



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

July 29, 2020

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 05000483/2020002

Dear Mr. Diya:

On June 30, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Callaway Plant and 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 NRC-identified or self-revealing findings were identified during this inspection.

A licensee-identified violation which was determined to be of very low safety significance is documented in this report. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violation or the significance or severity of the violation documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement; and the NRC Resident Inspector at Callaway Plant.

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,

/RA/

Neil F. O'Keefe, Chief
Reactor Projects Branch B
Division of Reactor Projects

Docket No. 05000483
License No. NPF-30

Enclosure:
As stated

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CALLAWAY PLANT – INTEGRATED INSPECTION REPORT 05000483/2020002 –
July 29, 2020

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ADAMS ACCESSION NUMBER: ML20211L743

SUNSI Review ADAMS: Non-Publicly Available Non-Sensitive Keyword:
 By:NFO Yes No Publicly Available Sensitive NRC-002

OFFICE	SRI/DRP/B	RI/DRP/B	TL:DRS/IPAT	C:DRS/EB1	C:DRS/EB2
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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Number: 05000483

License Number: NPF-30

Report Number: 05000483/2020002

Enterprise Identifier: I-2020-002-0007

Licensee: Union Electric Company

Facility: Callaway Plant

Location: Steedman, MO

Inspection Dates: April 1 to June 30, 2020

Inspectors: B. Baca, Health Physicist
D. Bradley, Senior Resident Inspector
G. George, Senior Reactor Inspector
S. Janicki, Resident Inspector
J. Melfi, Project Engineer
D. Proulx, Senior Project Engineer
E. Simpson, Health Physicist

Approved By: Neil F. O'Keefe, 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 the 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. A licensee-identified non-cited violation is documented in report section 71153.

List of Findings and Violations

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

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000483/2020-001-00	Emergency Exhaust Train Inoperable Due to Fan Belt Degradation and Failure	71153	Closed

PLANT STATUS

Callaway Plant began the inspection period at rated thermal power. On April 4, 2020, the unit automatically tripped on low steam generator water level due to a controller failure for a feedwater control valve. After replacing the failed controller and other similar controllers for the feedwater control valves, the licensee commenced a reactor startup on April 6, 2020. The licensee returned to rated thermal power on April 8 2020, and remained at or near rated thermal power for the remainder of the 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 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 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 and during that time conducted plant status activities as described in IMC 2515, Appendix D; observed risk significant activities; and completed onsite portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or portions 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

71111.01 - Adverse Weather Protection

Seasonal Extreme Weather Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of seasonal hot temperatures for the following systems:
 - Offsite power sources including the switchyard, alternate emergency power system, startup transformer, and engineered safety feature transformers
 - Essential service water
 - Diesel generators

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (4 Samples)

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

- (1) Feedwater regulating valves on April 8, 2020
- (2) Residual heat removal injection valves on April 22, 2020
- (3) Auxiliary feedwater flow control valves on May 4, 2020
- (4) Supplemental cooling fans for Class 1E electrical switchgear on May 19, 2020

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) Vital switchgear rooms, fire area C-9, on April 1, 2020
- (2) Auxiliary building normal and alternate access pathways for fire brigade response, fire areas A-1, A-8, A-16, A-19, on May 4, 2020
- (3) Diesel generator room A, fire area D-1, on June 5, 2020
- (4) Essential service water pumphouse north and ultimate heat sink cooling tower north, fire areas UNPH and UNCT, on June 12, 2020

71111.06 - Flood Protection Measures

Inspection Activities - Internal Flooding (IP Section 03.01) (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the:

- (1) Diesel generator rooms, including sumps, on May 11, 2020

71111.07A - Heat Sink Performance

Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of the following systems on April 20, 2020:

- (1)
 - Class 1E electrical equipment air conditioning unit A (SGK05A)
 - Class 1E electrical equipment air conditioning unit B (SGK05B)
 - Motor-driven auxiliary feedwater pump A room cooler (SGF02A)

71111.11Q - Licensed Operator Regualification Program and Licensed Operator Performance

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

- (1) The inspectors observed and evaluated simulator training for crew 6 on May 27, 2020

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 (SSCs) remain capable of performing their intended function:

- (1) Alternate emergency power supply system on April 24, 2020
- (2) Toggle switch high resistance oxide formation in vital and non-vital 125 VDC control circuits on June 15, 2020

Quality Control (IP Section 03.02) (1 Sample)

The inspectors evaluated the effectiveness of maintenance and quality control activities to ensure the following SSCs remain capable of performing their intended function:

- (1) Time-based preventative maintenance for safety-related components in the high pressure and low pressure emergency core cooling systems, including quality control, on May 6, 2020

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (3 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) Planned elevated risk for maintenance and surveillances on vital inverter NN11, class 1E air conditioning unit SGK05A, and emergency diesel generator A on April 15, 2020
- (2) Planned elevated risk for maintenance and surveillances on containment spray B room cooler and emergency diesel generator B on April 29, 2020
- (3) Emergent maintenance and elevated risk for control room air conditioning system B on May 8, 2020

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (6 Samples)

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

- (1) Pressurizer level instrumentation drift, Condition Report 20201824, on April 7, 2020
- (2) Hardened condensate storage tank supply valve opening during plant trip, Condition Reports 202001785 and 202001790, on April 7, 2020
- (3) Residual heat removal motor-operated valve EJHV8716A and environmental qualification, Condition Report 202001938, on April 16, 2020
- (4) Core exit thermocouple signal noise, Condition Report 202002021, on April 20, 2020

- (5) Essential service water pump house and emergency diesel generator ventilation system damper performance in tornado scenarios, Condition Reports 202002185 and 202002160, on April 29, 2020
- (6) Control room air conditioning system failures in July 2019, November 2019, and May 2020. Condition Reports 201905364, 201907363, and 202002325 on May 6, 2020.

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

The inspectors evaluated the following permanent modification:

- (1) Essential service water B strainer backwash line replacement, MP 17-0010, on April 20, 2020

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) Vital inverter NN18 following planned maintenance on April 24, 2020
- (2) Containment spray B room cooler fan belts following planned replacement on April 30, 2020
- (3) Class 1E electrical equipment air conditioning unit B following compressor replacement on May 25, 2020
- (4) Pressurizer level instrument following planned replacement on June 18, 2020
- (5) Motor-operated valves, EMHV8803B and BGHV8837B, following planned maintenance on June 18, 2020
- (6) Containment cooler A fan time delay relay following replacement on June 22, 2020

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

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

- (1) Reactor trip breaker train A actuating device test on May 8, 2020
- (2) Spent fuel pool bridge and crane testing on June 15, 2020

Inservice Testing (IP Section 03.01) (1 Sample)

- (1) Containment escape hatch local leak rate test on June 7, 2020

FLEX Testing (IP Section 03.02) (1 Sample)

- (1) Flex diesel generator testing and flex debris removal vehicle testing on May 28, 2020

RADIATION SAFETY

71124.02 - Occupational ALARA Planning and Controls

Radiological Work Planning (IP Section 03.01) (4 Samples)

The inspectors evaluated the integration of as low as is reasonably achievable planning into the following work activities:

Radiation work permits (RWP):

- (1) Specific RWP R23HDSTUD18, "Refuel 23 activities to remove reactor vessel stuck stud #18, including thread repairs, and inspect its stud hole. Includes cutting, boring, QC/Engineering inspections, and associated cavity work (except cavity decontamination)," Revision 0.
- (2) Specific RWP R23HDSTUD18, "Refuel 23 activities to remove reactor vessel stuck stud #2 and repair reactor vessel stud hole #18. Includes thread repairs, inspecting stud hole, cutting, boring, QC/Engineering inspections, and associated cavity work (except cavity decontamination)," Revisions 1-3.
- (3) Specific RWP R23STD18DECON, "RF23 preparation for/cleanup after removal of stuck stud #2 and repair of stud hole #18. Work includes gross wash and rinse upper cavity, decontamination stud #2 and stud hole #18 work areas, clean RV flange around stud #2 and stud hole #18, building playpen around the work area, clean upper cavity when work is complete. Includes RP coverage and surveys," Revision 0 and Revision 1.
- (4) Specific RWP R23STUD2RECOV, "Refuel 23 activities repair and install reactor vessel stud hole #2. Includes thread repairs, inspecting stud hole, cutting, boring, sleeving, QC/Engineering inspections, and associated cavity work (except cavity decontamination)," Revision 0

Verification of Dose Estimates and Exposure Tracking Systems (IP Section 03.02) (3 Samples)

The inspectors evaluated dose estimates and exposure tracking.

ALARA package number:

- (1) R23-55220, "Reactor Head Work", dated September 18, 2019. This package contained radiation work permits which included stud de-tensioning, electrical interference removal/re-installation, reactor head lift, reactor head inspection, O-ring replacement, and insulation removal/re-installation.
- (2) R23-55290, "Reactor Building Head Stud 18 Activities", dated March 4, 2020. This package contained radiation work permits which included the removal of stuck studs #2 and #18, thread repairs, stud hole inspection, sleeving activities for stud hole #2, and decontamination activities.
- (3) R23-SCAFFOLD, "Scaffolding for Refueling Outage 23", dated May 24, 2019. This package contained radiation work permits for scaffolding activities which included insulation removal/re-installation, valve inspection and maintenance, snubber testing and maintenance/repair, reactor head inspection and maintenance, reactor coolant pump motor maintenance, and installations for work in the radiologically controlled area in non-high radiation areas and high radiation areas.

71124.04 - Occupational Dose Assessment

Source Term Characterization (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated licensee performance as it pertains to radioactive source term characterization.

External Dosimetry (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated licensee performance as it pertains to external dosimetry that is used to assign occupational dose.

Internal Dosimetry (IP Section 03.03) (1 Sample)

During the inspection period, the licensee did not have airborne radioactivity areas or personnel contaminations for which an internal dose assessment was made. The inspectors reviewed air sampling data, selected surveys, and all personnel contamination events from May 1, 2018, to May 29, 2020.

The inspectors reviewed whole body analysis reports of selected declared pregnant workers for the assignment of internal dose to the declared pregnant worker and the embryo/fetus:

- (1) Analysis reports dated: June 6, 2018; November 27, 2018; July 15, 2019; and February 18, 2020

Special Dosimetric Situations (IP Section 03.04) (2 Samples)

The inspectors evaluated the following special dosimetric situations:

- (1) Dose Analysis 921 for a discrete radioactive particle identified on the chest in the left pectoral area of a worker
- (2) Documentation for four declared pregnant workers from May 1, 2018, to May 29, 2020

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicator submittals listed below:

MS05: Safety System Functional Failures (SSFFs) Sample (IP Section 02.04) (1 Sample)

- (1) April 1, 2019 through March 31, 2020

MS08: Heat Removal Systems (IP Section 02.07) (1 Sample)

- (1) April 1, 2019 through March 31, 2020

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

- (1) April 1, 2019 through March 31, 2020

71152 - Problem Identification and Resolution

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

- (1) The inspectors reviewed the licensee’s corrective action program for potential adverse trends in safety-related ventilation that might be indicative of a more significant safety issue.

Annual Follow-up of Selected Issues (IP Section 02.03) (1 Sample)

The inspectors reviewed the licensee’s implementation of its corrective action program related to the following issues:

- (1) Administrative control of containment isolation valve technical specifications during maintenance on the containment spray system under Condition Report 202001556, on April 14, 2020

71153 – Follow-up of Events and Notices of Enforcement Discretion

Event Report (IP Section 03.02) (1 Sample)

The inspectors evaluated the following licensee event report (LER):

- (1) LER 05000483/2020-001-00, “Emergency Exhaust Train Inoperable Due to Fan Belt Degradation and Failure,” (ADAMS Accession No. ML20108F546) on April 20, 2020. The inspectors reviewed the LER submittal. The conclusions associated with this LER are documented in the Inspection Results section of this report. This licensee event report is closed.

Personnel Performance (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated the reactor trip on low steam generator water level due to a controller failure for a feedwater control valve and the licensee’s performance on April 4, 2020.

INSPECTION RESULTS

Observation: Semiannual Trend Review	71152
The inspectors reviewed the licensee’s corrective action program, performance indicators, system health reports, and other documentation to identify trends that might indicate the existence of a more significant safety issue for the following system: safety-related heating, ventilation, and air conditioning (HVAC).	
As part of the cause evaluation for the issue described in Licensee Event Report (LER) 05000483/2020-001-00, “Emergency Exhaust Train Inoperable Due to Fan Belt Degradation and Failure,” (ADAMS Accession Number ML20108F546), the licensee performed an extent of condition review. This involved scheduling jobs to look at all 29 safety-related HVAC components that use fan belts. The job tasks included checking for belt tension, material condition, fan performance, and replacing belts as needed. The licensee placed a high priority on these tasks, starting the work in February 2020, and completing approximately 40 percent of the inspections by the end of May 2020. Although the scope and prioritization of the inspections were appropriate, the licensee encountered	

several types of issues during this work. The licensee's inspections to-date identified the following:

- Five fans were found with out-of-specification belt tension
- Three belts were installed after they had exceeded the recommended shelf life
- Two belts had been installed using an outdated revision of the work instructions
- Eight components were found to have out-of-specification fan speed
- One of the installation work orders failed to take as-found data before replacing/tensioning the fan belt

Note that these results were not yet complete, but reflect the information available at the time of inspection. With the exception of the original emergency exhaust fan belt failure, none of the above issues resulted in an inoperability of the associated systems.

The examples of not completing the job to the correct revision represent gaps in coordination and planning for corrective actions. Similarly, the example of not taking as-found data represents errors in communication and results in missing data that is used in past operability assessments. The examples of installing a belt that has exceeded its shelf life, as-found belt tension being out of tolerance, and identifying fans that are outside their design for speed represent gaps in maintaining design control that the station was not sensitive to prior to the emergency exhaust fan belt failure. Specifically, the licensee was not aware of vendor information and operating experience at other stations, such that Callaway was not appropriately monitoring shelf life for belts, had been using an improper installation method that could damage the belts, and was not establishing the correct belt tension.

Condition Report 202002488 for the residual heat removal A room cooler (SGL10A) is of particular interest. When the belt inspection was completed using the incorrect revision of the job, the belts were improperly installed by "rolling on" under tension instead of after fan disassembly with minimal tension. This recreated a condition that the licensee was attempting to correct via this job. The licensee identified this issue through their post-work interviews, wrote the condition report, assessed operability, and scheduled the work to be done again correctly.

The licensee created several roll-up condition reports to capture the above issues. For example, Condition Report 202002763 describes the failure to collect data, inadequate communication, and a lack of a questioning attitude while performing these jobs. Condition Report 202002737 describes cross-functional weaknesses in teamwork including preparation, a lack of formality in assigning corrective actions, and not appropriately considering short-term vulnerabilities while performing fan belt work without a complete cause evaluation. The original root cause, Condition Report 202000878, has also been updated with these issues and corrective actions assigned.

The inspectors acknowledge that the licensee identified the original broken fan belt through operator tours of the plant. Similarly, the issues described above are the results of an extensive and aggressive extent-of-condition and extent-of-cause review process by the licensee.

The inspectors' area of concern for safety-related HVAC issues is the gap in knowledge that was available via operating experience and vendor information prior to the failure. Given the

number of examples affecting several aspects of safety-related HVAC systems, the inspectors determined that this may be an emerging trend.

Overall, the inspectors concluded that the licensee demonstrated a low threshold for issue identification and documentation in the corrective action program. The licensee applied a risk-based approach to ensure corrective actions were scheduled commensurate with an issue's safety significance. The inspectors did not identify any additional trends or concerns that might be indicative of a more significant issue.

Licensee-Identified Non-Cited Violation	71153
<p>This violation of very low safety significance was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.</p>	
<p>Violation: Callaway Plant Technical Specification 5.4.1, "Procedures," requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, Section 9, "Procedures for Performing Maintenance," states, in part, that maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances.</p>	
<p>Contrary to the above, from June 25, 2019, to February 18, 2020, the licensee failed to properly preplan and perform maintenance that can affect the performance of safety-related equipment in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Specifically, work instructions to install and tension drive belts for safety-related fans were not appropriate to the circumstances because the maintenance instructions failed to incorporate vendor guidance and industry standards intended to ensure proper service life of fan belts. As a result, the licensee improperly installed drive belts in the emergency exhaust system fans by rolling them on under tension, installed belts that had exceeded their shelf life, and did not provide adequate belt tension values including post-run tension checks. These inadequate procedures and instructions for safety-related drive belts resulted in the emergency exhaust fan CGG02B inner belt failing which rendered the train B emergency exhaust system inoperable for several months. This was reported in LER 05000483/2020-001-00, "Emergency Exhaust Train Inoperable Due to Fan Belt Degradation and Failure."</p>	
<p>Significance/Severity: Green.</p>	
<p>Significance: The inspectors determined the finding to be of very low safety significance (Green) because the finding only represented a degradation of the radiological barrier function provided for the auxiliary building and spent fuel building.</p>	
<p>Corrective Action References: Condition Report 202000878.</p>	

EXIT MEETINGS AND DEBRIEFS

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

- On July 1, 2020, the inspectors presented the integrated inspection results to Mr. B. Cox, Site Vice President, and other members of the licensee staff.

- On May 29, 2020, the inspectors presented the occupational radiation safety inspection (71124.02 and 71124.04) 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
71111.01	Work Orders		19505163	
	Procedures	OTN-EF-00001	Essential Service Water System	79
		OTN-NB-0001A	4.16 kV Vital Electrical System	14
		OTS-ZZ-00007	Plant Cold Weather	38
	PSP-ZZ-00027	Seasonal Readiness Program	9	
71111.04	Corrective Action Documents	Condition Reports	200801549, 201606169, 201006463, 201706283, 201905734, 202001783, 202001795	
	Procedures	EDP-ZZ-01111	Vibration Predictive Maintenance	24
		MPE-ZZ-QY105	Operational Test Sequence of Motor Driven Auxiliary Feed Water Pumps	
		ODP-ZZ-00002	Equipment Status Control	93
		OTN-AE-00001	Feedwater System	56
	OTN-GK-00001	Control Building HVAC System	61	
71111.05AQ	Corrective Action Documents	Condition Reports	202001745, 202002617, 202002649, 202002650	
	Miscellaneous		Fire Pre-Plan	40
71111.06	Corrective Action Documents	Condition Reports	201103241, 201707058, 201905291	
	Miscellaneous	M-FL-10	Maximum Flood Level for Rooms in the Diesel Generator Building	2
	Procedures	APA-ZZ-00395	Significant Operator Response Training	31
OTA-RK-00024, Addendum 95B		Diesel Generator Room A Sump Level Hi	2	
71111.07	Corrective Action Documents	Condition Reports	201902874, 202001475, 202001748	
	Procedures	ETP-ZZ-03001	GL89-13 Heat Exchanger Inspection	13
	Miscellaneous	TSB 3.7.30	Class 1E Electrical Equipment Air Conditioning System	
71111.11	Corrective Action Documents	Condition Reports	202003053	
	Miscellaneous	T61.0810	S-1 Cycle 20-3 Simulator Training	3/30/2020
	Procedures	E-1	Loss of Reactor or Secondary Coolant	21

		E-3	Steam Generator Tube Rupture	24
		ES-1.1	SI Termination	17
71111.12	Corrective Action Documents	Condition Reports	201806154, 201806860, 200000025, 202000297, 202000964, 202001429, 202002179, 202002301, 202002376	
		Miscellaneous	AEPS DG PM List	5/1/2020
		E-0518B	Specifications for Transfer Switches	
		PRA-SY-Electrical	At-Power Internal Events Probabilistic Risk Assessment (PRA), Electrical Power System Analysis Notebook	1
		RFR 20458	Battery Charger Float-Equalize Switch and Potentiometer	B
		RFR 4440	Post Maintenance Test Requirements for Batteries	A
	Procedures	OTN-PA-00002	Loss of Coop Power to PA501 and PB05	14
		MSE-ZZ-QB002A	Quarterly Surveillance on NK11 Large Station Batteries	17
		MTE-ZZ-QB012B	Battery Charger Maintenance, Field Adjustments and Troubleshooting	18
MTE-ZZ-QN005		Electrical Scheme Checkout	11	
71111.13	Corrective Action Documents	Condition Reports	202002090, 202002243, 202002347, 202002374, 202002380, 202002412, 202002412, 202002539, 202002741, 202002855	
		Miscellaneous	NUMARC 93-01	Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants
	Procedures	APA-ZZ-00322	Integrated Work Management Process Description	20
		APA-ZZ-00322, Appendix F	Online Work Integrated Risk Management	18
		APA-ZZ-01250	Operational Decision Making	18
		EDP-ZZ-01128, Appendix 1	SSCs in the Scope of the Maintenance Rule at Callaway	11
		ODP-ZZ-0002, Appendix 2	Risk Management Actions for Planned Risk Significant Activities	17
	71111.15	Corrective Action Documents	Condition Reports	200801549, 202000856, 202001030, 202001312, 202001064, 202001206, 202001824, 20201894, 202002021, 202002160, 202002185, 202002380, 202003030
Drawings			M-627A-00097	DAA-P-7401 Multiblade Damper w/o Seals Q Listed
		M-627A-00138	Dampers - 7401 Q List Schedule	9
		M-627A-00144	Dampers Multiblade Q Listed Schedule	13

	Miscellaneous	M-627A-00146	DAA-P-7401 Multiblade Damper Opp. Blade 'Q' Listed	7
			Pressurizer instrument level trend graphs	
			Final Safety Analysis Report 16.3.3.8	
			NSAL 95-06	
		M-627A	Specifications for Dampers	16
		EF-45	Acceptance Criteria Used in Essential Service Water Flow Balance Procedures	8A
		Job 20001272	Investigate Breaker SGK05BCCB Found Tripped	
	Job 20001708	PB0501 Will Not Open From PBXY0001		
Procedures	EOP Addendum 42	HCST Alignment	2	
	OTN-EJ-00001	Residual Heat Removal System	28	
71111.18	Corrective Action Documents	Condition Reports	201904906, 201905348, 201905361	
	Miscellaneous	MP 17-0010	Essential Service Water Strainer Backwash Pipe Replacement	4
71111.19	Corrective Action Documents	Condition Reports	201705588, 201805136, 201865386, 202002725, 202002747, 202002999	
	Work Orders		15503046, 16512777, 16512791, 17505696, 19004910, 20200522	
	Procedures	MTE-ZZ-QA002	Troubleshooting General Controls Actuators	5
		MTE-ZZ-00001	HVAC System Air Balancing	8
		OSP-SH-00001	PAM Channel Check	30
ODP-ZZ-00020		Instrument Channel Deviations	19	
71111.22	Corrective Action Documents	Condition Reports	201703268, 201705184	
	Work Orders		16502150, 19513758, 20503884	
	Miscellaneous	C-151-01202	IM Escape Lock	
		PM1008590	Generator Full Load Test	
		PM1009242	Run Flex Diesel Backhoe	
	Procedures	APA-ZZ-00003	Unloading and Storage of New Fuel Assemblies and Inserts	37
		APA-ZZ-00365	Callaway Lifting Operations	23
		APA-ZZ-00750	Barrier Hazzard Program	46
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		OSP-SB-0001A	Reactor Trip Breaker A Trip Actuating Device Operational Test	24
		OTS-KE-00005	Operation of the New Fuel Elevator	13
71124.02	Corrective Action Documents	Condition Reports	201902760, 201902976, 201903033, 201904576, 201905580, 201904608, 201902688, 201904022, 201907036, 201907465, 201907807, 202000863, 202001820	
	Miscellaneous		Callaway Energy Center Refuel 23: ALARA Outage Report - April 1, 2019 to May 18, 2019	0
	Procedures	APA-ZZ-01000	Callaway Energy Center Radiation Protection Program	46
		APA-ZZ-01001	Callaway Plant ALARA Program	27
		HDP-ZZ-01100	ALARA Planning and Review	26
		HDP-ZZ-01200	Radiation Work Permits	33
		HDP-ZZ-03000	Radiological Survey Program	48
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	Radiation Surveys	Air Sample Log	Air Samples: Refuel 23 Results from April 22, 2019 - May 22, 2019	
		CA-M-20190406-9	RBHead - Reactor Head Lift	04/06/2019
		CA-M-20190410-23	RB2047' Posting Change	04/10/2019
		CA-M-20190411-22	Cavity Decontamination	04/11/2019
		CA-M-20190412-4	RB2021' Upper Cavity Post Shielding	04/12/2019
		CA-M-20190415-21	RB2021' Cavity-Post Shielding on #2 Stud Tent Survey	04/15/2019
		CA-M-20190419-7	RB2021' Cavity General Area	04/19/2019
		CA-M-20190423-4	R23 Reactor Head Stud Sleeve to 1333 - LDF	04/23/2019
		CA-M-20190426-12	RB2021 Cavity post clean up	04/26/2019
		CA-M-20190426-	RB2068W - Post Decontamination of Reactor Head Shield	04/26/2019

		20	Plate	
		CA-M-20190426-21	RB2090 - Post Decontamination of Handrail Deck Plate	04/26/2019
	Self-Assessments	AP19001	Audit Report: Radiation Protection (RP) Functional Area at the Callaway Energy Center	03/27/2019
71124.04	Corrective Action Documents	Condition Reports	20180324, 201804063, 201804425, 201804901, 201900086 201901607, 201902484, 201904715, 201905049, 201905637, 201907498, 201907807, 20200962, 20200104, 202002361, 202002363, 202002364	
	Miscellaneous		Analysis Report - Background Check QA Count: Whole Body Counter - Chair	05/18/2020
			Analysis Report - Background Check QA Count: Whole Body Counter - CPFFastscan	05/18/2020
		09MAR200018-DAW-1	Nuclide Distribution Report: Dry Active Waste CYCLE 22	03/09/2018
		HPCI 0202	Electronic Dosimeter Calibration Adjustment Factor	2
		HPCI 1403	Use of PM-12 for Passive Monitoring	1
		HPCI 1901	Correction Factor Analysis for Neutron Detection Instruments, RadEyeNL/DMC3000GN	0
		NVLAP LAB CODE: 100518-0	Certificate of Accreditation to ISO/IEC 17025:2005 - Landauer, Inc.; Effective 2020-01-01 through 2020-12-3.	01/01/2020
		PIN 140283	Radiation Dose Evaluation - DLR/SRD mismatch PIN 140283	02/21/2019
		PIN 140288	Radiation Dose Evaluation - DLR/SRD mismatch PIN 140288	02/13/2019
	Procedures	APA-ZZ-01004	Radiological Work Standards	34
		HDP-ZZ-01300	InterDescrinal Dosimetry Program	36
		HTP-ZZ-01433	Personnel Exposure Records	67
		HTP-ZZ-01462-DTI-POSTED DOSIM	Posted Dosimetry Program	13
		HTP-ZZ-01490	Determination of Beta Skin Dose	37
		HTP-ZZ-06009	Personnel Contamination Assessment and Decontamination	51
		RP-DTI-FASTSCAN	Contamination Monitoring Using the FastScan Whole Body Counter	3

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	Self-Assessments	201820044-064	NRC Pre-Inspection Self-Assessment: Radiation Safety ALARA Planning and Occupational Dose Assessment	05/07/2018
		AP19001	Radiation Protection (RP) Functional Area at the Callaway Energy Center	03/27/2019
		SA 202000212-013	NRC Pre-Inspection Self-Assessment: Occupational Dose Assessment	05/20/2020
		SBM 201820044-042	Cross Checks and Confirmations	01/31/2019
71151	Corrective Action Documents	Condition Reports	202000040, 202000277, 202000693, 202001933, 202001934, 202002084	
	Miscellaneous		Performance Indicator Basis Document	Various
			Control Room Logs	
		RRA-ZZ-00001	NRC Performance Indicator Program	12
	Procedures	APA-ZZ-01111	Mitigating Systems Performance Index (MSPI) Program Administration	7
			MSPI Basis Document	8
		KDP-ZZ-02000	NRC Performance Indicator (PI) Data Collection	19
71152	Corrective Action Documents	Condition Reports	202001121, 202001983, 202001464, 202002204, 202002475, 202002466, 202002488, 202002539, 202002569, 202002628, 202002653, 202002750, 202002840	
71153	Corrective Action Documents	Condition Reports	202000878, 202001073, 202001464, 202002539, 202002569	
	Miscellaneous	Job 19512263	Replace Belts, Clean and Inspect	
		RFR 5296B	Replacement Belt for SGL13A	
	Procedures	APA-ZZ-00013	Maintenance Department Skill of the Craft	9
		APA-ZZ-00542	Event Review and Post Transient Evaluation	21
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