EMERGENCY ACTION PLAN

EXISTING CCR IMPOUNDMENTS

ASBURY POWER PLANT

21133 Uphill Lane
Asbury, Missouri 64832

April 17, 2017

SERVICES YOU COUNT ON

EMPIRE DISTRICT ELECTRIC COMPANY

Prepared by:

PALMERTON & PARRISH, INC.

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April 17, 2017

Empire District Electric Company
Asbury Power Plant
21133 Uphill Lane
Asbury, Missouri 64832

RE: **Emergency Action Plan** – CCR Rule Section 257.73(a)(3)
Empire District Electric Company – Asbury Power Plant
Asbury, Missouri
PPI Project Number 231518

To Whom it May Concern:

This document is the **Emergency Action Plan** for the Empire District Electric Company's CCR Impoundment at the Asbury Power Plant. This document has been prepared to meet the requirements of Section 257.73(a)(3) of the CCR Rule.

In accordance with Section 257.105(f)(6) of the CCR Rule, a copy of this document should be maintained in Empire's operating records. In accordance with Section 257.107(f)(5), a copy of this document should also be posted to Empire's CCR Compliance website. Notification of the availability of this document should be provided to the State Director, as required in Section 257.106(f)(5). Additional documentation should be posted to Empire's CCR Compliance website as required by Section 257.107(f)(6) and 257.107(f)(7), and notification should be provided to the State Director, as required in Section 257.106(f)(6) and 257.106(f)(7).

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CCR RULE SECTION 257.73(a)(3)

EMPIRE DISTRICT ELECTRIC COMPANY – ASBURY POWER PLANT

ASBURY, MISSOURI

1.0 INTRODUCTION

CCR Rule Section 257.73(a)(3): Emergency Action Plan (EAP) – (i) Development of the plan. No later than April 17, 2017, the owner or operator of a CCR unit determined to be either a high hazard potential CCR surface impoundment or a significant hazard potential CCR surface impoundment under paragraph (a)(2) of this section must prepare and maintain a written EAP.

The Asbury CCR Impoundment is a significant hazard potential CCR surface impoundment as documented in Palmerton & Parrish, Inc.'s (PPI's) Report dated October 17, 2016. This Emergency Action Plan has been prepared to meet the requirements of CCR Rule Section 257.73(a)(3).

Information required by CCR Rules Sections 257.73(a)(3)(A) through 257.73(a)(3)(E) is presented in Sections 2.0 through 6.0 below.

2.0 CCR RULE SECTION 257.73(a)(3)(A) – SAFETY EMERGENCY

CCR Rule Section 257.73(a)(3)(A): Define the events or circumstances that represent a safety emergency, along with a description of the procedures that will be followed to detect a safety emergency in a timely manner.

The events or circumstances that would represent a possible safety emergency at the Asbury CCR Impoundment are:

1. CCR Impoundment levee embankment failure; and

2. Uncontrolled water discharge outside of the Spillway Structure.

The Asbury CCR Impoundment is constructed, maintained, and operated in a manner that makes the probability of a levee embankment failure or uncontrolled water discharge outside of the spillway structure extremely low. The Asbury CCR Impoundment is divided into three (3) Ponds: the South Pond, the Upper Pond, and the Lower Pond. The operation of these Ponds is summarized in Table 2.0-1 on the following page.

As summarized in Table 2.0-1, impounded water at the Asbury CCR Impoundment is primarily located in the southern end of the Lower Pond, where there is a controlled Spillway Structure. Empire's operating procedures include redundancies that allow for flexibility in management of impounded water and storm water runoff; this flexibility provides Empire with many options to deal in the event of unanticipated conditions or record rainfall. The low impounded water elevations in the Upper Pond, South Pond,

and northern 80 percent of the Lower Pond provide a structural benefit to the stability of the perimeter levee embankments.

Empire's normal operating procedures include monitoring of impounded water levels, monitoring of current weather conditions, and monitoring of anticipated rainfall events. Empire staff regularly observes the condition of the perimeter levee embankments in accordance with the requirements of the CCR Rule. These normal operating procedures facilitate detection of a safety emergency in a timely manner.

Table 2.0-1: Summary of Asbury CCR Impoundment Operation

Pond	Description (Impounded Water and Operating Conditions)
South Pond	There is little impounded water in the South Pond during normal operating conditions. During storm events, the South Pond has ample freeboard available for storm water storage. Excess freeboard is available in the South Pond to provide additional storage capacity for water from the Upper Pond and Lower Pond (water can be routed from the Lower Pond to the Upper Pond to the South Pond). The risk of overtopping is essentially zero, and the operating condition of the perimeter levee embankment is good.
Upper Pond	There is little impounded water in the Upper Pond during normal operating conditions. During storm events, the Upper Pond has ample freeboard available for storm water storage. Excess freeboard is available in the Upper Pond to provide additional storage capacity for water from the Lower Pond (water can be routed from the Lower Pond to the Upper Pond). If necessary, water can be further routed from the Upper Pond to the South Pond. The risk of overtopping is essentially zero, and the operating condition of the perimeter levee embankment is good.
Lower Pond	Approximately 80 percent of the footprint area of the Lower Pond is surficially dry. The southern portion of the Lower Pond impounds water and retains storm water for controlled discharge. Empire's operating procedures allow for controlled discharge of a significant volume of water through the spillway system during periods of heavy rainfall. Empire's operating procedures also include flexibility to route water from the Lower Pond back to the Upper Pond and South Pond if necessary. The risk of overtopping the controlled spillway structure is essentially zero, and the operating condition of the perimeter levee embankment is good.

3.0 CCR RULE SECTION 257.73(a)(3)(B) – RESPONSIBLE PERSONS

CCR Rule Section 257.73(a)(3)(B): Define responsible persons, their respective responsibilities, and notification procedures in the event of a safety emergency involving the CCR unit.

The persons who may be involved in detection of a possible safety emergency include Asbury Maintenance Staff, the Asbury Maintenance Manager, other Asbury Staff, a member of Empire's Consultant Team, or an employee of Empire's Site Services Contractor. The person who detects the possible safety emergency will be responsible to immediately notify the Asbury Maintenance Manager and follow up with documentation of the notification in writing as soon as practical.

The Asbury Maintenance Manager will be the first person notified in the event of a possible safety emergency. The Asbury Maintenance Manager will be responsible to

evaluate the data received regarding the possible safety emergency, complete an initial classification of the possible safety emergency, and determine necessary next steps.

Potential safety emergencies will be evaluated and addressed on a case-by-case basis. Subsequent to initial review of data received, the Asbury Maintenance Manager will assign an initial classification of the possible safety emergency as follows.

- Event Level 0: Unusual condition reported, determined to be a non-issue
- Event Level 1: Unusual condition, slowly developing
- Event Level 2: Unusual condition, rapidly developing
- Event Level 3: Unusual condition with imminent consequences; immediate response required.

A general outline of typical action items for an Event Level 0, Event Level 1, Event Level 2, and Event Level 3 is provided in the table below. Example forms for documentation of Initial Classification, and Event Resolution are provided in Appendix I.

Table 3.0-1: Action Items for Event Level 0, 1, 2, and 3

Possible Safety Emergency	Action Items
Event Level 0	Document Event Resolution (non-issue); Perform any required follow up work (maintenance, communication with staff, etc.) and document as necessary; Notify Asbury Power Plant Manager and Empire Environmental Coordinator of Event Resolution (non-issue).
Event Level 1	1. Determine if possible safety emergency is primarily a maintenance concern; 1a. If issue is primarily a maintenance concern, implement measures to address the maintenance concern; Document Event Resolution, and Notify Asbury Power Plant Manager and Empire Environmental Coordinator of Event Resolution; 1b. If issue is beyond a maintenance concern, contact other Empire Staff or members of Empire's Consultant Team for additional review as appropriate; Notify Asbury Power Plant Manager and Empire Environmental Coordinator of the issue and progress; Document Event Resolution; and Notify Asbury Power Plant Manager and Empire Environmental Coordinator of Event Resolution.
Event Level 2	2. Determine if emergency earthwork, pumps, or other measures are required. 2a. If so, mobilize Empire's Site Services Contractor or Empire Resources; Notify Local Emergency Responders of Event if appropriate; Notify Asbury Power Plant Manager and Empire Environmental Coordinator of the issue and progress; Document Event Resolution; and Notify Asbury Power Plant Manager and Empire Environmental Coordinator of Event Resolution. 2b. If emergency response measures are not required, contact Empire Staff or members of Empire's Consultant Team for additional review as appropriate; Notify Asbury Power Plant Manager and Empire Environmental Coordinator of the issue and progress;

	Document Event Resolution; and Notify Asbury Power Plant Manager and Empire Environmental Coordinator of Event Resolution.
Event Level 3	Evaluate and summarize scope of imminent consequences; Mobilize Empire's Site Services Contractor or Empire Resources (for completion of emergency earthwork, pump installation, or other measures); Notify Local Emergency Responders of Event; Notify Asbury Power Plant Manager and Empire Environmental Coordinator of the issue and progress; Notify other Empire Staff and members of Empire's Consultant Team as appropriate; Document Event Resolution; and Notify Asbury Power Plant Manager and Empire Environmental Coordinator of the Event Resolution.

4.0 CCR RULE SECTION 257.73(a)(3)(C) – EMERGENCY RESPONDERS

CCR Rule Section 257.73(a)(3)(C): Provide contact information of emergency responders.

Table 4.0-1: Emergency Responder Contact Information

Entity	Contact Information
Ambulance	911
Fire Department	Carl Junction Fire Department Bill Dunn, Fire Chief Phone: 417 649-7524 Non-Emergency Phone: 417 649-6062 Asbury Fire Department Don Polen, Fire Chief Phone: 417 642-5608 Non-Emergency: 417 642-5561
Police	Jasper County Sheriff's Department Phone: 417 624-1600 Non-Emergency: 417 358-8177 (courthouse) Non-Emergency: 417 624-1601 (Joplin)
Hospitals	Mercy Hospital – Joplin 2817 St. John's Blvd. Joplin, Missouri 64804 Phone: 417 781-2727 Freeman Health System 1102 W. 32nd Street Joplin, Missouri 64804 Phone: 417 623-2801 Emergency Trauma: 417 625-6656 Via Christi Hospital 1 Mt. Carmel Way Pittsburg, Kansas 66762 Phone: 620 231-6100 Emergency: 316 231-5863

Table 4.0-2: Asbury Power Plant – Physical Address and Phone Numbers	
Entity	Contact Information
Asbury Power Plant	21133 Uphill Lane Asbury, Missouri 64832 Phone: 417 626-5970 (Main Asbury Office) Phone: 417 625-5100 (Joplin Headquarters)

5.0 CCR RULE SECTION 257.73(a)(3)(D) –SITE MAP

CCR Rule Section 257.73(a)(3)(D): Include a map which delineates the downstream area which would be affected in the event of a CCR unit failure and a physical description of the CCR unit.

The location of the Asbury CCR Impoundment is shown on the United States Geological Survey (USGS) topographic quadrangle map included as Figure 1 in Appendix II. In the unlikely event of an uncontrolled release of water from the Impoundment, the likely affected downstream area is identified on the Figure.

A physical description of the Asbury CCR Impoundment is provided below. A general discussion of normal operating conditions and impounded water is presented in Section 2.0 of this document.

The Asbury CCR Impoundment is constructed of a perimeter earthen levee embankment. The Asbury CCR Impoundment is subdivided into three (3) operational Ponds, identified as the Lower Pond, Upper Pond, and South Pond. The Lower Pond, Upper Pond, and South Pond are separated by interior earthen embankments. The Asbury CCR Impoundment does not have “abutments” in the context of the CCR Rule. The table below summarizes subsurface conditions within the Asbury CCR Impoundment levee embankments, and underlying foundation conditions, based on the results of previous subsurface investigations.

Table 5.0-1: Levee Embankment and Foundation Physical and Engineering Properties	
Zone	Physical and Engineering Properties
Perimeter Levee Embankments	Earth fill typically consisting of stiff to very stiff lean clay. Field and laboratory test data indicates moderate to high in situ shear strength.
Interior Earthen Levee Embankments	Earth fill typically consisting of stiff to very stiff lean clay. Field and laboratory test data indicates moderate to high in situ shear strength.
Foundation Conditions	Natural lean clay soils, medium stiff to very stiff, often logged as shaley and/or with shale layers. Natural lean clay soils transition to weathered shale bedrock at depth.

6.0 CCR RULE SECTION 257.73(a)(3)(E) – ANNUAL FACE-TO-FACE MEETING

CCR Rule Section 257.73(a)(3)(E): Include provisions for an annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR unit and the local emergency responders.

Empire meets with local emergency responders on at least an annual basis as part of their normal operating procedures and for other regulatory compliance purposes. Discussion of this Emergency Action Plan will be added to the annual meeting agenda. Documentation of the annual meeting will be made using the form included in Appendix III of this Emergency Action Plan, or other form created by Empire.

APPENDIX I

CCR RULE SECTION 257.73(a)(3)(B)

POSSIBLE SAFETY EMERGENCY – FORMS

CCR Rule Section 257.73(a)(3)(B)

INITIAL CLASSIFICATION OF POSSIBILE SAFETY EMERGENCY

INITIAL EVENT CLASSIFICATION LEVEL DEFINITIONS	
Event Level 0	Unusual condition reported, determined to be a non-issue
Event Level 1	Unusual condition, slowly developing
Event Level 2	Unusual condition, rapidly developing
Event Level 3	Unusual condition with immediate consequences; immediate response required

DOCUMENT INITIAL REPORT	
Site Location:	Asbury CCR Impoundment
Report By: (Name and Title)	
Report Date:	
Describe Unusual Condition:	

INITIAL EVENT CLASSIFICATION LEVEL **(Determination by Maintenance Manager Unless Otherwise Noted)**	
By: (Name and Title)	
Date:	
Initial Classification:	
Rationale:	
Outline Next Steps / Action Items:	

CCR Rule Section 257.73(a)(3)(B)

EVENT RESOLUTION OF POSSIBLE SAFETY EMERGENCY

INITIAL REPORT INFORMATION	
Site Location:	Asbury CCR Impoundment
Report By: (Name and Title)	
Report Date:	
Initial Reported Unusual Condition:	
Initial Event Classification Level	

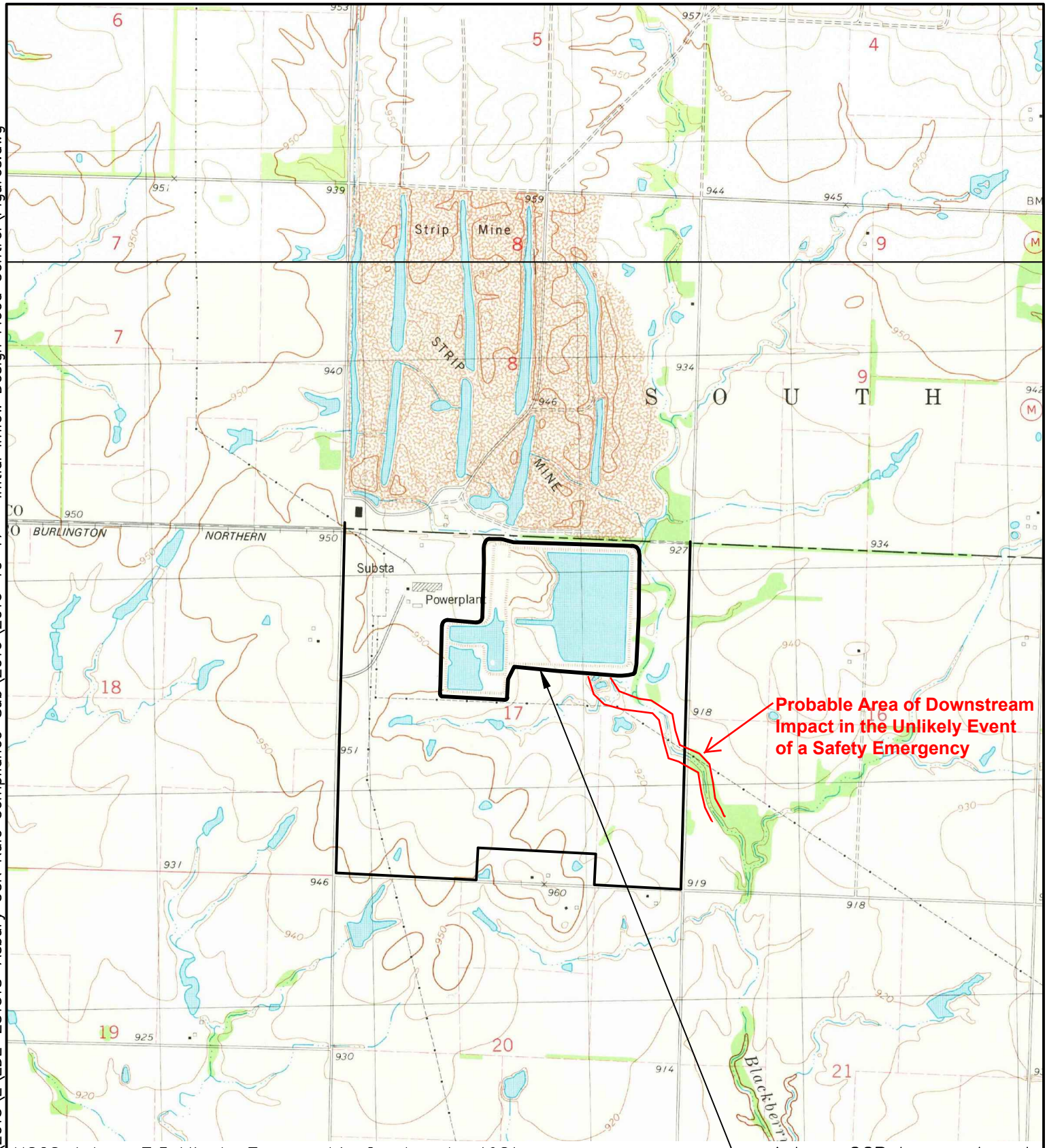
SUMMARY OF ACTIONS TAKEN **(List Action, By Whom, Date(s))**

EVENT RESOLUTION	
Event Resolution:	
Follow Up: (Actions, By, Deadline, etc.)	

APPENDIX II

CCR RULE SECITON 257.73(a)(3)(D)

FIGURE 1 – SITE LOCATION PLAN AND DOWNSTREAM IMPACTED AREA



USGS Asbury 7.5 Minute Topographic Quadrangle, 1981
USGS Mindenmines 7.5 Minute Topographic Quadrangle, 1981

SCALE 1"=2000'

Project: Asbury Power Plant, 21133 Uphill Lane, Asbury, MO
Client: Empire District Electric Company

Site Location Plan and Downstream Impacted Areas

DATE: April 17, 2017

Project Number: 231518

PALMERTON & PARRISH, INC.
GEOTECHNICAL AND MATERIALS ENGINEERS/MATERIALS TESTING LABORATORIES/ENVIRONMENTAL SERVICES

FIGURE 1

S:_MASTER PROJECT FILE\2015\E\EDE-231518-Asbury CCR Rule Compliance-Sub\2016\2016-10-17 - Initial Inflow Design Flood Control\Figures.dwg

APPENDIX III

CCR RULE SECTION 257.73(a)(3)(E)

ANNUAL MEETING WITH EMERGENCY RESPONDERS – FORM

CCR Rule Section 257.73(a)(3)(E)

DOCUMENTATION OF ANNUAL MEETING WITH LOCAL EMERGENCY RESPONDERS

MEETING INFORMATION	
Site Location:	Asbury CCR Impoundment
Meeting Date:	
Meeting Time:	
Meeting Location:	

ATTENDEES		
Entity	Representative (Name and Title)	Signature[1]

[1]By signing above, each person represents that he/she was in attendance at the above-referenced meeting, and that the Emergency Action Plan for the Asbury CCR Impoundment was discussed.