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CP-201700112
TXX-17021

Ref: 10 CFR 50.73

February 22, 2017

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT
DOCKET NOS. 50-445 AND 50-446
UNANALYZED CONDITION INVOLVING POTENTIAL MODERATE ENERGY LINE
BREAK
LICENSEE EVENT REPORT 445/16-002-01

REFERENCES: 1. Letter logged TXX-16132 dated November 10, 2016, from John Dreyfuss to the NRC submitting Licensee Event Report 445/16-002-00, "Unanalyzed Condition Involving Potential Moderate Energy Line Break," for Comanche Peak Nuclear Power Plant Units 1 and 2.

Dear Sir or Madam:

Pursuant to 10CFR50.73, Vistra Operations Company LLC ("Vistra OpCo") hereby submits enclosed Licensee Event Report (LER) 445/16-002-01, "Unanalyzed Condition Involving Potential Moderate Energy Line Break," for Comanche Peak Nuclear Power Plant (CPNPP) Units 1 and 2. The two commitments that were made in Reference 1 have both been completed. Should you have any questions, please contact Mr. Gary Merka at (254) 897-6613.

Sincerely,

Vistra Operations Company LLC



John R. Dreyfuss
Plant Manager

Enclosure

c - Kriss Kennedy, Region IV
Margaret M. Watford, NRR
Resident Inspectors, Comanche Peak

IEZZ
NRR



LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form
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Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME

Comanche Peak Nuclear Power Plant

2. DOCKET NUMBER

05000 445

3. PAGE

1 OF 6

4. TITLE

Unanalyzed Condition Involving Potential Moderate Energy Line Break

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	13	16	16	002	01	02	22	17	CPNPP Unit 2	05000 446
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
10. POWER LEVEL	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> OTHER	Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT Timothy A. Hope, Manager, Regulatory Affairs	TELEPHONE NUMBER (Include Area Code) (254) 897-6370
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE		
	MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On September 13, 2016, and September 14, 2016, during plant walk downs by Engineering and the NRC Senior Resident inspector, pressurized fire protection piping in the Service Water Intake Structure was found to not be shielded against a Moderate Energy Line Break (MELB), resulting in inoperability of one train of Service Water for both units.

During extent of condition walk downs conducted on October 6, 2016, October 10, 2016, November 17, 2016, December 5, 2016, and December 22, 2016, additional piping in the Unit 1 and Unit 2 Safeguards and Auxiliary Buildings was found to not be shielded against a MELB, resulting in inoperability of one train of various safety related equipment for both units. The most likely cause of this event was the methodology used to conduct the initial MELB walk downs was flawed and allowed some MELB threats to be missed. Corrective actions include shielding the affected piping, performing a 100 percent walk down of rooms containing MELB piping identified for shielding, and revising the systems interaction program maintenance procedure.

All times in this report are approximate and Central Time unless noted otherwise.



**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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1. FACILITY NAME Comanche Peak Nuclear Power Plant	2. DOCKET NUMBER 05000- 445	3. LER NUMBER		
		YEAR 16	SEQUENTIAL NUMBER 002	REV NO. 01

NARRATIVE

I. DESCRIPTION OF THE REPORTABLE EVENT

A. REPORTABLE EVENT CLASSIFICATION:

10CFR50.73(a)(2)(i)(B), "Any operation or condition which was prohibited by the plant's Technical Specifications," 10CFR50.73(a)(2)(ii)(B), "The nuclear power plant being in an unanalyzed condition," 10CFR50.73(a)(2)(v), "Any event or condition that could have prevented the fulfillment of a safety function," 10CFR50.73(a)(2)(vii), "Any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system," and 10CFR50.73(a)(2)(ix)(A), "Any event or condition that as a result of a single cause could have prevented the fulfillment of a safety function for two or more trains or channels in different systems."

B. PLANT CONDITION PRIOR TO EVENT:

On September 13, 2016, September 14, 2016, October 6, 2016, October 10, 2016, November 17, 2016, December 5, 2016, and December 22, 2016, CPNPP Units 1 and 2 were in Mode 1 operating at 100% power.

C. STATUS OF STRUCTURES, SYSTEMS, OR COMPONENTS THAT WERE INOPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO THE EVENT

There were no inoperable structures, systems, or components at the start of the event that contributed to the event.

D. NARRATIVE SUMMARY OF THE EVENT, INCLUDING DATES AND APPROXIMATE TIMES:

At 1730 on September 13, 2016, during a plant walk down with the NRC Senior Resident inspector, a vertical section of pressurized fire protection pipe [EIS:(KP)(PSP)] in the Service Water Intake Structure (SWIS) was found to not be shielded against a Moderate Energy Line Break (MELB). In the event of a MELB crack along any portion of the unshielded portion of pipe, the MELB had a potential impact to the function of any one of the 4 Service Water (SW) pumps, but only one train would have been affected during the event. This is due to physical configuration/separation relative to the source line and target pumps and/or associated Motor Control Centers (MCCs) that support pump operation. Upon discovery of this condition, SW Train B and Emergency Diesel Generator (EDG) Train B on each Unit was declared inoperable per Technical Specifications (TS). NRC Event Report 52239 reported this as an unanalyzed condition per 10CFR50.72(b)(3)(ii)(B). At the time of discovery, all four Service Water trains were operable, therefore, this condition was not reportable as a loss of safety function per 10CFR50.72(b)(3)(v).

At 2233 on September 13, 2016, the affected fire protection pipe was isolated and SW Train B and EDG Train B on each Unit were declared operable. On September 14, 2016, the NRC Senior Resident Inspector identified an additional section of fire protection piping that was not adequately shielded for a MELB. On September 16, 2016, the required MELB shielding was installed on affected fire protection piping in the SWIS. Since the SW trains have been periodically declared inoperable at various times in the last three years for surveillance testing or maintenance, given the MELB condition, two SW trains could have been inoperable and this is reportable per 10CFR50.73(a)(2)(i)(B), 10CFR50.73(a)(2)(ii)(B), 10CFR50.73(a)(2)(v), 10CFR50.73(a)(2)(vii), and 10CFR50.73(a)(2)(ix)(A).

At 1410 on October 6, 2016, during extent of condition walk downs, a section of eyewash station pipe [EIS:(KC)(PSP)] in the Unit 2 Safeguards (SG) Building was identified that was not adequately shielded for a MELB. In the event of a MELB crack along any portion of this unshielded pipe, the MELB had the potential to impact Unit 2 Train B 480V MCC 2EB2-1.



**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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		YEAR 16	SEQUENTIAL NUMBER 002	REV NO. 01

NARRATIVE

This MCC provides power to Unit 2 Train B Emergency Core Cooling, Battery Charger, Containment Spray, and Containment Isolation Valve equipment. The affected eyewash station pipe was isolated shortly after it was discovered to not be adequately shielded for a MELB. NRC Event Report 52239 was updated to report this as an unanalyzed condition per 10CFR50.72(b)(3)(ii)(B). At the time of discovery, 2EB1-1 and the Unit 2 Train A Emergency Core Cooling, Battery Charger, Containment Spray, and Containment Isolation Valve equipment were operable, therefore, this condition was not reportable as a loss of safety function per 10CFR50.72(b)(3)(v).

Since 480V MCC 2EB1-1 and the Unit 2 Train A Emergency Core Cooling, Battery Charger, Containment Spray, and Containment Isolation Valve equipment trains have been periodically declared inoperable at various times in the last three years for surveillance testing or maintenance, given the MELB condition, 2EB1-1, 2EB2-1 and both trains of the Unit 2 Emergency Core Cooling, Battery Charger, Containment Spray, and Containment Isolation Valve equipment could have been inoperable and this is reportable per 10CFR50.73(a)(2)(i)(B), 10CFR50.73(a)(2)(ii)(B), 10CFR50.73(a)(2)(v), 10CFR50.73(a)(2)(vii), and 10CFR50.73(a)(2)(ix)(A).

At 1708 on October 10, 2016, as a result of ongoing extent of condition walk downs, a section of fire protection pipe in the Unit 1 SG Building was identified that was not adequately shielded for a MELB. In the event of a MELB crack along any portion of this unshielded pipe, the MELB had the potential to impact Unit 1 Train B Switchgear 1EA2, Unit 1 Train B 480V MCC 1EB4-2, and Unit 1 Train B Distribution Panel 1ED2-2. Only one of these power supplies at a time would have been affected. 1EA2 provides 6.9KV electrical power to various Unit 1 Train B safety-related pumps, panels, sequencer, and transformers. 1EB4-2 provides 480V electrical power to various Unit 1 Train B safety-related pumps, valves, fans, panels, and transformers. 1ED2-2 provides 125VDC electrical power to the EDG 1-02 channel 1 starting circuit. The affected fire protection pipe was isolated shortly after it was discovered to not be adequately shielded for a MELB. NRC Event Report 52239 was updated to report this as an unanalyzed condition per 10CFR50.72(b)(3)(ii)(B). At the time of discovery, none of the affected Train A equipment was inoperable. Therefore, this condition was not reportable as a loss of safety function per 10CFR50.72(b)(3)(v).

Since Unit 1 Train A Switchgear 1EA1, Unit 1 Train A 480V MCC 1EB3-2, and Unit 1 Train A Distribution Panel 1ED1-2 have been periodically declared inoperable at various times in the last three years for surveillance testing or maintenance, given the MELB condition, both trains of Unit 1 6.9KV power (1EA2 and 1EA1), both trains of Unit 1 480V power (1EB4-2 and 1EB3-2), and both trains of Unit 1 125VDC power (1ED2-2 and 1ED1-2) along with the safety-related equipment they supply could potentially have been inoperable and this is reportable per 10CFR50.73(a)(2)(i)(B), 10CFR50.73(a)(2)(ii)(B), 10CFR50.73(a)(2)(v), 10CFR50.73(a)(2)(vii), and 10CFR50.73(a)(2)(ix)(A).

At 0730 on November 17, 2016, during ongoing extent of condition walk downs in the Boric Acid Transfer Pump Area of the Auxiliary Building (AB), two pressurized fire protection pipe segments were identified that did not contain MELB shielding. In the event of a MELB crack along the unshielded portion of these pipes, the MELB had the potential to impact Unit 1 Train B 480V MCC 1EB4-1. This MCC provides 480V electrical power to various Unit 1 Train B safety-related pumps, valves, fans, battery chargers, and transformers.

At 0743, Technical Specification 3.8.9 Condition A was entered for one AC electrical power distribution subsystem inoperable. At 1021, MCC 1EB4-1 was declared Operable after MELB shielding was installed on the affected fire protection lines.



**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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1. FACILITY NAME		2. DOCKET NUMBER		3. LER NUMBER		
Comanche Peak Nuclear Power Plant		05000-	445	YEAR	SEQUENTIAL NUMBER	REV NO.
				16	002	01

NARRATIVE

Since Unit 1 Train A 480V MCC 1 EB3-1 and the associated Unit 1 Train A safety related pumps, valves, fans, battery chargers, and transformers have been periodically declared inoperable at various times in the last three years for surveillance testing or maintenance, given the MELB condition, 1 EB4-1, 1 EB3-1 and both trains of the Unit 1 safety-related pumps, valves, fans, battery chargers, and transformers they supply could have been inoperable and this represents an unanalyzed condition. NRC Event Report 52239 was updated to report this as an unanalyzed condition per 10CFR50.72(b)(3)(ii)(B). At the time of discovery, 1 EB3-1 and the associated Unit 1 Train A safety-related pumps, valves, fans, battery chargers, and transformers were operable. Therefore, this condition is not reportable as a loss of safety function per 10CFR50.72(b)(3)(v).

At 1355 on December 5, 2016 during ongoing extent of condition walk downs in the AB, pressurized fire protection pipe segments were identified which did not contain MELB shielding. In the event of a MELB crack along the un-shielded portion of the pipes, a MELB had the potential to impact Unit 2 Train B 480V MCC 2EB4-1. This MCC provides 480V electrical power to various Unit 2 Train B safety-related pumps, valves, fans, battery chargers, and transformers. At 1355, Technical Specification 3.8.9 Condition A was entered for one AC electrical power distribution subsystem inoperable. At 1459, MCC 2EB4-1 was declared Operable after MELB shielding was installed on the affected fire protection line locations.

Since Unit 2 Train A 480V MCC 2EB3-1 and the associated Unit 2 Train A safety related pumps, valves, fans, battery chargers, and transformers have been periodically declared inoperable at various times in the last three years for surveillance testing or maintenance, given the MELB condition, 2EB4-1, 2EB3-1, and both trains of the Unit 2 safety-related pumps, valves, fans, battery chargers, and transformers they supply could have been inoperable and this represents an unanalyzed condition. NRC Event Report 52239 was updated to report this as an unanalyzed condition per 10CFR50.72(b)(3)(ii)(B). At the time of discovery, 2EB3-1 and the associated Unit 2 Train A safety-related pumps, valves, fans, battery chargers, and transformers were operable. Therefore, this condition is not reportable as a loss of safety function per 10CFR50.72(b)(3)(v).

At 1046 on December 22, 2016, during ongoing extent of condition walk downs in the common AB corridor room, several normally pressurized Waste Processing (WP) pipe segments [EIS: (WH)(PSP)] and one Vent & Drain (VD) segment [EIS: (WK)(PSP)] were identified that did not contain MELB shielding. In the event of a MELB crack along the unshielded portion of these pipes, a MELB could have had the potential to impact Unit 1, Train B 480V MCC 1EB4-1. This MCC provides 480V electrical power to various Unit 1 Train B safety-related pumps, valves, fans, battery chargers, and transformers. Prior to the field walk down, the subject WP and VD line segments were either isolated and depressurized and/or the AB sump discharges realigned such that the subject lines would pose no threat to MCC 1EB4-1 if confirmed that shielding is required. As such, the identified condition does not adversely affect operability of 1EB4-1 and entry into a Technical Specification action statement was not required. MELB shielding has been installed on the affected WP and VD piping.

Since Unit 1 Train A 480V MCC 1EB3-1 and the associated Unit 1 Train A safety related pumps, valves, fans, battery chargers, and transformers have been periodically declared inoperable at various times in the last three years for surveillance testing or maintenance, given the MELB condition, 1EB4-1, 1EB3-1 and both trains of the Unit 1 safety-related pumps, valves, fans, battery chargers, and transformers they supply could have been inoperable and this represents an unanalyzed condition. NRC Event Report 52239 was updated to report this as an unanalyzed condition per 10CFR50.72(b)(3)(ii)(B). At the time of discovery, 1EB3-1 and the associated Unit 1 Train A safety-related pumps, valves, fans, battery chargers, and transformers were operable. Therefore, this condition is not reportable as a loss of safety function per 10CFR 50.72(b)(3)(v).



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		YEAR 16	SEQUENTIAL NUMBER 002	REV NO. 01

NARRATIVE

E. THE METHOD OF DISCOVERY OF EACH COMPONENT OR SYSTEM FAILURE, OR PROCEDURAL PERSONNEL ERROR

The unanalyzed condition on September 13, 2016, was discovered during a plant walk down by Engineering (Utility, Non Licensed) personnel with the NRC Senior Resident inspector. The unanalyzed condition on September 14, 2016, was discovered during a plant walk down by the NRC Senior Resident inspector. The unanalyzed conditions on October 6, 2016, October 10, 2016, November 17, 2016, December 5, 2016, and December 22, 2016, were discovered during extent of condition walk downs by Engineering (Utility, Non Licensed) personnel.

II. COMPONENT OR SYSTEM FAILURES

A. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE

Not applicable — No component or system failures were identified during this event.

B. FAILURE MODE, MECHANISM, AND EFFECTS OF EACH FAILED COMPONENT

Not applicable — No component or system failures were identified during this event.

C. SYSTEMS OR SECONDARY FUNCTIONS THAT WERE AFFECTED BY FAILURE OF COMPONENTS WITH MULTIPLE FUNCTIONS

Not applicable — No component or system failures were identified during this event.

D. FAILED COMPONENT INFORMATION

Not applicable — No component or system failures were identified during this event.

III. ANALYSIS OF THE EVENT

A. SAFETY SYSTEM RESPONSES THAT OCCURRED

Not applicable — No safety system responses occurred as a result of this event.

B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

Due to a postulated MELB, the following equipment could have been inoperable since initial licensing (April 17, 1990 for Unit 1 and April 6, 1993 for Unit 2): Unit 1 SW Train B, Unit 2 SW Train B, Unit 1 EDG Train B, Unit 2 EDG Train B, Unit 2 Train B 480V MCC 2EB2-1, Unit 1 Train B 6.9KV Switchgear 1EA2, Unit 1 Train B 480V MCC 1EB4-2, Unit 1 Train B 125VDC Distribution Panel 1ED2-2, Unit 1 Train B 480V MCC 1 EB4-1, and Unit 2 Train B 480V MCC 2EB4-1.

C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

This event involved past inoperability of the following equipment: Unit 1 SW Train B, Unit 2 SW Train B, Unit 1 EDG Train B, Unit 2 EDG Train B, Unit 2 Train B 480V MCC 2EB2-1, Unit 1 Train B 6.9KV Switchgear 1EA2, Unit 1 Train B 480V MCC 1EB4-2, Unit 1 Train B 125VDC Distribution Panel 1ED2-2, Unit 1 Train B 480V MCC 1 EB4-1, and Unit 2 Train B 480V MCC 2EB4-1. Since the opposite trains of this equipment were periodically declared inoperable at various times in the last three years for surveillance testing or maintenance, given the MELB condition, both Trains of these systems would have been inoperable.



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Comanche Peak Nuclear Power Plant		05000-	445	YEAR	SEQUENTIAL NUMBER	REV NO.
				16	002	01

NARRATIVE

Since no MELB events have occurred on the unshielded piping, there were no actual safety consequences for this event. This is a postulated event and the risk associated with this issue was very low and the safety of the environment or general population was not threatened. This event has been evaluated to meet the definition of a safety system functional failure per 10CFR50.73(a)(2)(v).

IV. CAUSE OF THE EVENT

The most likely cause of this event was the methodology used to conduct the initial MELB walk downs was flawed and allowed some MELB threats to be missed. Given the demarcation of responsibility between the walk down teams and the Design Engineers, the most likely cause for failing to identify those potential threats was the method by which the MELB walk downs were conducted. The decision to conduct the walk downs by looking for threats from the target's point of view instead of looking from both the target's and the threat's points of view resulted in valid threats going unrecognized. Threats not recognized by the walk down teams would not have been made known to the Design Engineer preparing the associated design change documents and consequently the affected piping was not identified for shielding.

V. CORRECTIVE ACTIONS

A 100 percent walk down was performed of rooms containing MELB piping identified for shielding to ensure all potential threats were properly shielded. The affected piping in the SWIS, SG, and AB has been shielded. The systems interaction program maintenance procedure was revised to provide additional guidance regarding MELB interactions and MELB shielding installation controls.

VI. PREVIOUS SIMILAR EVENTS

There have been no previous similar reportable events at CPNPP in the last three years.