



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

January 7, 2022

Mr. Fadi Diya
Senior Vice President and Chief Nuclear Officer
Ameren Missouri
Callaway Plant
8315 County Road 459
Steedman, MO 65077

SUBJECT: CALLAWAY PLANT – INTEGRATED INSPECTION
REPORT 05000483/2021004

Dear Mr. Diya:

On December 31, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Callaway Plant. On January 5, 2022, the NRC inspectors discussed the results of this inspection with Mr. B. Cox, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

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,

A handwritten signature in blue ink, appearing to read "Gregory E. Werner", is written over a light blue horizontal line.

Signed by Werner, Gregory
on 01/07/22

Gregory E. Werner, Chief
Reactor Projects Branch B
Division of Reactor Projects

Docket No. 05000483
License No. NPF-30

Enclosure:
Inspection Report 05000483/2021004

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CALLAWAY PLANT – INTEGRATED INSPECTION REPORT 05000483/2021004 – DATED
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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number: 05000483

License Number: NPF-30

Report Number: 05000483/2021004

Enterprise Identifier: I-2021-004-0041

Licensee: Ameren Missouri

Facility: Callaway Plant

Location: Steedman, MO

Inspection Dates: October 1 to December 31, 2021

Inspectors: D. Antonangeli, Health Physicist
D. Bradley, Senior Resident Inspector
N. Greene, PhD, Senior Health Physicist
S. Janicki, Resident Inspector
J. Melfi, Project Engineer
E. Simpson, Health Physicist
R. Alexander, Emergency Preparedness Inspector

Approved By: Gregory E. Werner, Chief
Reactor Projects Branch B
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Callaway Plant, 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.

PLANT STATUS

Callaway operated at or near rated thermal power for the entire inspection period.

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 performed activities described in IMC 2515, Appendix D, "Plant Status," and conducted routine reviews using IP 71152, "Problem Identification and Resolution." 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), resident and regional inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time, the resident inspectors performed periodic site visits each week, increasing the amount of time on-site as local COVID-19 conditions permitted. As part of their on-site activities, resident inspectors conducted plant status activities as described in IMC 2515, Appendix D, "Plant Status," and conducted routine reviews using IP 71152, "Problem Identification and Resolution," observed risk significant activities; and completed on-site portions of IPs. In addition, resident and 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. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on-site. The inspections documented below met the objectives and requirements for completion of the IP.

REACTOR SAFETY

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (3 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Condensate storage tank alignment to auxiliary feedwater systems including motor-driven pumps, the turbine-driven pump, and the non-safety pump on October 27, 2021
- (2) Emergency diesel generator train A auxiliary systems, including starting air and jacket water, on November 17, 2021
- (3) Class 1E air conditioner SGK05A, after planned maintenance, on November 17, 2021

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Control building elevation 2026' electrical penetration room B, fire area A-17 on November 10, 2021
- (2) Control building elevation 2026' electrical penetration room A, fire area A-18 on November 10, 2021
- (3) Auxiliary building elevation 2047', component cooling water surge tank area A and B, corridor and personnel hatch areas, rooms 1502, 1503, 1505 and 1507, fire area A-20 on November 10, 2021
- (4) Auxiliary building, 2000' elevation, pipe penetration room A, fire area A-24, on November 23, 2021

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator performance in the control room during:
 - Control rod exercising on November 19, 2021
 - Safety injection accumulator pressurization and emergent issue response to door DSK11273 failure on December 2, 2021

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator training in the simulator, including loss of coolant accident sequences, on October 13, 2021.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (2 Samples)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components remain capable of performing their intended function:

- (1) Safety-related flow instrumentation, including Barton gauges, on November 18, 2021
- (2) Environmental qualification of safety-related components subject to high energy line breaks outside of containment, including auxiliary feedwater, on November 29, 2021

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

- (1) Elevated risk for a planned work window on train B emergency diesel generator and essential service water systems on October 12, 2021
- (2) Elevated risk for a planned work window on train A emergency diesel generator and essential service water systems on October 26, 2021
- (3) Elevated risk for a planned work window on B and D component cooling water pumps on November 1, 2021
- (4) Elevated risk for a planned work window on train A diesel fire pump and train C air compressor on November 8, 2021

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (3 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) Results from inspection of the condensate storage tank, including the floating cover, under Condition Report 202105839, on October 25, 2021
- (2) Calculation error for instrumentation uncertainty values on a flow transmitter, under Condition Report 202106211, on November 16, 2021
- (3) Residual heat removal pump B vibrations in the alert range, under Condition Report 202105531, on November 22, 2021

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Permanent modification to add in-line air filtration for flow control valves in the turbine-driven auxiliary feedwater system, under Modification Package 21-0017, on October 19, 2021
- (2) Permanent modification to improve the reliability of the main feedwater regulating valve positioner, under Modification Package 21-0001, on November 29, 2021

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (6 Samples)

The inspectors evaluated the following post-maintenance test activities to verify system operability and functionality:

- (1) Train B motor-driven auxiliary feedwater pump after a planned work window on October 6, 2021
- (2) Train A emergency diesel generator and essential service water systems after a planned work window on October 27, 2021
- (3) Component cooling water pump D after a planned work window on November 3, 2021
- (4) Train A class 1E air conditioner SGK05A after a planned work window on November 17, 2021
- (5) Instrument air compressor A after planned work window on October 26, 2021
- (6) Train B emergency diesel generator and essential service water systems after a planned work window on October 13, 2021

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (2 Samples)

- (1) Residual heat removal train A surveillance under jobs 21508624 and 20503520 on November 23, 2021
- (2) Instrument air accumulator leak rate determination surveillance on November 4, 2021

RCS Leakage Detection Testing (IP Section 03.01) (1 Sample)

- (1) Post-outage leakage testing under jobs 21511241 and 21511360 on November 22, 2021

71114.04 - Emergency Action Level and Emergency Plan Changes

Inspection Review (IP Section 02.01-02.03) (1 Sample)

- (1) The inspectors evaluated the following submitted emergency action level and emergency plan changes:
 - Radiological Emergency Response Plan , Revision 53 (effective 10/19/2021; submitted to the NRC on 11/16/2021)

This evaluation does not constitute NRC approval.

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

Radiological Hazard Assessment (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated how the licensee identifies the magnitude and extent of radiation levels and the concentrations and quantities of radioactive materials and how the licensee assesses radiological hazards.

Instructions to Workers (IP Section 03.02) (1 Sample)

- (1) The inspectors reviewed the following:

Radiation Work Packages

- Job 21501208/500, steam generator blowdown resin changeout - sluice resin from FBM02C and FBM02D
- Job 21003213/500, replace leaking relief valve (EP8855A) safety injection accumulator tank A pressure relief valve
- RWP 21NewFuel, loading new fuel into vaults in fuel building

Electronic Alarming Dosimeter Alarms

- Reviewed a list of dose and dose rate alarms during the period, but none were deemed valid, or they were verified as expected

Labeling of Containers

Reviewed various drums filled with radioactive waste stored in the low-level drum storage area

- Number 8690 - mixed waste from accumulator
- Number 9008 - used sludge oil
- Number 9449 - used oil from RCP C
- Number 9559 - used oil from RCP D
- Number 10018 - solidified waste
- Number 16059 - spent sluiced resin
- Number 16085 - steam generator blowdown resin

Contamination and Radioactive Material Control (IP Section 03.03) (2 Samples)

The inspectors evaluated licensee processes for monitoring and controlling contamination and radioactive material.

- (1) Observed workers exiting the RCA at the health physics access control area
- (2) Observed workers smearing and surveying for contamination on new fuel bundles prior to storage in vaults

Radiological Hazards Control and Work Coverage (IP Section 03.04) (4 Samples)

The inspectors evaluated in-plant radiological conditions during facility walkdowns and observation of radiological work activities.

- (1) RWP 21BOP, miscellaneous tours, inspections, and low risk work

- (2) RWP 21DRUMHOST, radwaste drum host activities
- (3) RWP 21LHRA, locked high radiation area entry for miscellaneous minor work activities
- (4) RWP 21RP, radiation protection on-shift and routine activities

High Radiation Area and Very High Radiation Area Controls (IP Section 03.05) (4 Samples)

The inspectors evaluated licensee controls of the following high radiation areas and very high radiation areas:

- (1) Room 1313 - volume control tank room
- (2) Room 7122 - waste hold up tank room
- (3) Room 7218 - drum processing enclosure area
- (4) Room 7220 - valve room

Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 03.06) (1 Sample)

- (1) The inspectors evaluated radiation worker and radiation protection technician performance as it pertains to radiation protection requirements

71124.02 - Occupational ALARA Planning and Controls

Implementation of ALARA and Radiological Work Controls (IP Section 03.03) (3 Samples)

The inspectors reviewed as low as reasonably achievable practices and radiological work controls. The inspectors observed the following activities:

- (1) RWP 21ONLINERB, safety injection accumulator tank A pressure relief valve replacement
- (2) RWP 21NEWFUEL, opening/inspection of new fuel assemblies
- (3) RWP 21OPS, sluicing of low activity resin into B-25 containers

Radiation Worker Performance (IP Section 03.04) (1 Sample)

- (1) The inspectors observed the following activities:
 - Radiation protection providing job coverage within the field
 - Radiation protection conducting radiological surveys
 - Radiation workers entering/exiting the radiologically controlled area
 - Radiation workers donning/doffing protective clothing
 - Radiation workers exiting a contaminated area

71124.03 - In-Plant Airborne Radioactivity Control and Mitigation

Permanent Ventilation Systems (IP Section 03.01) (2 Samples)

The inspectors evaluated the configuration of the following permanently installed ventilation systems:

- (1) Control room emergency ventilation and filtration system, Units A and B

- (2) Technical support center heating, ventilation, and air conditioning and filter adsorber unit

Temporary Ventilation Systems (IP Section 03.02)

The inspectors identified no temporary ventilation system in operation.

Use of Respiratory Protection Devices (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated the licensee's use of respiratory protection devices

Self-Contained Breathing Apparatus for Emergency Use (IP Section 03.04) (1 Sample)

- (1) The inspectors evaluated the licensee's use and maintenance of self-contained breathing apparatuses.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS07: High Pressure Injection Systems (IP Section 02.06) (1 Sample)

- (1) October 1, 2020, through September 30, 2021

MS09: Residual Heat Removal Systems (IP Section 02.08) (1 Sample)

- (1) October 1, 2020, through September 30, 2021

BI02: RCS Leak Rate Sample (IP Section 02.11) (1 Sample)

- (1) April 1, 2020 through September 30, 2021

OR01: Occupational Exposure Control Effectiveness Sample (IP Section 02.15) (1 Sample)

- (1) October 1, 2020 through September 30, 2021

PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample (IP Section 02.16) (1 Sample)

- (1) October 1, 2020 through September 30, 2021

71152 - Problem Identification and Resolution (PI&R)

Semiannual Trend Review (IP Section 02.02) (1 Sample)

- (1) The inspectors reviewed the licensee's corrective action program for potential adverse trends in emergency diesel generator auxiliary systems, including starting air, that might be indicative of a more significant safety issue.

INSPECTION RESULTS

Observation: Semi-Annual Trend Review	71152
<p>The inspectors interviewed licensee staff and reviewed the licensee's corrective action program, system health reports, and other documentation to identify trends that might indicate the existence of a more significant safety issue related to auxiliary systems supporting the emergency diesel generators (EDGs).</p> <p><u>Background</u></p> <p>The auxiliary systems selected included starting air, lubrication oil, fuel oil, jacket water, and the intercooler for the EDGs. These subsystems are critical to the proper operation of EDGs, during normal and accident conditions, and have components that are both safety-related and nonsafety-related.</p> <p>The inspectors interviewed corrective action program staff and reviewed existing trend analysis for any related to EDG subsystems over the last 2 years. At the time of the inspection, the licensee had 178 trend analysis condition reports. Of those, two condition reports were related to EDGs: air compressor leakage trends under Condition Report 202000344 and fuel oil chemistry/analysis trends under Condition Report 202007116.</p> <p>In the review of the condition reports related to EDGs, the inspectors selected the starting air system for their focus since it had a large number of condition reports as compared to the other auxiliary systems. The EDG starting air system was comprised of air compressors, air dryers, pressurized air storage tanks/receivers, and the various valves that distribute the air to EDG components including the air start motor for the EDG. The EDG air compressors, although non-safety, provided the pressurized air that serves to both start the EDG, via the safety-related air tanks, and for instrumentation. Each EDG had two non-safety air compressors, for a total of four: CKJ01A and CKJ01B for EDG A, CKJ01C and CKJ01D for EDG B.</p> <p>In reviewing the 68 starting air subsystem condition reports written over the last 2 years, the inspectors separated them into the following categories:</p> <ul style="list-style-type: none">23 condition reports involving air issues including leaks in various locations and low air pressure conditions22 condition reports involving oil issues including high oil levels in compressors due to water in the oil and low oil levels in compressors due to leaks11 condition reports involving failures of components, either while in-service or during post-maintenance testing, including several compressors inability to maintain pressure and relief valves lifting outside setpoint12 condition reports involving all other issues such as compressor motor-belt tension problems, temperature of components during service, procedure improvements, and the trend reviews discussed earlier <p>The inspectors also sorted the same 68 starting air subsystem condition reports by component, and noted 26 of the condition reports, or nearly 40 percent, were related to air</p>	

compressor CKJ01B. The next component, in terms of the largest numbers of condition reports written against it, was air compressor CKJ01A with eight condition reports.

The inspectors reviewed the maintenance history of the four non-safety EDG air compressors and found that there have been three replacements over the last 2 years. Periodic maintenance activities assigned to the air compressors are checking the oil level every 2 weeks, a clean/inspect including an oil change every 6 months, a compressor capacity test every 6 months, a thermography inspection every year, and a rebuild of the unloader valve every 10 years to prevent water intrusion. There was also an on-demand maintenance task to change the oil and flush the oil system if moisture was detected.

The inspectors also reviewed plant health and noted Health Issue 2019002 existed to address elevated moisture content in the EDG starting air tanks. Additionally, Condition Report 202003275 documented a periodic reevaluation of closed Health Issue 2016035 on moisture accumulation in air compressors.

Inspector Assessment

The inspectors noted the air compressor leakage trend review, performed under Condition Report 202000344, only reviewed three examples of air leaks and was closed due to being evaluated as low consequence. The remaining condition reports, identified through the inspectors' review, occurred after the condition report was written. Since there had not been an additional trend review condition report generated for air system leaks, these more recent condition reports had not been analyzed for a trend.

Similarly, the licensee had not reviewed the trends in oil levels including the adverse phenomenon of humid air introducing water to oil systems during compression. Although the health issue reevaluation under Condition Report 202003275 included several examples of moisture intrusion, it was not a formal trend review and did not capture more recent information since it was initiated in July 2020. The outcome of this reevaluation was to increase the frequency of oil changes and did not address the cause of the moisture intrusion.

The licensee had an on-demand maintenance task to flush and refill a compressor's oil system if level increased and/or water was detected. The inspectors noted that this evolution occurred regularly. For example, EDG air compressor CKJ01B had the oil flushed and replaced 6 times in the last 12 months under this on-demand maintenance task. This flushing activity was in addition to the regularly scheduled semiannual oil change maintenance task which occurred three times in 2021. The frequency of changing the oil on CKJ01B, a total of nine times in 1 year, has not been reviewed for a trend by the licensee.

Additionally, the licensee had not reviewed trends in component failures. The inspectors noted that some of the in-service failures could be attributed to the impact of water in oil systems which decreases compressor life. Likewise, the post-maintenance testing failures of components potentially indicated issues with maintenance practices, design issues, or part quality which have not been evaluated for trends by the licensee.

The inspectors concluded that the licensee had not adequately reviewed the starting air system for trends, had tolerated a high rate of safety-related air system leaks, had not adequately addressed air compressor maintenance/design/operation that led to water collecting inside the system, and resulted in a work-around of oil flushing and replacement of

compressors. This resulted in the licensee's compressor maintenance being reactionary to water intrusion and not preventative.

The licensee did not have a specific timeline to modify the design of the compressors or otherwise address the repeated introduction of water into the system via compression. Plant Health Issue 2019002 may resolve the impacts of water in the starting air system, but it had not been fully approved, with funding, at the time of inspection.

Although there have not been any failures to maintain EDG starting air system pressure within technical specification limits in the last 2 years, the licensee has not prioritized addressing degraded conditions in the air start subsystem. The licensee current maintenance practices have the potential to lead to more significant safety concerns including unplanned inoperable equipment, impacting the availability and reliability of the EDGs.

EXIT MEETINGS AND DEBRIEFS

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

- On November 4, 2021, the inspectors presented the radiation safety inspection results to Mr. M. McLachlan, Senior Director, Plant Support, and other members of the licensee staff.
- On November 18, 2021, the inspectors presented the emergency plan change review inspection results to Mr. G. Rauch, Manager, Emergency Preparedness, and other members of the licensee staff.
- On January 5, 2022, the inspectors presented the integrated inspection results to Mr. B. Cox, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Corrective Action Documents	Condition Reports	200803252; 202106332; 202106487	
	Miscellaneous		System Health Reports	Various
	Procedures	OTN-AL-00001	Auxiliary Feedwater System	38
		OTN-AP-00001	Condensate Transfer and Storage System	15
		OTN-NE-0001A	Standby Diesel Generation System	54
71111.05	Calculations	KC-100	Fire Safety Analysis Personnel Hatch and CCW Surge Tank Area, Fire Area A-20	1
		KC-97	Fire Safety Analysis Electrical Penetration Room B, Fire Area A-17	1
		KC-98	Fire Safety Analysis Electrical Penetration Room A, Fire Area A-18	1
	Corrective Action Documents	Condition Reports	202105017; 202105129; 202105403; 202105665; 202105713; 202105837; 202105866; 202105881; 202106202	
	Fire Plans		Fire Preplan Manual	38 and 40
71111.11Q	Corrective Action Documents	Condition Reports	202106599	
	Miscellaneous	T61.08108	Simulator Training Scenario 21-5	9/9/2021
	Procedures	APA-ZZ-0395	Significant Operator Response Timing	31
		E-0	Reactor Trip or Safety Injection	27
		E-1	Loss of Reactor or Secondary Coolant	24
		E-2	Faulted Steam Generator Isolation	12
		OSP-SF-00002	Control Rod Partial Movement	28
	Work Orders		21510969	
71111.12	Miscellaneous	NUMARC 93-01	Industry Guidelines for Monitoring the Effectiveness of Maintenance	4F
		PM0822012	Calibrate EFFI0055	
	Procedures	APA-ZZ-00549	Guidelines Used to Determine Functional Importance of a Component	13

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		APA-ZZ-00750	Hazzard Barrier Program	48
		EDP-ZZ-01129, Appendix 4	Maintenance Rule System Functions	22
		ITG-ZZ-BT008	Barton Diff Press Ind 227/227A Manual	9
		OSP-EF-P001A	ESW Train A Inservice Test	87
	Work Orders		21004043; 21001811	
	Corrective Action Documents	Condition Reports	201605515; 201607825; 201801299; 201803204; 201901097; 202102008; 202106027; 202106177	
71111.13	Corrective Action Documents	Condition Reports	202104999; 202105808; 202105930; 202106339; 202106362; 202106394; 202106545	
	Miscellaneous	NUMARC 93-01	Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants	4F
	Procedures	APA-ZZ-00315	Configuration Management Program	15
		APA-ZZ-00322, Appendix F	Online Work Integrated Risk Management	18
		APA-ZZ-01250	Operational Decision Making	18
		EDP-ZZ-01129	Callaway Energy Center Risk Assessment	53
		ODP-ZZ-00002, Appendix 1	Protected Equipment Program	32
		ODP-ZZ-00002, Appendix 2	Risk Management Actions for Planned Risk Significant Activities	17 and 19
71111.15	Corrective Action Documents	Condition Reports	202103398; 202104007; 202105531; 202105839; 202105982; 202106226; 202106211; 202106661; 202106788	
	Miscellaneous	M-22 EJ01	Residual Heat Removal PI&D	
		ULDB-ECCS	ECCS Design Basis Document	1
	Procedures	APA-ZZ-01250	Operational Decision Making	18
71111.18	Corrective Action Documents	Condition Reports	201601712; 201701409; 202001783; 202004855; 202106554	
	Miscellaneous	M-11759-00009	Digital Feedwater System - MFRV	1
		M-22 EA01	Feedwater System	1

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.19		MP 21-001	Main Feedwater Regulating Valve Positioner	
		MP 21-0017	Install 3-micron filtration	
	Corrective Action Documents	Condition Reports	200400500; 200407421; 202101631; 201109634; 201800026; 202102441; 202103628; 202105931; 202105957; 202105995; 202106165	
	Miscellaneous	SOER 88-1	Instrument Air System Folders	
	Procedures	APA-ZZ-00322, Appendix E	Post-Maintenance Test Program	5
		MPE-ZZ-QY045	Inspection, Test, and Calibration of Miscellaneous Protective, Control, and Time Delay Relays	5
		MPE-ZZ-QY124	Operational Test Sequence of Component Cooling Water Pump Air Circuit Breaker	12
		OSP-NE-0001A	Standby Emergency Diesel Generator Periodic Tests	68
	Work Orders		20504947; 20507578; 21506897; 16505253; 21510017; 15502781; 21004019; 18512878; 20505701; 19510058; 20505700	
71111.22	Procedures	ODP-ZZ-00029	RCS Leakage Action Level Guideline	7
		ODP-ZZ-00036	Technical Specification Application for Containment Isolation Valves	9
		OSP-BB-00009	RCS Inventory Balance	42
		OSP-NE-0001A	Standby Diesel Generator A Periodic Tests	67
	Work Orders		21510017; 21511360; 21511241; 21508624; 20503520	
71114.04	Corrective Action Documents Resulting from Inspection	Condition Reports	202106364	
	Miscellaneous		Applicability Determination: RERP, Revision 53	09/30/2021
		50.54(q) Effectiveness Evaluation No. 2020030	RERP, Revision 53 (Move of Montgomery County EOC)	10/31/2020
		50.54(q) Screening No. 2020030	RERP, Revision 53 (Move of Montgomery County EOC)	10/31/2020

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		50.54(q) Screening No. 2021016	RERP, Revision 53 (Change 1)	09/30/2021
		50.54(q) Screening No. 2021017	RERP, Revision 53 (Change 3)	09/30/2021
		50.54(q) Screening No. 2021018	RERP, Revision 53 (Change 4)	09/30/2021
		50.54(q) Screening No. 2021019	RERP, Revision 53 (Change 5)	09/30/2021
		50.54(q) Screening No. 2021021	RERP, Revision 53 (Change 7)	09/30/2021
		50.54(q) Screening No. 2021022	RERP, Revision 53 (Change 8)	09/30/2021
71124.01	Corrective Action Documents	Condition Reports	202004693, 202004719, 202005532, 202005799, 202005827, 202100360, 202101466, 202101682, 202101938, 202103270, 202103818	
71124.01	Corrective Action Documents Resulting from Inspection	Condition Reports	202106131, 202106132	
71124.01	Miscellaneous		Hot Spot Trending Log (RWST-1, Room 1109, Room 1111)	11/01/2021
			Air Samples Log Since 10/19/2020	10/11/2021
			List of Dose and Dose Rate Alarms - No Valid or As Expected Alarms	11/02/2021
		PM 1002835	Non-Special Nuclear Material Radioactive Materials Stored in Spent Fuel Pool	10/11/2021
		S120.0010	Radiation Key Inventory Form	11/02/2021
	Procedures	APA-ZZ-01000	Callaway Energy Center Radiation Protection Program	48
		APA-ZZ-01004	Radiological Work Standards	35
		APA-ZZ-01106	Lock and Key Control	28
		HDP-ZZ-01200	Radiation Work Permits	34
		HDP-ZZ-01500	Radiological Postings	52
		HDP-ZZ-03000	Radiological Survey Program	49

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		HTP-ZZ-01203	Radiological Area Access Control	63
		HTP-ZZ-06001	High Radiation / Locked High Radiation / Very High Radiation Area Access	54
	Radiation Surveys	CA-M-20161123-2	Room 7215 - Decant Tank Room	11/23/2016
		CA-M-20190313-4	Room 7218 - Drum Processing Enclosure - Clean Oil Level	03/13/2019
		CA-M-20200727-1	Room 7121 - Waste Hold Up Tank - Flush Hot Spot	07/27/2020
		CA-M-20210125-3	7124 and 7123 Re-Lamp Primary Waste Evaporator Bottoms Tank and Pump Rooms	01/25/2021
		CA-M-20210825-2	Radwaste - F/D FEC01A FEC01B (Filters/Demineralizers)	08/25/2021
		CA-M-20210826-9	Radwaste 2047 Filter Change - Radwaste Building General Area	08/26/2021
	Radiation Work Permits (RWPs)	Job 11509289500	Spent Fuel Pool Cooling Heat Exchanger Eddy Current Testing	1
		Job 19505696	Decontaminate Reactor Cavity	0
		Job 19505914	Install Reactor Vessel Head IPTE (PCC) High Risk Evolution	0
		RWP 21BOP	Miscellaneous Tours, Inspections, and Low Risk Work	0
		RWP 21DRUMHOST	Radwaste Drum Host Activities	0
		RWP 21LHRA	Locked High Radiation Area Entry for Miscellaneous Minor Work Activities	0
		RWP 21NRC	NRC Tours and Inspections	0
		RWP 21ONLINERB	On Line Support Activities in the Reactor Building	0
		RWP 21RP	Radiation Protection On-Shift and Routine Activities	0
	Self-Assessments	202007247-031	Self-Assessment: HRA/LHRA Controls	06/15/2021
		AP 21002	Nuclear Oversight Audit of Radiation Protection Program	03/06/2021
		Condition Report 202103270	Self-Assessment: HRA/LHRA Controls	06/09/2021
71124.02	Corrective Action Documents	Condition Reports	202005644; 202005905; 202007218; 202100481; 202101186; 202101516; 202101645; 202102031; 202105305; 202105535; 202105548	
	Procedures	APA-ZZ-01001	Callaway Plant ALARA Program	28
		HDP-ZZ-01100	ALARA Planning and Review	28

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Radiation Surveys	HDP-ZZ-01200	Radiation Work Permits	34
		Survey CA-M-20210826-9	RW-2047 Filter Change	08/26/2021
		Survey CA-M-20211104-5	RB-2047 - Support OPS hang WPA for EP885A Replacement	11/04/2021
		Survey CA-M-20211104-7	RB-2008AD - Support OPS hang WPA for EP8855A Replacement	11/04/2021
		Survey CA-M-20211104-8	RB-2000 - Support OPS hang WPA for EP88551 Replacement	11/04/2021
		Survey CA-M-20211104-9	RB-2026A - EP8855A Job Coverage	11/04/2021
	Radiation Work Permits (RWPs)	21NEWFUEL	New fuel Receipt prior to RF25. Includes associated engineering and operation tasks.	0
		21ONLINERB	On-line support activities in the reactor building	0
		21OPS	Operations and radwaste routine activities including WPA, technician rounds, and shipping activities	0
		21RP	Radiation protection on-shift and routine activities	0
	Self-Assessments		Callaway Energy Center Refuel 23 ALARA Outage Report	05/18/2019
			Callaway Energy Center Refuel 24 ALARA Outage Report	12/22/2020
		Audit Report AP21002	Nuclear Oversight Audit of Radiation Protection Program	03/16/2021
		Surveillance Report SP20004	Nuclear Oversight Performance Assessment of Refuel 24 Execution	03/04/2021
71124.03	Calculations	HPCI-96-007	Emergency Response Facility Habitability Guidelines	1
	Corrective Action Documents	Condition Reports	201806070, 201900689, 201901129, 201901289, 201901755, 201901985, 201904604, 201905248, 201905513, 201905530, 201906469, 201906706, 201906771, 201906935, 202000038, 202000136, 202001958, 202002124, 202002579, 202004078, 202004283, 202006934, 202103370, 202104083	
	Drawings	A-UAT-19	Technical Support Center HVAC Plan	2
		M-22GK01(Q)	Piping and Instrumentation Diagram Control Building HVAC	15

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Miscellaneous	M-22GK01(Q)	Piping and Instrumentation Diagram Control Building HVAC	23
	Procedures	APA-ZZ-01004	Radiological Work Standards	35
		APA-ZZ-01004, Appendix C	General Instructions for Donning and Removing Respiratory Equipment	7
		EIP-ZZ-00240	Technical Support Center Operations	44
		ESP-GK-03010	FGK01A In-Place Bypass Leakage Test	10
		ESP-GK-03012	FGK01B In-Place Bypass Leakage Test	10
		HDP-ZZ-03000, Appendix D	Performing Airborne Radioactivity Surveys	9
		HDP-ZZ-08000	Respiratory Protection Program	24
		HTP-ZZ-03006	Use of Airborne Sampling Cart	32
		HTP-ZZ-08002	Respiratory Protection Issue and Use	43
		HTP-ZZ-08203	Testing Scott Regulators and Respirators Using the Biosystems Posichek 3 USB Tester	11
		HTP-ZZ-08300-DTI-Airpak75	Scott Air-Pak 75 SCBA Respirator Inspection and Storage	17
		HTP-ZZ-08300-DTI-POST HYDRO	Post Hydrostatic Testing of Breathing Air Cylinders	5
		HTP-ZZ-08300-DTI-SKAPAK	SKA-PAK AT SCBA Respirator Storage and Inspection	12
		HTP-ZZ-08501-DTI-Air Test	Testing of Breathing Air	5
		HTP-ZZ-08503-DTI-UNIII COMPRESSOR	Operation of Bauer Unicus III, 25 CFM Breathing Air Compressor and Breathing Air Cascade System	6
		ISF-GK-00R05	Control Room HVAC Radiation Monitor 'A' Train Channel Operational Test	25
		ISL-GK-00R05	Control Room HVAC Radiation Monitor 'A' Train Channel Calibration	32
	Self-Assessments	Audit No. AP21002	Nuclear Oversight Audit of Radiation Protection Program	03/16/2021
	Work Orders	JOB 20500530.500	HEPA Filter Leak Test Results	09/14/2021
		JOB 20501202.500	Radioiodine Penetration/Efficiency Test	07/01/2021
		JOB 20501472.500	HEPA Filter Leak Test Results	09/29/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		JOB 20502786.500	Radioiodine Penetration/Efficiency Test	09/23/2021
71151	Corrective Action Documents	Condition Reports	202105449	
	Miscellaneous		MSPI Summary Reports	Various
			Callaway Energy Center 2020 Annual Radioactive Effluent Release Report	04/28/2021
	Self-Assessments	Audit 21002-RP21	Public and Occupational Exposure Controls and Monitoring	03/06/2021
71152	Corrective Action Documents	Condition Reports	202105333; 202103060; 202101915; 202105736; 202106283; 202106298; 202106306; 202106437; 202106494	

CALLAWAY PLANT – INTEGRATED INSPECTION REPORT 05000483/2021004 DATE January 7, 2022

DISTRIBUTION:

RStuart, R-IV/DRP

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NAME	FRamirez <i>FR</i>	VGaddy <i>VG</i>	ASiwy <i>AS</i>	HGepford <i>HG</i>
DATE	Jan 4, 2022	Jan 4, 2022	Jan 4, 2022	Jan 5, 2022
OFFICE	R-IV/DRP/RPB-C	R-IV/DRS/RCB	NRR/DRA	R-IV/DRS/OB*
NAME	DProulx <i>DP</i>	MHaire <i>MH</i>	JEvans <i>JE</i>	GWerner <i>GW</i>
DATE	Jan 5, 2022	Jan 5, 2022	Jan 6, 2022	Jan 7, 2022

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