



solutions and action

Interstate Power and Light Company

Lansing Generating Station

CCR Surface Impoundment Inflow Design Flood Control Plan

154.018.029.002

Report issued: August 10, 2026 – Revision 2

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Executive Summary

This Inflow Flood Control Plan (Report) for the Lansing Generating Station (LAN) has been prepared in accordance with the requirements of the United States Environmental Protection Agency rules for Hazardous and Solid Waste Management System – Disposal of CCR from Electric Utilities (40 CFR Parts 257 and 261, also known as CCR Rule).

This Report serves as the second update to assess the hydrologic and hydraulic capacity requirements for each CCR unit at LAN in Lansing, Iowa in accordance with §257.82 of the CCR Rule. Primarily, the Report documents how the inflow design flood control system has been designed and constructed to meet the CCR Rule section §257.82.

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1. INTRODUCTION

The owner or operator of the Coal Combustion Residual (CCR) unit must conduct an initial and periodic inflow design flood control system plan to determine if each CCR unit adequately manages flow into and from each CCR unit during and following the peak discharge of the inflow design flood. The inflow design flood is selected based on the hazard potential classification (§257.73(a)(2)) for each CCR unit.

1.1 CCR Rule Requirements

The CCR Rule requires an initial and periodic inflow design flood control system plan certified by a qualified professional engineer for all existing, inactive, and legacy CCR surface impoundments (§257.82(c)(5)).

1.2 Hydrologic and Hydraulic Capacity Applicability

The Interstate Power and Light Company (IPL), Lansing Generating Station (LAN) in Lansing, Iowa (Figure 1) has one existing CCR surface impoundment (identified as the LAN Upper Ash Pond).

2. FACILITY DESCRIPTION

LAN is located approximately three miles southeast of Lansing, Iowa on the western shore of the Mississippi River in Allamakee County, at 2320 Power Plant Drive, Lansing, Iowa (Figure 1). LAN was a fossil-fueled electric generating station that had used four steam turbine electric generating units throughout its history. Unit 1, Unit 2, and Unit 3 were retired by 2014 and at that time, Unit 4 was the only remaining operating unit. Sub-bituminous coal was the primary fuel for producing steam at LAN. The CCR at LAN was categorized into three types: bottom ash, fly ash, and scrubber byproduct. Fly ash was collected by electrostatic precipitators and pneumatically conveyed to an onsite fly ash silo, which was equipped with a baghouse for dust control. The fly ash was then either transported off-site for beneficial reuse, landfilled (in the case of high loss on ignition), or sluiced to the former LAN Upper Ash Pond (typically during startup and shutdown). Bottom ash was sluiced to the former LAN Upper Ash Pond where it was dredged, dewatered, and transported to the onsite landfill. The former LAN Upper Ash Pond was located south of the generating plant. Scrubber byproduct consisted of fly ash, unreacted lime, and activated carbon. Scrubber byproduct was collected in the byproduct silo prior to being landfilled onsite.

A historical CCR surface impoundment at LAN, identified as the Lower Ash Pond, was located west of the generating plant and north of Power Plant Drive. The Lower Ash Pond was closed in September 2015 by removing the CCR from the surface impoundment via hydraulic dredge and sluicing the CCR to the south end of the former LAN Upper Ash Pond. CCR was removed from the Lower Ash Pond prior to backfilling the surface impoundment.

In mid-2023, Unit 4 was retired and the facility terminated all operations. In 2022 and 2023, closure construction activities were conducted for the former LAN Upper Ash Pond. In 2024, the LAN buildings were decommissioned and demolished. Currently, IPL is building a battery energy storage system (BESS) project on the former plant site and adjacent to the existing electrical substation.

General Facility Information:

Date of Initial Facility Operations:	1946
Historical NPDES Permit Number:	IA0300100
Latitude / Longitude:	41°56'38.43"N91°38'22.39"W
Unit Nameplate Ratings:	Unit 1 (1948): 16.6 MW (Retired)
	Unit 2 (1949): 11.4 MW (Retired)
	Unit 3 (1957): 35.8 MW (Retired)
	Unit 4 (1977): 270 MW (Retired)

2.1 LAN Upper Ash Pond

The former LAN Upper Ash Pond was located southwest of the generating plant and south of Power Plant Drive. The former LAN Upper Ash Pond received influent flows from the Unit 4 boiler floor sumps, water treatment sumps, fly ash hydroveyor system, storm water runoff from the active dry ash landfill and hillside east of the impoundment, as well as sluiced fly ash and bottom ash. The former LAN Upper Ash Pond was the only receiver of sluiced CCR at LAN. The CCR was sluiced from the generating plant to the southeast corner of the former LAN Upper Ash Pond where the majority of the CCR settled. Ongoing maintenance dredging was conducted in the southern portion of the former LAN Upper Ash Pond. The dredged CCR was temporarily stockpiled and dewatered prior to being transported to the on-site active dry ash landfill located south of the former LAN Upper Ash Pond.

The sluiced water that was discharged into the former LAN Upper Ash Pond flowed to the west prior to flowing north through a series of five interconnected settling ponds separated by intermediate dikes. The intermediate dikes had 30-inch diameter corrugated metal pipes on the west and east sides, which hydraulically connected the five settling ponds. The water from each settling pond flowed north until it entered the large open settling area of the former LAN Upper Ash Pond.

In the Fall of 2021, a new concrete outlet Weir Box structure was commissioned for the former LAN Upper Ash Pond, while the previous discharge structure (Weir Box #1) was retrofitted to become an emergency stormwater overflow structure for sizeable precipitation events. The new outfall structure was in the northeast corner of the impoundment and equipped with fiberglass stoplogs to adjust the operating elevation of the former LAN Upper Ash Pond. Discharge was directed north in a 16-inch diameter HDPE pipe below Power Plant Drive. There it transitioned to a 20-inch diameter HDPE pipe and continued below the railroad tracks and then headed east where National Pollution Discharge Elimination System (NPDES) Outfall 010 discharged into the Mississippi River.

Emergency Overflow Weir Box #1, located at the north end of the former LAN Upper Ash Pond, where during an emergency, water overflowed a concrete weir into the concrete structure, and then through a 24-inch diameter corrugated metal pipe under Power Plant Drive and into Weir Box #2. The water left Weir Box #2 through a 24-inch diameter high density polyethylene pipe and into Weir Box #3 in the backfilled, former LAN Lower Ash Pond. The water flowed through Weir Box #3 and discharged to the west through a 24-inch diameter corrugated metal pipe into Unnamed Creek #1. Unnamed Creek #1 flowed to the north into Unnamed Creek #2 which then discharged into the Mississippi River.

The total surface area of the former LAN Upper Ash Pond was approximately 11.5 acres and had an embankment height of approximately 20 feet from the crest to the toe of the downstream slope at its greatest height. The area of the entire CCR Unit inclusive of the impoundment and the dredging, staging, and dewatering area was approximately 17 acres. The interior storage depth of the former LAN Upper Ash Pond was approximately 28 feet.

During the closure construction activities in 2022 and 2023, a stabilized berm was constructed and bisected the former LAN Upper Ash Pond. This allowed for hydraulic dredging of the CCR from the northern portion of the Pond into the southern portion. The dredged CCR was pumped into geotubes and allowed to dewater. CCR was completely removed from the northern portion of the Pond. After CCR removal and dewatering of the impoundment was completed, a cap was placed over the CCR. The previous discharge structures (Weir Boxes 1 through 3 and the concrete discharge box constructed in 2021) were demolished and a portion of the western embankment was removed to allow for stormwater drainage to sheet drain into ditch lines that discharge directly into the Unnamed Creek #1 without retention within the former LAN Upper Ash Pond. SCS Engineers estimated the total volume of CCR post closure as 622,000 cubic yards.

3. HYDROLOGIC AND HYDRAULIC CAPACITY- §257.82(a) and (b)

This Report provides hydrologic and hydraulic capacity information for the inflow design flood control systems which is to:

1. Adequately manage flow into each CCR unit during and following the peak discharge inflow of the specified design flood,
2. Adequately manage flow from each CCR unit to collect and control the peak discharge resulting from the inflow design flood; and,
3. Handle discharge from the CCR unit in accordance with NPDES regulations 40 CFR §257.3

3.1 Hazard Classification and Design Storm

The 2023 Hazard Potential Classification analysis classified the former LAN Upper Ash Pond as “Low Hazard Potential”. Therefore, the design storm used for all four existing surface impoundments is the 100-year return event SCS Type II 24-hour storm as designated in §257.82(a)(3)(iii). The total rainfall for the two design events selected from the National Oceanographic and Atmospheric Administration’s (NOAA) probabilistic map for the LAN Site coordinates is 7.56 inches for the 100-year event (see Appendix A).

3.2 Hydrologic and Hydraulic Capacity Methods

The former LAN Upper Ash Pond underwent closure construction activities in 2022 and was substantially complete in 2023. As part of the closure construction activities, CCR was removed from the northern portion and consolidated into the southern portion. The CCR was graded, capped, and sloped to promote positive drainage. The surface impoundment can no longer detain stormwater as the final slopes are graded to shed stormwater off the impoundment through an area where the embankment was removed (Appendix B). The former LAN Upper Ash

Pond area sheet drains into ditch lines and directly into Unnamed Creek #1 which eventually discharges to the Mississippi River.

3.3 Hydrologic and Hydraulic Capacity Input and Assumptions

This section identifies the inputs and assumptions for the hydrologic and hydraulic capacity calculations for the former LAN Upper Ash Pond. The watershed includes a total of 87 acres as follows:

Sub-Area	Acreage	Curve Number (CN)	Slope (%)	Hydraulic Length (ft)
Wooded Side Slope	54	60	19	
Ash Landfill	16	86		
LAN Upper Ash Pond	17	77		
Weighted Average	87	72	19	2,150

Because the former LAN Upper Ash Pond no longer has the ability to retain stormwater, the hydraulic and hydraulic capacity calculations are not applicable as stormwater sheet drains into ditch lines that direct stormwater runoff through the section of the embankment that has been removed.

4. INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN

The 87-acre stormwater drainage area flows into the former LAN Upper Ash Pond from the wooded hillside and closed ash landfill. The stormwater flows overland and discharges through the cutaway of the embankment (Appendix B) and into Unnamed Creek #1. Stormwater is not retained within the former LAN Upper Ash Pond. Therefore, no flood control system plan is required.

5. QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

To meet the requirements of 40 CFR 257.82(c)(5), I Mark W. Loerop hereby certify that I am a licensed professional engineer in the State of Iowa; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in 40 CFR 257.82.

By: _____

Name: _____

Date: _____





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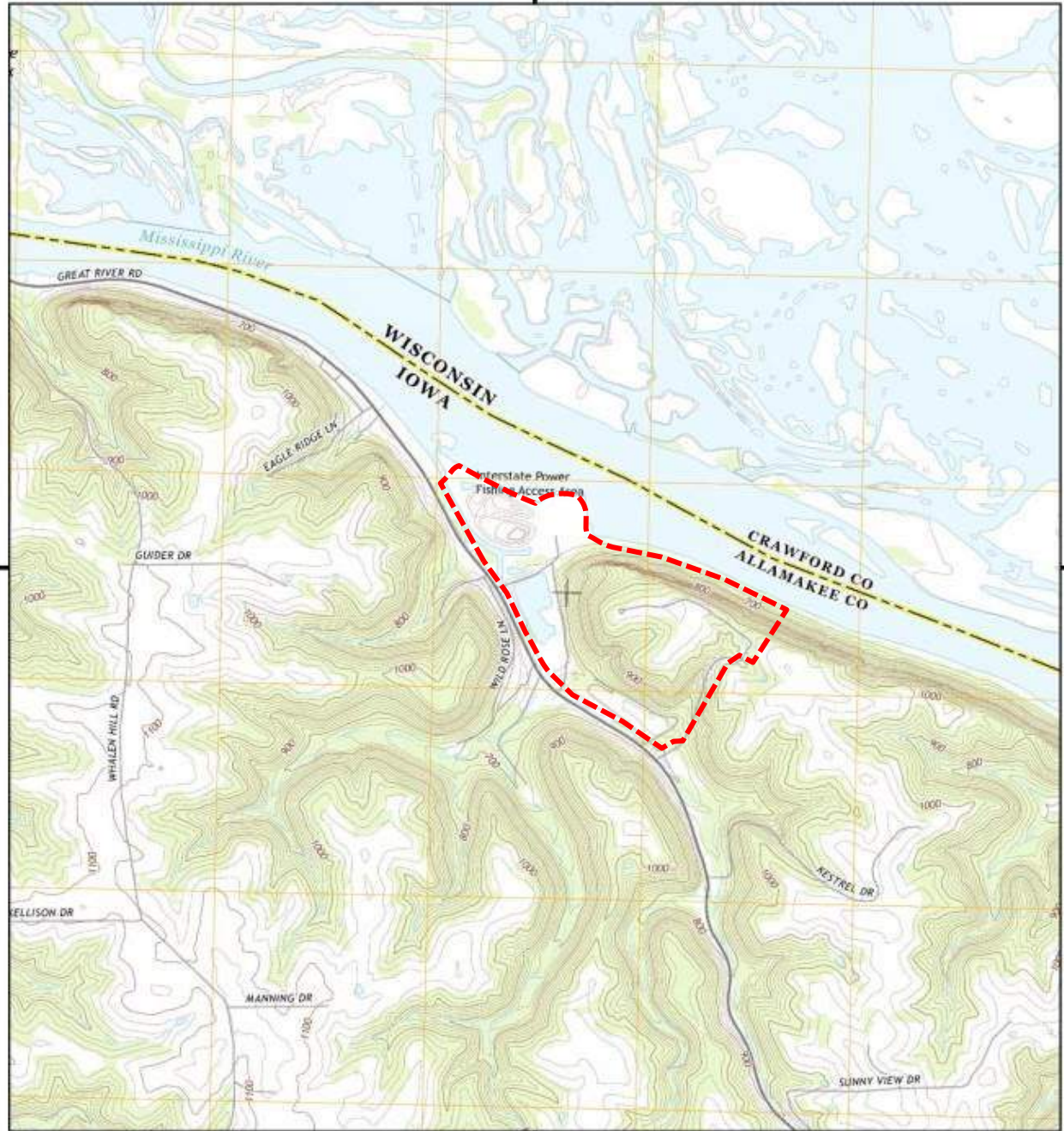
FIGURES

Alliant Energy
Interstate Power and Light Company
Lansing Generating Station
Lansing, Iowa

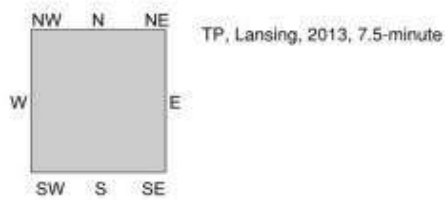
Inflow Design Flood Control System Plan

Historical Topo Map

2013



This report includes information from the following map sheet(s).



SITE NAME: Lansing Generating Station
ADDRESS: 2364-2366 Power Plant Dr
Lansing, IA 52151
CLIENT: Environmental Site Assessors



Historical Aerial Photo



----- Approximate Property Boundary



Site Location
Lansing Generating Station
Intersate Power and Light Company

Drawing
Figure 1
Date
8/6/2026



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APPENDIX A – NOAA Storm Frequency

Alliant Energy
Interstate Power and Light Company
Lansing Generating Station
Lansing, Iowa

Inflow Design Flood Control System Plan

NOAA Atlas 14, Volume 8, Version 2

Location name: Lansing, Iowa, USA*

**Latitude: 43.3333°, Longitude:
-91.1686°**

Elevation: 649 ft**

* source: ESRI Maps

** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael
St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery
Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_aerials](#)

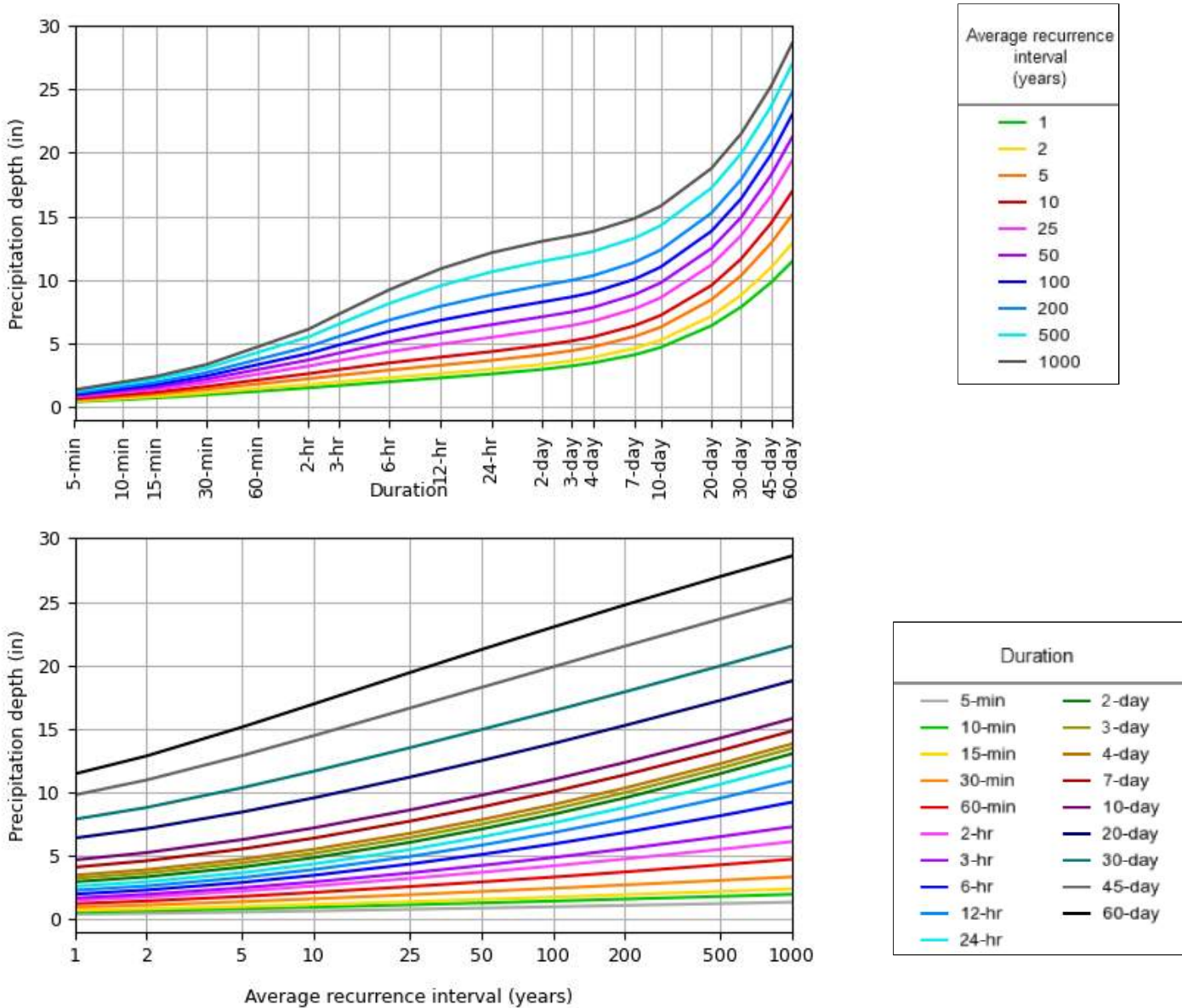
PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.384 (0.308-0.481)	0.447 (0.358-0.560)	0.552 (0.440-0.692)	0.641 (0.509-0.807)	0.767 (0.591-0.996)	0.867 (0.653-1.14)	0.969 (0.707-1.30)	1.08 (0.755-1.48)	1.22 (0.825-1.72)	1.33 (0.878-1.90)
10-min	0.563 (0.451-0.704)	0.654 (0.524-0.819)	0.808 (0.645-1.01)	0.938 (0.745-1.18)	1.12 (0.866-1.46)	1.27 (0.957-1.67)	1.42 (1.04-1.90)	1.58 (1.10-2.16)	1.79 (1.21-2.51)	1.95 (1.29-2.78)
15-min	0.686 (0.550-0.859)	0.798 (0.639-0.999)	0.985 (0.786-1.24)	1.14 (0.909-1.44)	1.37 (1.06-1.78)	1.55 (1.17-2.03)	1.73 (1.26-2.32)	1.92 (1.35-2.64)	2.18 (1.47-3.06)	2.38 (1.57-3.39)
30-min	0.938 (0.752-1.17)	1.10 (0.881-1.38)	1.37 (1.09-1.72)	1.60 (1.27-2.01)	1.92 (1.48-2.49)	2.17 (1.63-2.85)	2.42 (1.77-3.25)	2.69 (1.89-3.69)	3.05 (2.06-4.28)	3.32 (2.19-4.73)
60-min	1.21 (0.970-1.52)	1.42 (1.14-1.78)	1.78 (1.42-2.24)	2.10 (1.67-2.64)	2.55 (1.97-3.33)	2.92 (2.21-3.85)	3.31 (2.42-4.45)	3.71 (2.61-5.11)	4.27 (2.89-6.02)	4.71 (3.11-6.71)
2-hr	1.48 (1.20-1.84)	1.74 (1.41-2.16)	2.20 (1.77-2.73)	2.60 (2.09-3.24)	3.19 (2.50-4.14)	3.68 (2.81-4.82)	4.19 (3.09-5.60)	4.73 (3.36-6.48)	5.50 (3.75-7.71)	6.10 (4.05-8.64)
3-hr	1.66 (1.35-2.04)	1.95 (1.59-2.40)	2.46 (2.00-3.04)	2.93 (2.36-3.63)	3.63 (2.86-4.70)	4.22 (3.24-5.51)	4.85 (3.60-6.47)	5.53 (3.94-7.56)	6.49 (4.46-9.09)	7.27 (4.85-10.2)
6-hr	1.96 (1.62-2.39)	2.29 (1.88-2.79)	2.88 (2.37-3.53)	3.45 (2.81-4.23)	4.33 (3.46-5.59)	5.08 (3.96-6.62)	5.91 (4.44-7.86)	6.82 (4.92-9.30)	8.13 (5.64-11.4)	9.21 (6.18-12.9)
12-hr	2.27 (1.89-2.74)	2.61 (2.17-3.15)	3.26 (2.71-3.95)	3.90 (3.22-4.74)	4.92 (3.99-6.33)	5.81 (4.58-7.53)	6.80 (5.17-9.01)	7.91 (5.76-10.7)	9.52 (6.65-13.2)	10.9 (7.33-15.1)
24-hr	2.58 (2.17-3.08)	2.94 (2.47-3.51)	3.64 (3.06-4.36)	4.34 (3.62-5.22)	5.46 (4.48-6.97)	6.46 (5.14-8.30)	7.56 (5.80-9.94)	8.80 (6.46-11.9)	10.6 (7.48-14.6)	12.1 (8.25-16.8)
2-day	2.94 (2.50-3.47)	3.33 (2.83-3.93)	4.09 (3.47-4.85)	4.83 (4.08-5.76)	6.03 (4.99-7.60)	7.08 (5.68-9.00)	8.25 (6.38-10.7)	9.55 (7.06-12.7)	11.5 (8.12-15.7)	13.0 (8.92-17.9)
3-day	3.21 (2.75-3.77)	3.62 (3.10-4.26)	4.42 (3.77-5.20)	5.18 (4.40-6.13)	6.40 (5.33-8.01)	7.47 (6.03-9.43)	8.65 (6.72-11.2)	9.96 (7.40-13.2)	11.9 (8.46-16.2)	13.5 (9.25-18.4)
4-day	3.45 (2.98-4.03)	3.89 (3.35-4.54)	4.71 (4.04-5.52)	5.50 (4.69-6.48)	6.74 (5.62-8.38)	7.82 (6.33-9.81)	9.01 (7.02-11.6)	10.3 (7.69-13.6)	12.2 (8.73-16.6)	13.8 (9.52-18.8)
7-day	4.08 (3.55-4.73)	4.59 (3.99-5.32)	5.52 (4.78-6.41)	6.38 (5.49-7.45)	7.70 (6.45-9.44)	8.82 (7.18-10.9)	10.0 (7.86-12.8)	11.4 (8.51-14.9)	13.3 (9.51-17.9)	14.8 (10.3-20.1)
10-day	4.66 (4.08-5.37)	5.23 (4.58-6.03)	6.26 (5.45-7.23)	7.18 (6.22-8.34)	8.58 (7.21-10.4)	9.74 (7.96-12.0)	11.0 (8.64-13.9)	12.3 (9.27-16.0)	14.2 (10.2-19.1)	15.8 (11.0-21.4)
20-day	6.38 (5.65-7.27)	7.14 (6.31-8.14)	8.43 (7.43-9.64)	9.55 (8.36-11.0)	11.2 (9.45-13.3)	12.5 (10.3-15.1)	13.8 (11.0-17.2)	15.3 (11.5-19.6)	17.2 (12.5-22.8)	18.8 (13.2-25.2)
30-day	7.86 (7.01-8.90)	8.79 (7.83-9.96)	10.3 (9.17-11.7)	11.6 (10.3-13.3)	13.5 (11.4-15.9)	14.9 (12.3-17.9)	16.4 (13.0-20.2)	17.9 (13.6-22.8)	19.9 (14.5-26.2)	21.5 (15.1-28.8)
45-day	9.78 (8.78-11.0)	11.0 (9.83-12.3)	12.9 (11.5-14.5)	14.4 (12.8-16.4)	16.6 (14.2-19.4)	18.2 (15.2-21.7)	19.9 (15.9-24.3)	21.5 (16.4-27.2)	23.6 (17.2-30.9)	25.2 (17.8-33.6)
60-day	11.4 (10.3-12.8)	12.9 (11.6-14.4)	15.1 (13.6-17.0)	16.9 (15.1-19.1)	19.4 (16.6-22.5)	21.2 (17.7-25.1)	23.0 (18.4-28.0)	24.8 (18.9-31.1)	27.0 (19.7-35.0)	28.6 (20.3-38.0)
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.										

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PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 43.3333°, Longitude: -91.1686°



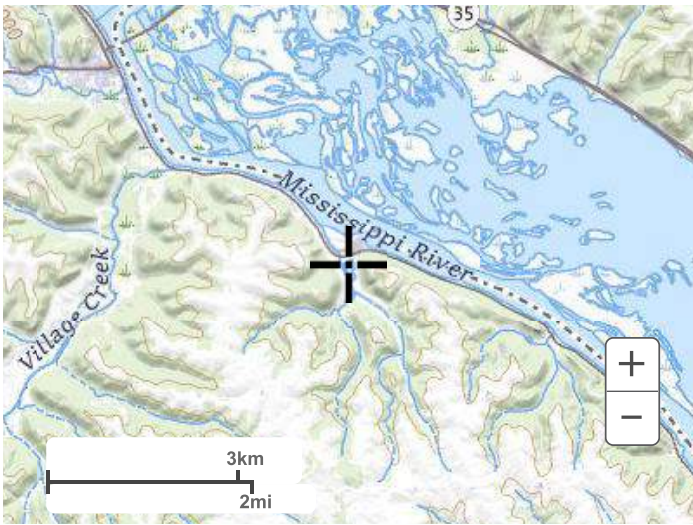
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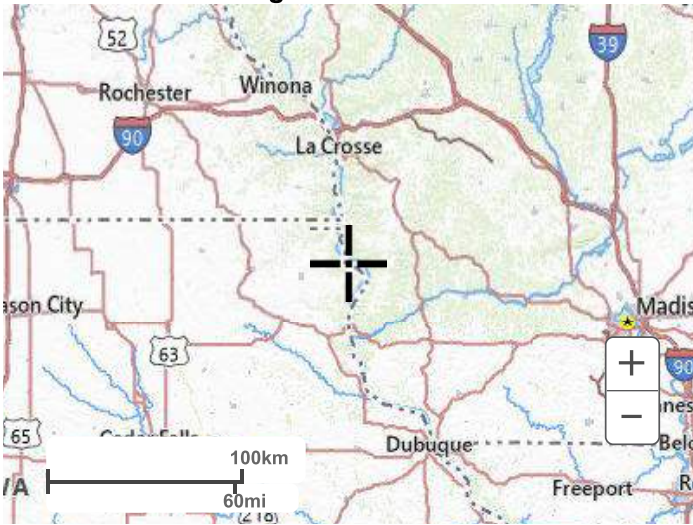
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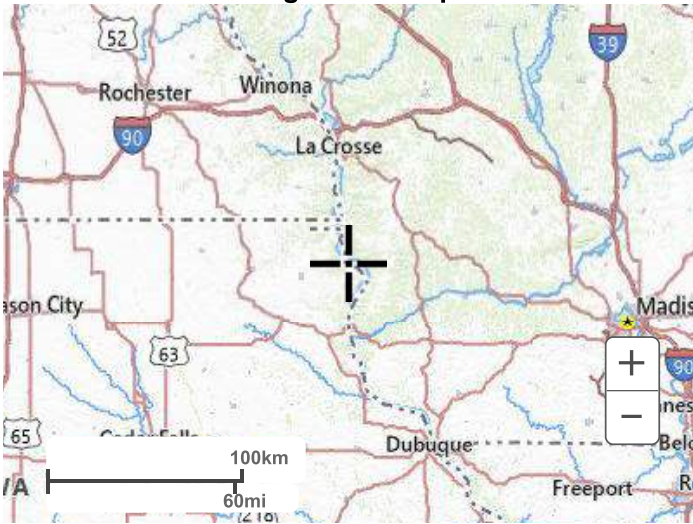
Small scale terrain



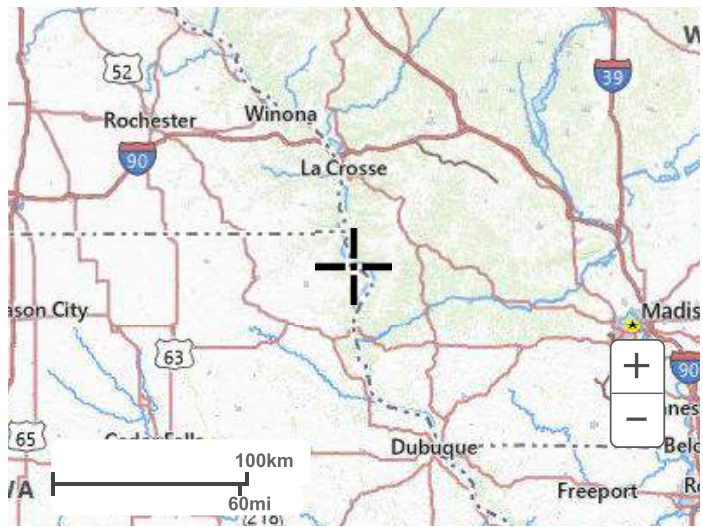
Large scale terrain



Large scale map



Large scale aerial



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APPENDIX B – Closure Area Restoration Drawing

Alliant Energy
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Lansing Generating Station
Lansing, Iowa

Inflow Design Flood Control System Plan

