley, Sr. Resident Inspector - Callaway
K. Roche, Project Manager/Inspector, NRR

Approved By: Mark S. Haire
Chief, Project Branch A
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring licensee's performance by conducting a Temporary Instruction 2515/191, "Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans" at Columbia Generating Station 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 were identified.

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
TI	2515/191	Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans	Other Activities	Closed

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 team 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.

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS

TI 2515/191 - Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans

The inspection verified plans for complying with NRC Orders EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12056A045) and EA-12-051, Order Modifying Licenses With Regard to Reliable Spent Fuel Pool Instrumentation (ADAMS No. ML12054A679) are in place and are being implemented by the licensee. Additionally, the inspection verified implementation of staffing and communications information provided in response to the March 12, 2012, request for information letter (ADAMS No. ML12053A340) and multiunit dose assessment information provided per COMSECY-13-0010, "Schedule and Plans for Tier 2 Order on Emergency Preparedness for Japan Lessons Learned", dated March 27, 2013, (ADAMS No. ML12339A262).

- (1) Based on samples selected for review, the team inspected to determine whether the licensee satisfactorily implemented appropriate elements of the Diverse and Flexible Coping Strategies (FLEX) as described in the plant specific submittals [including the Final Integrated Plan (ADAMS No. ML17229B506)] and the associated safety evaluation (ADAMS No. ML17333A888), and to determine whether the licensee is in compliance with NRC Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events. Specifically, the team inspected to determine whether the licensee satisfactorily:
 - a) developed and issued FLEX Support Guidelines (FSGs) to implement the FLEX strategies for postulated external events;
 - b) integrated their FSGs into their existing plant procedures such that entry into and departure from the FSGs were clear when using existing plant procedures;
 - c) protected FLEX equipment from site-specific hazards;
 - d) developed and implemented adequate testing and maintenance of FLEX equipment to ensure their availability and capability;

- e) trained their staff to assure personnel proficiency in the mitigation of beyond-design basis events; and
 - f) developed the means to ensure the necessary off-site FLEX equipment would be available from off-site locations.
- (2) Based on samples selected for review, the team inspected to determine whether the licensee satisfactorily implemented appropriate elements of the FLEX strategy as described in the plant specific submittals [including the Final Integrated Plan (ADAMS No. ML17229B506)] and the associated safety evaluation (ADAMS No. ML17333A888), and to determine whether the licensee is in compliance with NRC Order EA-12-051, Order Modifying Licenses With Regard to Reliable Spent Fuel Pool Instrumentation. Specifically, the team inspected to determine whether the licensee satisfactorily:
- a) installed the spent fuel pool (SFP) instrumentation sensors, cabling and power supplies to provide physical and electrical separation as described in the plant specific submittals and safety evaluation;
 - b) installed the SFP instrumentation display in the location, environmental conditions and accessibility as described in the plant specific submittals;
 - c) trained their staff to assure personnel proficiency with the maintenance, testing, and use of the SFP instrumentation; and
 - d) developed and issued procedures for maintenance, testing and use of the reliable SFP instrumentation.
- (3) The team reviewed information provided in the licensee's multi-unit dose submittal and in response to the NRC's March 12, 2012, request for information letter (ADAMS No. ML12053A340), and inspected to determine whether the licensee satisfactorily implemented enhancements pertaining to Near-Term Task Force Recommendation 9.3. Specifically, the team inspected to determine whether:
- a) the licensee satisfactorily implemented required staffing changes to support an extend loss of all AC power (ELAP)/loss of ultimate heat sink (LUHS) scenario;
 - b) emergency preparedness communications equipment and facilities are sufficient for dealing with an ELAP/LUHS scenario; and
 - c) the licensee implemented multi-unit/-source dose assessment capabilities (including releases from spent fuel pools) using the licensee's site-specific dose assessment software and approach.

The team verified that non-compliances with requirements and standards identified during the inspection were entered into the licensee's corrective action program as appropriate.

EXIT MEETINGS AND DEBRIEFS

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

- On June 14, 2018, the inspectors presented the on-site inspection results in a management debrief to Mr. G. Hettel, Chief Nuclear Officer, and other members of the site staff.
- On August 1, 2018, the inspectors presented the complete inspection results in a telephonic exit meeting to Mr. B. Schuetz, Vice President - Operations, and other members of the site staff

DOCUMENTS REVIEWED

TI 2515/191 - Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans

Corrective Action Program Documents [Action Requests] (AR-xxxxx)

278368	356000	360409	365033	368303
369984	371116	371448	373245	373950
373969	375066	375565	375565	375565
375623	375625	375626	376594	376845
377079	377079	377202	377461	377461
378465	378465	378826	379420	379420
379421	379538	379643	379741	380220
381241*	381263*	381271*	381289*	381306*
381307*	381316*	381319*	381321*	381322*
381350*	381382*	381385*	381387*	381389*
381390*	381393*	381403*	381405*	381430*
381432*	381436*	381437*	381445*	381446*
381447*	381457*			

* - Notes ARs written as a result of the inspection

<u>Procedures (Number)</u>	<u>Title</u>	<u>Revision or Date</u>
ABN-ADHR	Alternate Decay Heat Removal	0
ABN-ASH	Ash Fall	27
ABN-ELEC-DG3- CROSSTIE/SM7	DG-3 Crosstie to SM-7	9
ABN-ELEC-DG3- CROSSTIE/SM8	DG-3 Crosstie to SM-8	9
ABN-ELEC-DG4- CROSSTIE/MC-7A	DG-4 Crosstie to MC-7A	3
ABN-ELEC-DG4- CROSSTIE/MC-8A	DG-4 Crosstie to MC-8A	5
ABN-ELEC-LOOP	Loss Of All OffSite Power	16
ABN-FSG-001	Accessing Essential Instrumentation during Extended Loss of AC Power with No DC Power Available	3
ABN-FSG-002	Water Makeup Strategies for RPV, SFP, DW, WW During an Extended Loss of AC Power or other Beyond Design Basis Event	4
ABN-FSG-003	DG4 Crosstie to E-MC-7A and E-MC-8A	4
ABN-FSG-004	DG5 Crosstie to E-MC-7A and E-MC-8A	4
ABN-FSG-NSRC-001	NSRC 4160V DG Crosstie via DG1, DG2 OR SM-3 to SM-7 OR SM-8	3
ABN-FSG-NSRC-002	NSRC Portable SW Pump Alignment to SW Loop A or SW Loop B	1

<u>Procedures (Number)</u>	<u>Title</u>	<u>Revision or Date</u>
ABN-FSG-NSRC-003	NSRC 480V DG Crosstie to E-MC-7A and E-MC-8A	4
ABN-RCIC-START	RCIC Start Without AC and DC Power	7
ABN-SITE-ACCESS	Loss/Restriction of Site Access Routes	2
FLEX-01	Flex Program	2
OMI-3.2	Shutdown Safety Plan Development and Approval Process	12
PPM 1.20.3	Outage Risk Management	12
PPM 1.5.18	Managing B.5.b and FLEX Equipment Unavailability	4
PPM 10.20.15	E-GEN-DG4 Mechanical Maintenance	3
PPM 3.1.10	OPS-4 LOGS	6
PPM 5.2.1	Primary Containment Control	27
PPM 5.5.1	RPV Control	21
PPM 5.5.14	Emergency Wetwell Venting	9
PPM 5.6.1	Station Blackout (SBO/ELAP)	29
PPM 5.6.2	Station Blackout (SBO) and Extended Loss of AC Power ELAP Attachments	11
SOP- COLDWEATHER- OPS	Cold Weather Operations	30
SOP-DG1-START	Emergency Diesel Generator DIV 1 Start	32
SOP-DG2-START	Emergency Diesel Generator DIV 2 Start	30
SOP-DG3-START	HPCS DG Start	27
SOP-DG4-PM	Diesel Generator 4 Monthly/Quarterly Surveillance	8
SOP-DG4-START	Diesel Generator 4 Start	9
SOP-DG4-START	Diesel Generator 4 Start	9
SOP-ELEC-4160V- OPS	4160 Volt AC Electrical Distribution System Operation	16
SOP-ELEC- BACKFEED	500 KV Plant Backfeed	12
SOP-FLEX- 120V220V480VDG- OPS	480V FLEX-GEN-9 Operations	0
SOP-FLEX- Equipment Storage	FLEX Equipment Storage	3
SOP-FLEX- EQUIPMENT- REFUEL	FLEX Equipment Refueling	2
SOP-FLEX-FP- TRUCK-OPS	B.5.B Pumper Truck Operation to Support FLEX and ELAP Conditions	3
SOP-FLEX-FP- TRUCK-PM	B.5.B Pumper Truck FLEX Functionality	3
SOP-FLEX-FULL- CORE-OFFLOAD	FLEX Activities to Support a Full Core Offload	2
SOP-FLEX-GEN- DG5 PM	FLEX GEN DG5 Preventative Maintenance	5
SOP-FLEX-GEN- DG5-PM	FLEX GEN DG5 Preventative Maintenance	6
SOP-FLEX-GEN- DG5-SHUTDOWN	FLEX GEN DG5 Shutdown	0

SOP-FLEX-GEN-DG5-SHUTDOWN-QC	FLEX GEN DG5 Shutdown Quick Card	0
SOP-FLEX-GEN-DG5-START	FLEX GEN DG5 Start	1
SOP-FLEX-GEN-DG5-START-QC	FLEX GEN DG5 Start Quick Card	0
SOP-FLEX-HITCH-OPS-QC	FLEX Hitch Connections - Quick Card	0
SOP-FLEX-TEMPPOWER	FLEX Temporary Power to Support Communications	2
SWP-LIC-02	Licensing Basis Impact Determinations	15
SWP-SEC-14	Safety/Security Interface Program	6
SYS-4-31	System and Equipment Performance Monitoring and Trending Program	12

<u>Work Orders (Number)</u>	<u>Title</u>	<u>Revision or Date</u>
02011514	E-GEN-DG4 Annual Maintenance	5/25/2012
02051051	B5B Fire Truck Discharge Flow Calibration (model work order)	{No Date}
02095318	B5B Inventory	03/20/2017
02095318	B5B Cabinet Inventory RB	8/14/2017
02095543	E-GEN-DG4, 3 Year Inspection Alt AC Source (GEN)	7/4/2017
02097881	FLEX-DG-5, Quarterly Load Test of Generator	4/30/2018
02098385	FLEX-DG-5, Run Time Maintenance	10/20/2017
02099229	E-GEN-DG4 Quarterly	3/06/2018
02100913	FLEX-DG-5, Sampling of Lube Oil & Engine Coolant	5/02/2018
02100915	FLEX-DG-5, Trailer Inspections	4/23/2018
02102560	FLEX-DG-5 Full Load Test of Generator	1/19/2018
02103257	E-GEN-DG4 Annual Maintenance	11/12/2017
02103438	Perform Annual Inventory of Flex Equipment	10/28/2017
02109005	Field Team Portable Radio Functional Test	03/29/2018
02119718	CGS Communications Console Functional Test	05/16/2018
02124113	Perform SOP-FLEX-FP-TRUCK-PM	05/03/2018

<u>Miscellaneous Documents (Number)</u>	<u>Title</u>	<u>Revision or Date</u>
	Snow Removal Presentation	2017
	Building 600 HVAC Load Calc	11/04/2013
	OI-FLEX-06	{No Date}
	Caterpillar Vendor Technical Manual	{No Date}
	Shutdown Safety Plan – R23	{No Date}
2.05.01	Maintenance of 125 and 250 VDC Bus Voltage	13
26918	Technical Assessment Supporting Reportability	0
AD-18-0273	Applicability Determination for License Basis Changes: FLEX-01, Rev. 2	05/29/2018
CVI 1228-00	SAFER Response Plan for Columbia Generating Station	1
EC 12959	Develop Design to Install Sat Phones in Main Control Room and Technical Support Center	1
EP000222	Emergency Dose Projection System (URI)	8
EP000385	CGS Site-Specific FLEX Strategies Training	2 (10/15/2016)
FLEX-01	FLEX Program Document	2
GO2-14-174	Energy Northwest's NEI 12-01 Phase 2 Staffing Assessment	12/23/2014
LE-18-013	Licensing Basis Impact Evaluation: FLEX-01, Revision 2	5/29/2018
LS-18-0273	LBIE Screening for License Basis Changes: FLEX-01, Rev. 2	5/29/2018
ME-02-12-06	Evaluation of the Use of Portable Equipment During an Extended Loss of AC Power (ELAP) during a Beyond Design Basis External Event (BDBEE)	3
ME-02-13-22	Extended Loss of AC (ELAP) in Conjunction with a Volcanic Ashfall Event – Combustion Air Filters	1
ME-02-92-37	SBO Loss of Control Room Ventilation	0
ME-02-92-41	Ultimate Heat Sink Analysis	7
NE-02-90-39	Removal of Computer Loads	6
R23 SDS	Shutdown Safety Plan – R23	0
TM-2183	Implementation of FLEX Strategies Used to Cope With a Beyond Design Basis External Event (BDBEE)	2
TM-2185	Equipment refueling Strategy of Phase 1 and 2 FLEX Components During the First 72 Hours Following an ELAP	2
TM-2187	Actions, Limitations, and Notes Associated with an Extended Loss of AC Power	3
Vendor Manual	CAT Operation and Maintenance Manual C15 Generator Set	October 2013
<u>Drawings (Number)</u>	<u>Title</u>	<u>Revision or Date</u>
0821S001.002.101.5 01.502	Diesel Generator Building 82	1

COLUMBIA GENERATING STATION – INSPECTION OF THE IMPLEMENTATION OF
 MITIGATION STRATEGIES AND SPENT FUEL POOL INSTRUMENTATION ORDERS AND
 EMERGENCY PREPAREDNESS COMMUNICATION/STAFFING/MULTI-UNIT DOSE
 ASSESSMENT PLANS – INSPECTION REPORT 05000397/2018010 DATED
 AUGUST 20, 2018

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Electronic Distribution for Columbia Generating Station

ADAMS ACCESSION NUMBER: ML18232A432

<input checked="" type="checkbox"/> SUNSI Review By: RDA/rdr		<input checked="" type="checkbox"/> Non-Sensitive <input type="checkbox"/> Sensitive		<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available		Keyword: NRC-002
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