US Army Corps of Engineers ®
Rock Island District

Information Paper

Saylorville Lake and Big Creek Remedial Works

Contact:
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Authorized: Flood Control Act of 1958
Construction: 1965-1977; $130 million
Dam:
- **Type:** Earth Filled Embankment
- **Length:** 6,750 feet
- **Height:** 105 feet
- **Top Width:** 44 feet
- **Elevation (Top of Dam):** 915.5' National Geodetic Vertical Datum (NGVD) 29

Reservoir: 8 Miles North of Des Moines, IA
Normal Pool:
- **Length**: 19 miles
- **Area:** 4,970 acres
- **Storage:** 64,650 acre ft. (21.1 billion gallons) [1]

Flood Storage Pool:
- **Length:** 54 Miles
- **Area:** 15,990 acres
- **Storage:** 626,465 acre ft. (204.1 billion gallons)

Water Surface Elevation:
- **Normal Pool:** (11.5% of total storage capacity) 836' NGVD29
- **Flood Storage Pool:** A rise of 54' in elevation 890' NGVD29 (Top of Pneumatic Crest Gates)

Watershed Above Dam: 5,823 square miles
Total Project Acres: Approximatley 26,000

Authorized Missions: Flood Risk Management, Recreation, Environmental Stewardship, Water Supply, Low Flow Augmentation

Recreation:
Visitation FY18: 2,179,363 Visitors (estimated)
Corps Recreation Areas:
- Campgrounds: 4 with 530 campsites available
- Boat Ramp Access: 3 areas with 12 launch lanes
- Day Use Areas: 13 (including 24 group shelters)
- Beaches: 2
- Visitor Center: 1
- Marina: 1 (Leased to Private Company)

Environmental Stewardship Lands:
Wildlife/Forest/Prairie Management: 14,836 acres

Water Supply: Water supply storage contract with the State of Iowa

Regional Economic Impact: $40 million (FY18)

Flood Damages Prevented: $416 million (2018 $)
Average Inflows: 6,000 cubic feet per second (cfs) [2]
Average Outflows: 7,200 cfs

Historical:
Highest Inflows Recorded:
- 60,600 cfs June 10, 2008
- 47,100 cfs July 11, 1993

Highest Outflows Recorded:
- 47,000 cfs June 12, 2008
- 44,500 cfs July 18, 1993

Record High Pool Elevations:
- 892.03' NGVD29 (July 11, 1993)
- 891.03' NGVD29 (June 12, 2008)
- 889.25' NGVD29 (June 22, 1984)
- 889.15' NGVD29 (July 1, 2010)

Spillway Releases:
- July 1, 2010 (7 Days)
- June 10, 2008 (12 Days)
- June 18, 1993 (42 Days)

[1] NOTE: An acre-foot is one acre of water one foot deep. One acre foot is equivalent to 325,851.4 U.S. gallons.
[2] NOTE: Cubic feet per second (cfs). The rate of flow past a given point, measured in cubic feet per second. One cubic foot of water equals about 7.5 gallons and weighs 62 pounds.

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Big Creek Diversion Dam & Channel forming Big Creek Lake above Polk City

Big Creek Diversion Channel & Terminal Dam/Spillway with water flow into Saylorville Lake

Big Creek Barrier Dam & Pump Station

Authorized: Flood Control Act of 1958

Construction: 1965-1977; $130 million as part of the Saylorville Lake Project.

Location/Description
The Saylorville Lake Project also includes the Big Creek Remedial Works which consists of 3 dams, diversion channel, spillway and pump station. The Remedial Works protects Polk City, IA

History: The Big Creek Remedial Works Project was awarded the 1976 Chief of Engineers Distinguished Design Award. Originally Polk City was to be protected with a system of levees, but placing dams both above and below the city eliminated the need for those levees. The Iowa Department of Natural Resources manages the ponding area behind the Barrier Dam as an inviolate refuge during a portion of the year to protect waterfowl.

Big Creek Remedial Works Structures:

Barrier Dam: It protects Polk City from rising water in Saylorville Lake.

Pump Station: Excess water can be drained into Saylorville Lake via gravity flow through a conduit in the Barrier Dam or pumped when Saylorville Lake levels rise. There are three 24” pumps with 350 h.p. motors which are each capable of pumping 17,000 gallons per minute when Saylorville Lake level is high with 50’ of water head pressure above the pumps.

Diversion Dam: It formed 880 acre Big Creek Lake and protects Polk City from floodwaters within Big Creek Watershed. A minimum 3 cfs water quality release is maintained from the Diversion Dam through Polk City into the Ponding Area.

Diversion Channel & Terminal Dam/Spillway: Diverts floodwater from Big Creek Lake into Saylorville Lake. The spillway with a crest elevation of 920.0 NGVD keeps the lake level relatively stable at that elevation.