ALLIANT ENERGY
Wisconsin Power and Light Company
Edgewater Generating Station

CCR SURFACE IMPOUNDMENT

INFLOW DESIGN FLOOD CONTROL PLAN

Report Issued: September 21, 2016
Revision 0

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EXECUTIVE SUMMARY

This Inflow Flood Control Plan (Report) is prepared in accordance with the requirements of the United States Environmental Protection Agency (USEPA) published Final Rule for Hazardous and Solid Waste Management System – Disposal of Coal Combustion Residual from Electric Utilities (40 CFR Parts 257 and 261, also known as the CCR Rule) published on April 17, 2015 and effective October 19, 2015.

This Report assesses the hydrologic and hydraulic capacity requirements for each CCR unit at Edgewater Generating Station in Sheboygan, WI in accordance with §257.82 of the CCR Rule. For purposes of this Report, a CCR unit is defined as an existing CCR surface impoundment. 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.

This Report is prepared in accordance with the requirements of §257.82 of the CCR Rule.

1.1 CCR Rule Applicability

The CCR Rule requires an initial and periodic inflow design flood control system plan certified by a qualified professional engineer (PE) for all existing CCR surface impoundments. This report is the initial inflow design flood control system plan.

1.2 Hydrologic and Hydraulic Capacity Applicability

The Edgewater Generating Station (EDG) in Sheboygan, WI (Figure 1) has four existing CCR surface impoundments, identified as follows:

- EDG Slag Pond
- EDG North A-Pond
- EDG South A-Pond
- EDG B-Pond

2 FACILITY DESCRIPTION

EDG is located on the south edge of the City of Sheboygan, Wisconsin along the western shore of Lake Michigan in Sheboygan County, at 3739 Lakeshore Drive, Sheboygan, Wisconsin (Figure 1).

EDG is a fossil-fueled electric generating station that initiated operations in 1930. EDG consists of two steam electric generating units (Unit 4 and Unit 5). A third steam electric generating unit (Unit 3) was removed from service in 2015. Sub-bituminous coal is the primary fuel used at EDG for producing steam. The burning of coal produces CCR byproducts. The CCR at EDG is categorized into five types: precipitator fly ash, slag, bottom ash, economizer ash, and scrubber byproducts.

The Unit 4 precipitator fly ash is collected by Unit 4's electrostatic precipitators and sent to an on-site storage silo located southwest of the generating plant. The precipitator fly ash is then transported off-site for either beneficial reuse or for disposal at the EDG I-43 CCR landfill. The Unit 5 precipitator fly ash is collected by Unit 5's electrostatic precipitators and sent to a separate on-site storage silo located southwest of the generating plant. Unit 5's precipitator fly ash is then transported off-site for beneficial reuse or for disposal at the EDG I-43 CCR landfill..

The slag at EDG is produced from Unit 4 and is sluiced from the generating plant to a surface impoundment identified as the EDG Slag Pond (Figure 2). The EDG Slag Pond is located southwest of the generating plant.

Byproducts from the circulating dry scrubber (CDS) system are transported offsite for disposal at the EDG I-43 CCR Landfill.

General Facility Information:

Date of Initial Facility Operations:	1930
WPDES Permit Number:	WI-0001589-07-0
Latitude / Longitude:	43.716153, -87.706262

Nameplate Ratings:	Unit 1 (Retired)
	Unit 2 (Retired)
	Unit 3 (Retired)
	Unit 4 351 MW
	Unit 5 414 MW

2.1 EDG Slag Pond

The EDG Slag Pond is located southwest of the generating plant and north of the EDG North A-Pond. The EDG Slag Pond receives influent flow from the generating plant via the Unit 4 boiler slag tanks. The water-slag slurry discharges into the southwest portion of the EDG Slag Pond. The slag is dredged out of the EDG Slag Pond and stockpiled in a containerized area adjacent to the existing CCR surface impoundment for dewatering. The slag is then screened to separate the coarsely graded material from the finely graded material prior to being transported off-site for beneficial reuse. The water in the EDG Slag Pond flows to the southwest where it gravity flows through a V-notch weir and through a four feet wide concrete structure into a 48-inch diameter corrugated metal pipe. The water from the EDG Slag Pond, which combines with flows from the EDG North A-Pond and EDG South A-Pond in the 48-inch diameter corrugated metal pipe, flows to the south into the northwest corner of the EDG B-Pond.

The surface area of the EDG Slag Pond is approximately 2.2 acres and has an embankment height of approximately 12 feet from the crest to the toe of the downstream slope. The interior storage depth of the EDG Slag Pond is approximately 17 feet. The total volume of impounded CCR and water within the EDG Slag Pond is approximately 47,000 cubic yards.

2.2 EDG North A-Pond

The EDG North A-Pond is located southwest of the generating plant and south of the EDG Slag Pond. Historically, the EDG North A-Pond has received influent flows from the surge tank. Water in the surge tank includes excess process water from the Unit 5 hydrobin, steam water treatment reject water, and water from the facility floor drains. Therefore, the EDG North A-Pond has likely received residual bottom ash from the

hydrobin system, de minimis quantities of fly ash from routine maintenance operations, coal fines, and other materials from the plant floor drains. The water was pumped from the surge tank to the EDG North A-Pond via a 10-inch diameter steel pipe. The steel pipe, at a location northeast of the EDG North A-Pond, splits into two separate 10-inch diameter pipes. Each pipe then discharged into the northeast corner of both the EDG North A-Pond and EDG South A-Pond. Currently, EDG North A-Pond does not receive operational process discharges from the generating plant, although it still has the ability to be routed to the EDG North A-Pond.

Previously, water within the EDG North A-Pond flowed to the west. The EDG North A-Pond discharge consists of an 18-inch diameter corrugated plastic pipe located in the southwest corner of the existing CCR surface impoundment. The water would flow through the corrugated plastic pipe to the west into a concrete sluice box. The water within the sluice box flows through a Parshall flume prior to discharging into a 48-inch diameter corrugated metal pipe, which also receives influent flow from the EDG Slag Pond and EDG South A-Pond, prior to gravity flowing to the south into the northwest corner of the EDG B-Pond. Presently, no water within the EDG North A-Pond discharges through the 18-inch diameter corrugated plastic pipe as the pipe has been plugged.

The surface area of the EDG North A-Pond is approximately 2.2 acres and has an embankment height of approximately 18 feet from the crest to the toe of the downstream slope. The interior storage depth of the EDG Secondary Ash Pond is approximately 21 feet. The total volume of impounded CCR and water within the EDG North A-Pond is approximately 73,000 cubic yards.

2.3 EDG South A-Pond

The EDG South A-Pond is located southwest of the generating plant and south of the EDG North A-Pond. As currently configured, the EDG South A-Pond receives influent flows from the surge tank. Water in the surge tank includes excess process water from the Unit 5 hydrobin, steam water treatment reject water, and water from the facility floor

drains. Therefore, the EDG North A-Pond has likely received residual bottom ash from the hydrobin system, de minimis quantities of fly ash from routine maintenance operations, coal fines, and other materials from the plant floor drains. The water is pumped from the surge tank to the EDG South A-Pond via a 10-inch diameter steel pipe. The steel pipe, at a location northeast of the EDG North A-Pond, splits into two separate 10-inch diameter pipes. Each pipe then discharges into the northeast corner of both the EDG North A-Pond and EDG South A-Pond. Note, the EDG North A-Pond no longer receives operational process flows from the generating plant.

The water within the EDG South A-Pond flows to the west. The EDG South A-Pond consists of an 18-inch diameter corrugated plastic pipe located in the northwest corner of the existing CCR surface impoundment. The water flows through the corrugated plastic pipe to the west into a concrete sluice box. The water within the sluice box flows through a Parshall flume prior to discharging into a 48-inch diameter corrugated metal pipe, which also receives influent flow from the EDG Slag Pond, prior to gravity flowing to the south into the northwest corner of the EDG B-Pond.

The surface area of the EDG South A-Pond is approximately 2.2 acres and has an embankment height of approximately 18 feet from the crest to the toe of the downstream slope. The interior storage depth of the EDG South A-Pond is approximately 25 feet. The total volume of impounded CCR and water within the EDG South A-Pond is approximately 90,500 cubic yards.

2.4 EDG B-Pond

The EDG B-Pond is located southwest of the generating plant and south of the EDG South A-Pond. The EDG B-Pond receives influent flow via a 48-inch diameter corrugated metal pipe from the EDG Slag Pond and EDG South A-Pond. Additionally, the EDG B-Pond receives storm water drainage from a part of the closed ash landfill west of the EDG B-Pond. The storm water from the closed ash landfill discharges into the west side of the EDG B-Pond via a small corrugated plastic pipe.

The water in the EDG B-Pond flows to the east through an overflow weir wet well structure, Figure 2. The elevated weir prevents CCR that has settled in the EDG B-Pond from flowing out of the impoundment. The water gravity flows to the east through a 24-inch diameter corrugated metal pipe where it discharges into the west side of the EDG C-Pond. The water in the EDG C-Pond gravity flows to the east into the EDG F-Pond. The water in the EDG F-Pond flows through the facility's Wisconsin Pollution Discharge Elimination System (WPDES) Outfall 004 and discharges into Lake Michigan. As determined by WPL, process water discharging from the EDG B-Pond does not contain a significant quantity of CCR, and downstream impoundments contain only de minimis quantities of CCR.

The water surface area of the EDG B-Pond is approximately 1.9 acres and has an embankment height of approximately 24 feet from the crest to the toe of the downstream slope in EDG C-Pond. The interior storage depth of the EDG B-Pond is approximately 15 feet. The total volume of impounded CCR and water within the EDG B-Pond is approximately 46,500 cubic yards.

3 HYDROLOGIC AND HYDRAULIC CAPACITY- §257.82(a)

This Report provides hydrologic and hydraulic capacity information for inflow design flood control systems which is intended 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 during and following the peak discharge inflow of the specified design flood; and,
3. Handle discharge from the CCR unit in accordance with National Pollutant Discharge Elimination System (NPDES) regulations §257.3-3.

3.1 Hazard Classification and Design Storm

The EDG Slag Pond, EDG North A-Pond, EDG South A-Pond and EDG B-Pond are classified as significant hazard potential due to the risk of impacting Lake Shore Drive at the downstream edge of the Pond embankments in the result of a release. The release would be arrested by the railroad spur embankment for coal delivery preventing CCR from entering EDG E-Pond and EDG F-Pond.

The design storm for the EDG impoundments is the 1,000 year return event SCS Type II storm as defined in §257.82(3)(ii). The total rainfall for the design event selected from the National Oceanographic and Atmospheric Administration's probabilistic map for the EDG Site coordinates is 10.3 inches for the 1,000 year event, Appendix B.

3.2 Hydrologic and Hydraulic Capacity Methods

Since the use of EDG North A-Pond for receipt of process water flow is temporarily closed, the impoundment is analyzed as a zero discharge pond for the purposes of flood control. For the other three impoundments, the storm water is routed through the impoundments as if the storm water from EDG North A-Pond was contributing to the routing.

3.2.1 EDG North A-Pond

The 1,000 year SCS Type II Storm of 10.3 inches accumulates in the storage pool of the EDG North A-Pond without outflow. The total volume of water is calculated by accumulating the rainfall on the 2.68 acres of watershed and storing the water in the EDG North A-Pond without discharge and without exfiltration losses. The rainfall results in the introduction of 2.3 acre feet of water for storage.

3.2.2 Storm Routing Through Impoundments

The 1,000 year SCS Type II Storm was routed through the CCR units. The flow path is illustrated on Figure 2. The routing was completed using the program Hydraflow by Intelisolve[1] Hydraflow uses the unit hydrograph method to generate a Type II distributed rainfall distribution for each of the drainage area subsets in the watershed. Hydraflow then routes the unit hydrographs through the outlet structures of each EDG impoundment storing water within the impoundment in accordance with the input reservoir capacity of the impoundment. The proportion of runoff to rainfall for each subunit of the drainage watershed is input based on the characteristics of the area. The base flow from the generating station is input as a constant flow rate hydrograph to include the base flow in the routing.

Total surface water drainage of 14.8 acres is routed through the EDG impoundment outlets and stored during the peak flow.

3.3 Hydrologic and Hydraulic Capacity Input and Assumptions

The section identifies the input and assumptions for the hydrologic and hydraulic capacity calculations. The input for each drainage subarea is:

Sub-Area	Acreage	Curve Number	Slope (%)	Hydraulic Length (ft)
EDG Slag Pond	2.9	77	5.0	310
EDG North A-Pond	2.7	N/A	N/A	N/A
EDG South A-Pond	3.7	84	5.9	345
EDG B-Pond	5.5	81	3.8	390

[1] Intelisolve, Pond Routing Software Hydraflow, 2002

The CN values are composites for the combined impoundments and surface runoff areas. The EDG Slag Pond contains more permeable material and will have a higher infiltration rate than the other three impoundments reducing the CN value.

The four reservoirs that are routed include the EDG Slag Pond discharging into the upstream end of a 48 inch culvert, the EDG A-Ponds discharging into the same 48-inch diameter culvert and the EDG B-Pond discharging through a combined overflow weir with 24-inch diameter culvert. The outlet structures for each impoundment and the maximum storage capacity of the impoundment at maximum flow are:

Impoundment	Total Storage (acre-feet)	Outlet Structure	Invert Elevation (ft.)
EDG Slag Pond	1.23	Overflow Weir	606.5
EDG North A-Pond	2.1	18-inch HDPE Pipe	608.2
EDG South A-Pond	2.6	18-inch HDPE Pipe	608.2
EDG B-Pond	3.4	3.5 foot Overflow Weir/24-inch CMP pipe	596.6

Pictures of the EDG outlet structures are shown in Appendix A.

The assumptions which impact the analysis of the flood routing are:

1. The 48-inch diameter corrugated metal pipe does not impact the free discharge of storm water from the EDG Slag Pond or the EDG South A-Pond (calculation in Appendix C confirms assumption validity).

2. The outlet structure for the EDG South A-Pond is controlled by the entrance capacity of the 18-inch diameter HDPE discharge pipe, not the Parshall flume or the outlet to the 48-inch diameter pipe to EDG Pond B.

3. The tailwater on the outlet of EDG B-Pond is 590 feet, which is the maximum full elevation of EDG C-Pond.

4. No exfiltration of water through the bottom of the impoundments is considered in the analysis. Since the natural bottom and embankments are comprised of clay and silt, this is a reasonable and conservative assumption.

5. Process water flow is added to the storm water flow in EDG Slag Pond and EDG South A-Pond by adding a constant flow hydrograph to each of the impoundments. The assumption slightly underestimates the storage height at the peak of the storm.

4 INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN

The inflow flood caused by the 1,000 year return event SCS Type II storm distribution is routed through the CCR impoundment system at EDG. If the facility chooses use the EDG North A-Pond at any point in the future, the routing model includes two scenarios; EDG North A-Pond operating as both a zero discharge pond and including the EDG North A-Pond in the storm routing through EDG B-Pond outlet.

Water discharging from EDG B-Pond passes through two additional impoundments that have been determined by Wisconsin Power and Light Company to not contain CCR, prior to discharge under the EDG WPDES permit at EDG F-Pond

4.1 EDG North A-Pond Plan

The EDG North A-Pond outlet is temporarily sealed. As currently configured, no process water discharges into the impoundment. The impoundment water elevation is 607 feet[2] approximately 2 feet lower than the water elevation in the adjacent EDG South A-Pond and stores rainfall without discharge other than long term exfiltration and evaporation loss. The water accumulates from a 10.3 inch 1,000 year return event storm without discharge. The watershed of EDG North A-Pond is approximately 100,000 cubic feet (2.3 acre-feet). The water would accumulate to a stage height of 2.0 foot above normal water elevation (elevation 609), Appendix C. The freeboard at the peak accumulation will be 2.8 feet.

4.2 EDG Slag and A-Ponds routing through the EDG B-Pond

The twelve acres of open impoundment surface and contributing runoff areas discharge at a maximum flow of 23.3 cfs from EDG B-Pond. Between the three impoundments, 8.1 acre feet of water will be stored in the impoundments (including the normal process water flow from EDG). The impoundments conditions at peak flow are:

[2] Estimated from 2015 aerial pictures available on Google Earth in comparison to Figure 2 topographic details

Impoundment	Peak Discharge (cfs)	Stored Water (acre-ft)	Maximum Water Elevation (ft)	Minimum Crest Elevation (ft)	Freeboard (ft)
EDG Slag Pond	14.1	1.41	607.5	609.7	2.2
EDG South A-Pond	6.1	3.31	610.0	611.6	1.6
EDG B-Pond	23.3	3.41	599.9	607.9	7.8

The hydrographs, reservoir and outlet details are presented in Appendix C.

5 QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

To meet the requirements of 40 CFR 257.82(5), I Mark W. Loerop hereby certify that I am a licensed professional engineer in the State of Wisconsin; 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: MARK LOEROP

Date: 10/5/2016

FIGURES

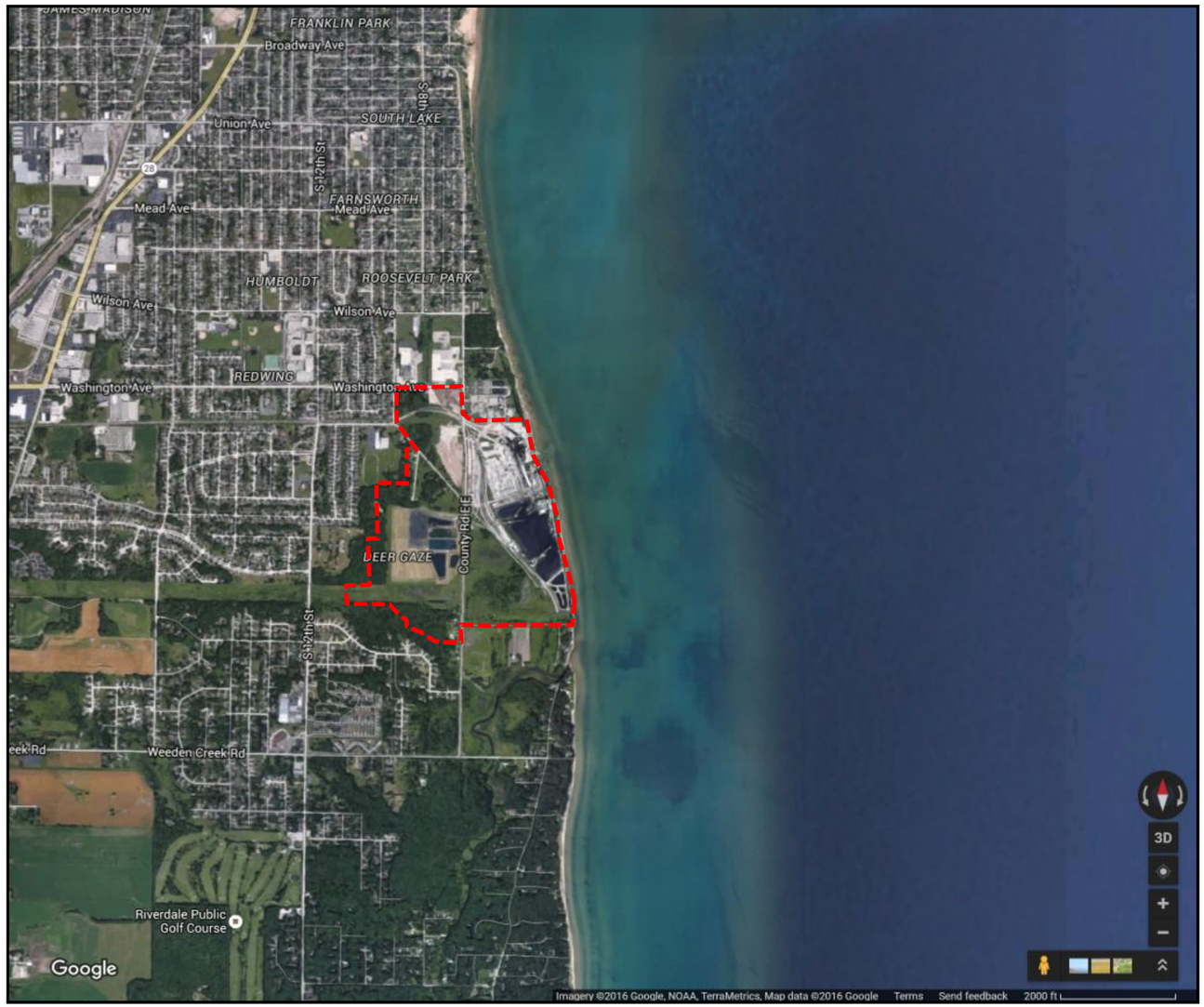
Alliant Energy
Wisconsin Power and Light Company
Edgewater Generating Station
Sheboygan, WI

Inflow Design Flood Control System Plan

Historical Topo Map

2013

Historical Aerial Photo



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

Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Sheboygan South, 2013, 7.5-minute

SITE NAME: Edgewater Generating Station
ADDRESS: 3739 Lakeshore Drive
Sheboygan, WI 53081
CLIENT: Environmental Site Assessors

N

Approximate Property Boundary

HARD HAT SERVICES™
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Site Location
Edgewater Generating Station
Wisconsin Power and Light Company

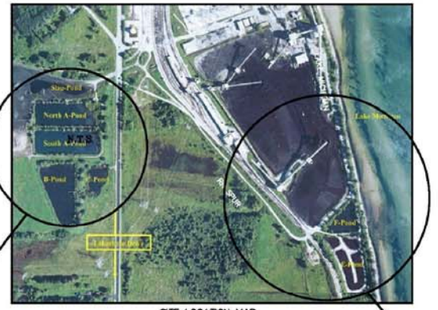
Drawing
Figure 1

Date
7/12/2016

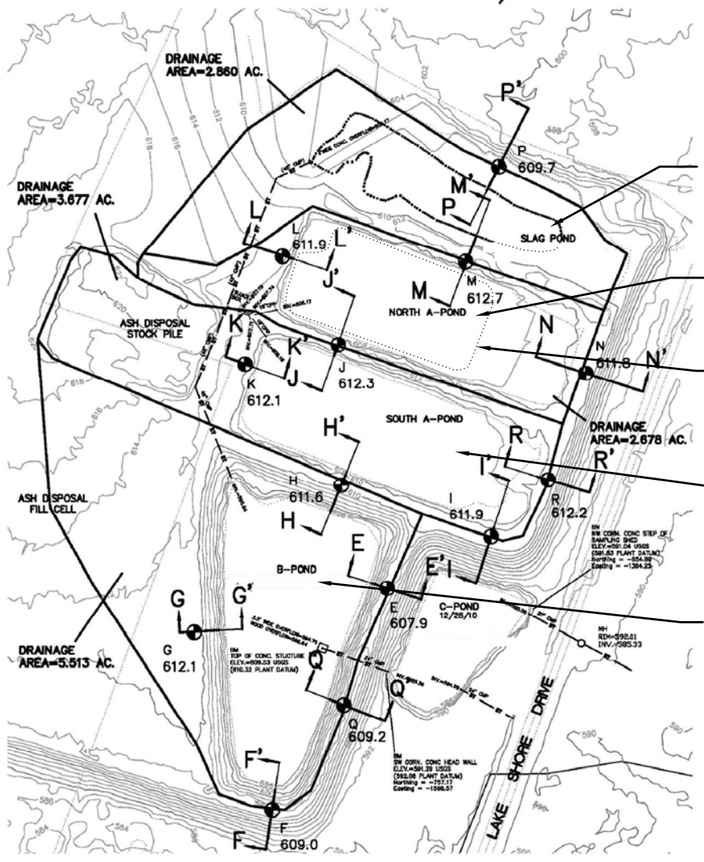
LEGEND

A 589.5 — MILLER ENGINEERS & SCIENTISTS JANUARY AND FEBRUARY 2011 SOIL EXPLORATION BORINGS & GROUND ELEVATION MEASUREMENTS

A — A' — BERM CROSS SECTION LOCATION



SITE LOCATION MAP



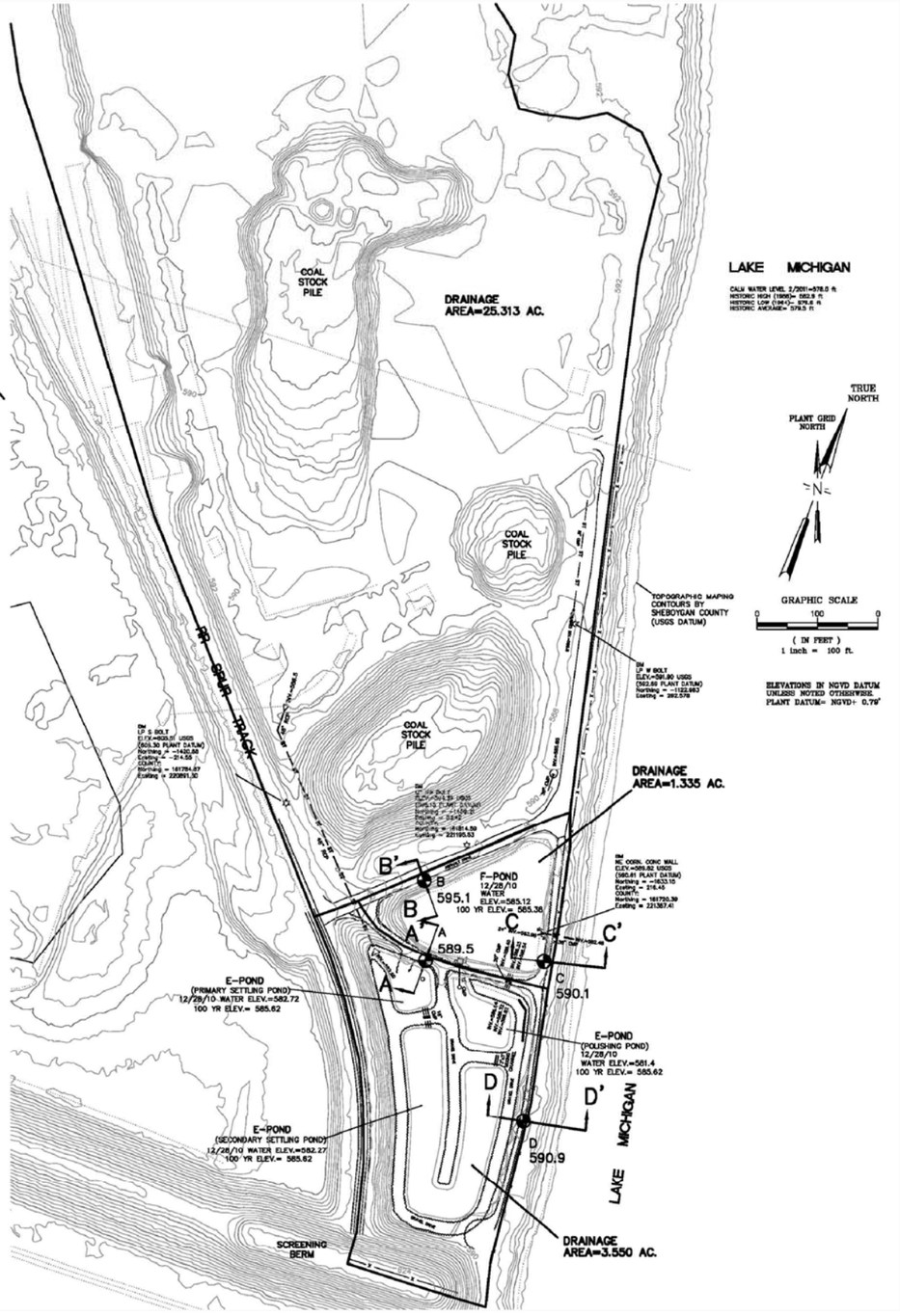
SLAG POND
PROCESS WATER = 2.4 MGD
1000 YR FLOOD ELEV. = 607.5

NORTH A–POND
1000 YR FLOOD ELEV. = 609.1

2016 WATER ELEVATION
FROM GOOGLE EARTH

SOUTH A–POND
PROCESS WATER = 2.4 MGD
1000 YR FLOOD ELEV. = 610.0

B–POND
1000 YR FLOOD ELEV. = 599.9



MAP SOURCE:
MODIFIED FROM MILLER ENGINEERS SCIENTISTS, ASH POND SLOPE STABILITY EVALUATION, IMPOUNDMENT ANALYSIS, SHEET 1 OF 5, FEB. 25, 2011.

REV	DATE	BY	DESCRIPTION
5			
4			
3			
2			
1			

hard hat SERVICES
solutions and action

SCALE:	AS SHOWN
DATE:	7-13-16
DRAWN BY:	JFD
CHKD BY:	---
APRVD BY:	---

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
OTTUMWA GENERATING STATION
OTTUMWA, IA

DRAWING DESCRIPTION
INFLOW FLOOD CONTROL PLAN
CCR POND
STORM AND PROCESS WATER ROUTING

JOB ----------
SHT. FIGURE 2
DWG. ----------

APPENDIX A – Outfall Pictures

Alliant Energy
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Edgewater Generating Station
Sheboygan, WI

Inflow Design Flood Control System Plan

Photo 1: EDG Slag Pond inlet of hydraulic structure. Hydraulic structure consist of v-notch overflow weir that discharges into a 48-inch diameter corrugated metal pipe.

Photo 2: EDG North A-Pond inlet of hydraulic structure. Hydraulic structure consist of 18-inch diameter corrugated plastic pipe. The hydraulic structure is currently plugged.

Photo 3: EDG South A-Pond inlet of hydraulic structure. Hydraulic structure consist of 18-inch diameter corrugated plastic pipe. Water flows through the hydraulic structure and discharges into a concrete sluice box prior to flowing through a Parshall flume structure.

Photo 4: Outlets of EDG North A-Pond and EDG South A-Pond hydraulic structures. Currently, water only flows through the hydraulic structure of the EDG South A-Pond. Water flows through a Parshall flume structure and into a 48-inch diameter corrugated metal pipe.

Photo 5: Water from the EDG South A-Pond flows into a 48-inch diameter corrugated metal pipe and combines with the flow from the EDG Slag Pond. The combined flows discharge into the EDG B-Pond.

Photo 6: Outlet of 48-inch diameter corrugated metal pipe which contains flows of the EDG Slag Pond and EDG South A-Pond. The water discharges into the EDG B-Pond.

Photo 7: Water within the EDG B-Pond flows through an overflow weir structure. The water gravity flows through a 24-inch diameter corrugated metal pipe which discharges into the EDG C-Pond.

Photo 8: Outlet of EDG B-Pond hydraulic structure. Water from EDG B-Pond discharges into the EDG C-Pond. Water within EDG C-Pond flows to the east to the EDG F-Pond. Water in the EDG F-Pond discharges through the facility's WPDES Outfall 004 into Lake Michigan.

APPENDIX B – NOAA Storm Frequency

Alliant Energy
Wisconsin Power and Light Company
Edgewater Generating Station
Sheboygan, WI

Inflow Design Flood Control System Plan

NOAA Atlas 14, Volume 8, Version 2
Location name: Sheboygan, Wisconsin, US*
Latitude: 43.7160°, Longitude: -87.7100°
Elevation: 606 ft*
* source: Google Maps

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	**0.324** (0.257–0.408)	**0.387** (0.306–0.487)	**0.486** (0.384–0.613)	**0.566** (0.445–0.715)	**0.671** (0.512–0.856)	**0.750** (0.562–0.963)	**0.825** (0.603–1.07)	**0.899** (0.637–1.18)	**0.992** (0.682–1.33)	**1.06** (0.717–1.43)
10-min	**0.474** (0.376–0.597)	**0.566** (0.448–0.713)	**0.712** (0.562–0.897)	**0.828** (0.651–1.05)	**0.983** (0.749–1.25)	**1.10** (0.823–1.41)	**1.21** (0.884–1.57)	**1.32** (0.933–1.73)	**1.45** (0.999–1.94)	**1.55** (1.05–2.10)
15-min	**0.578** (0.458–0.728)	**0.690** (0.547–0.869)	**0.868** (0.685–1.09)	**1.01** (0.794–1.28)	**1.20** (0.914–1.53)	**1.34** (1.00–1.72)	**1.47** (1.08–1.92)	**1.61** (1.14–2.11)	**1.77** (1.22–2.37)	**1.89** (1.28–2.56)
30-min	**0.804** (0.638–1.01)	**0.962** (0.762–1.21)	**1.21** (0.957–1.53)	**1.41** (1.11–1.78)	**1.67** (1.27–2.13)	**1.86** (1.39–2.39)	**2.04** (1.49–2.65)	**2.22** (1.57–2.92)	**2.44** (1.68–3.25)	**2.59** (1.75–3.50)
60-min	**1.04** (0.823–1.31)	**1.24** (0.978–1.56)	**1.55** (1.23–1.96)	**1.81** (1.42–2.29)	**2.16** (1.65–2.77)	**2.43** (1.82–3.13)	**2.69** (1.97–3.51)	**2.95** (2.09–3.89)	**3.29** (2.27–4.40)	**3.54** (2.40–4.79)
2-hr	**1.27** (1.02–1.58)	**1.51** (1.21–1.87)	**1.89** (1.51–2.36)	**2.21** (1.76–2.76)	**2.66** (2.06–3.37)	**3.00** (2.28–3.82)	**3.34** (2.47–4.31)	**3.68** (2.64–4.83)	**4.14** (2.88–5.51)	**4.49** (3.06–6.03)
3-hr	**1.42** (1.15–1.75)	**1.67** (1.35–2.06)	**2.10** (1.69–2.59)	**2.46** (1.97–3.04)	**2.97** (2.33–3.76)	**3.38** (2.60–4.31)	**3.81** (2.84–4.91)	**4.25** (3.07–5.56)	**4.85** (3.39–6.44)	**5.31** (3.63–7.11)
6-hr	**1.69** (1.38–2.05)	**1.96** (1.61–2.39)	**2.45** (2.00–2.99)	**2.90** (2.35–3.53)	**3.55** (2.83–4.48)	**4.10** (3.19–5.19)	**4.68** (3.54–6.01)	**5.30** (3.87–6.91)	**6.18** (4.37–8.19)	**6.88** (4.74–9.15)
12-hr	**1.97** (1.63–2.36)	**2.28** (1.89–2.73)	**2.84** (2.35–3.41)	**3.36** (2.77–4.05)	**4.17** (3.38–5.23)	**4.86** (3.84–6.12)	**5.62** (4.30–7.17)	**6.44** (4.76–8.36)	**7.62** (5.44–10.1)	**8.59** (5.95–11.3)
24-hr	**2.26** (1.90–2.67)	**2.59** (2.18–3.07)	**3.23** (2.71–3.82)	**3.84** (3.20–4.56)	**4.80** (3.95–5.96)	**5.64** (4.51–7.03)	**6.55** (5.08–8.30)	**7.57** (5.65–9.76)	**9.04** (6.51–11.9)	**10.3** (7.15–13.5)
2-day	**2.57** (2.19–2.99)	**2.93** (2.50–3.41)	**3.62** (3.07–4.23)	**4.29** (3.63–5.03)	**5.37** (4.47–6.60)	**6.31** (5.11–7.79)	**7.35** (5.76–9.23)	**8.52** (6.41–10.9)	**10.2** (7.41–13.3)	**11.6** (8.16–15.1)
3-day	**2.82**	**3.17**	**3.86**	**4.54**	**5.64**	**6.61**	**7.69**	**8.89**	**10.7**	**12.1**

	(2.42–3.25)	(2.72–3.66)	(3.31–4.47)	(3.87–5.27)	(4.73–6.89)	(5.39–8.10)	(6.06–9.60)	(6.74–11.3)	(7.77–13.8)	(8.55–15.7)
4-day	**3.03** (2.62–3.47)	**3.39** (2.93–3.89)	**4.09** (3.52–4.70)	**4.78** (4.09–5.52)	**5.89** (4.97–7.16)	**6.88** (5.64–8.39)	**7.98** (6.32–9.91)	**9.20** (7.00–11.7)	**11.0** (8.04–14.2)	**12.5** (8.83–16.2)
7-day	**3.54** (3.09–4.01)	**3.97** (3.47–4.51)	**4.78** (4.16–5.44)	**5.55** (4.81–6.33)	**6.75** (5.73–8.06)	**7.79** (6.43–9.37)	**8.93** (7.11–11.0)	**10.2** (7.78–12.8)	**12.0** (8.80–15.4)	**13.5** (9.58–17.4)
10-day	**4.00** (3.53–4.50)	**4.51** (3.96–5.07)	**5.41** (4.75–6.11)	**6.25** (5.45–7.07)	**7.51** (6.40–8.87)	**8.59** (7.11–10.2)	**9.74** (7.79–11.9)	**11.0** (8.43–13.7)	**12.8** (9.41–16.3)	**14.2** (10.2–18.3)
20-day	**5.43** (4.85–6.02)	**6.08** (5.42–6.74)	**7.17** (6.38–7.97)	**8.13** (7.18–9.07)	**9.51** (8.14–11.0)	**10.6** (8.87–12.4)	**11.8** (9.48–14.1)	**13.0** (10.0–15.9)	**14.7** (10.9–18.5)	**16.0** (11.5–20.4)
30-day	**6.68** (6.02–7.34)	**7.45** (6.70–8.18)	**8.71** (7.81–9.59)	**9.76** (8.70–10.8)	**11.2** (9.66–12.8)	**12.4** (10.4–14.3)	**13.5** (11.0–16.0)	**14.7** (11.4–17.9)	**16.3** (12.1–20.4)	**17.5** (12.6–22.3)
45-day	**8.31** (7.55–9.04)	**9.25** (8.40–10.1)	**10.8** (9.72–11.7)	**12.0** (10.8–13.1)	**13.6** (11.7–15.3)	**14.8** (12.5–16.9)	**16.0** (13.0–18.7)	**17.2** (13.3–20.6)	**18.6** (13.9–23.1)	**19.7** (14.3–24.9)
60-day	**9.73** (8.89–10.5)	**10.8** (9.90–11.7)	**12.6** (11.4–13.6)	**14.0** (12.6–15.2)	**15.7** (13.6–17.5)	**17.0** (14.4–19.3)	**18.3** (14.9–21.2)	**19.4** (15.1–23.2)	**20.8** (15.5–25.7)	**21.8** (15.8–27.5)

[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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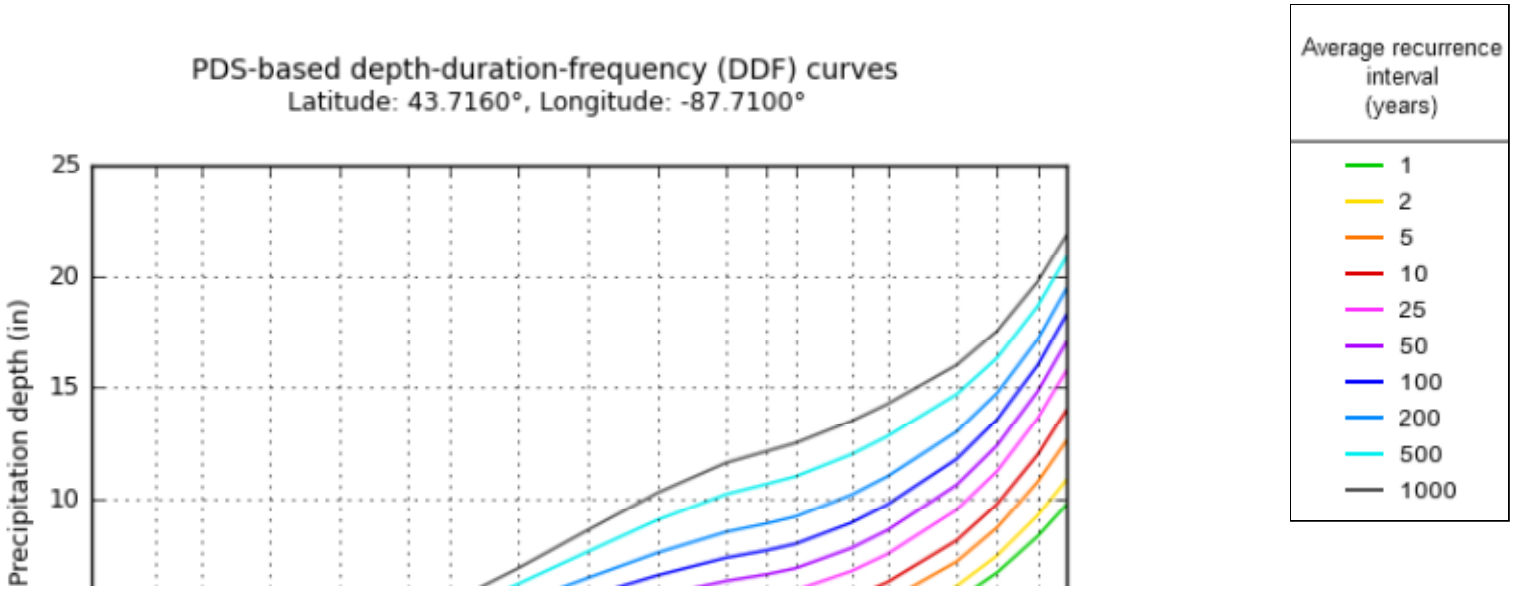
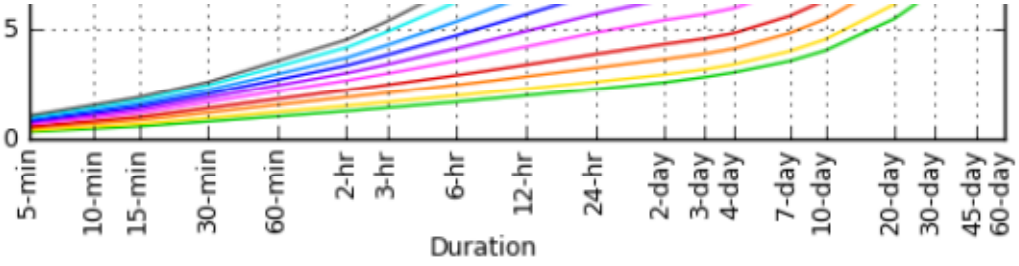
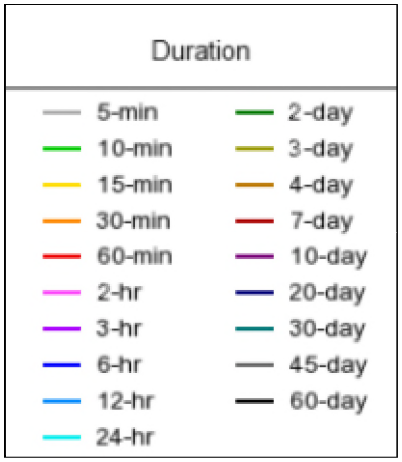
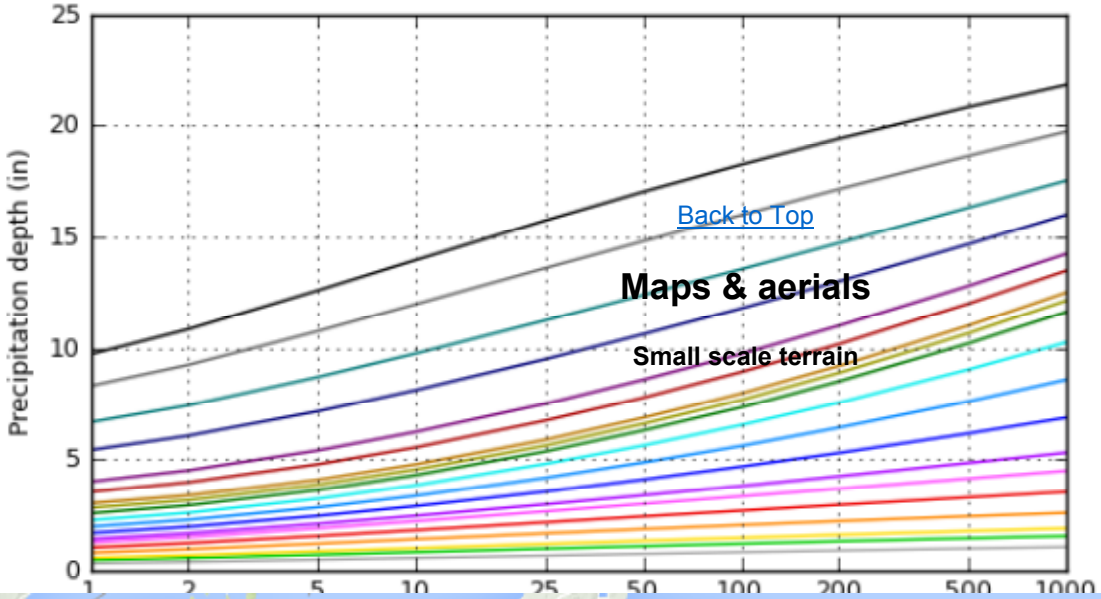
PF graphical









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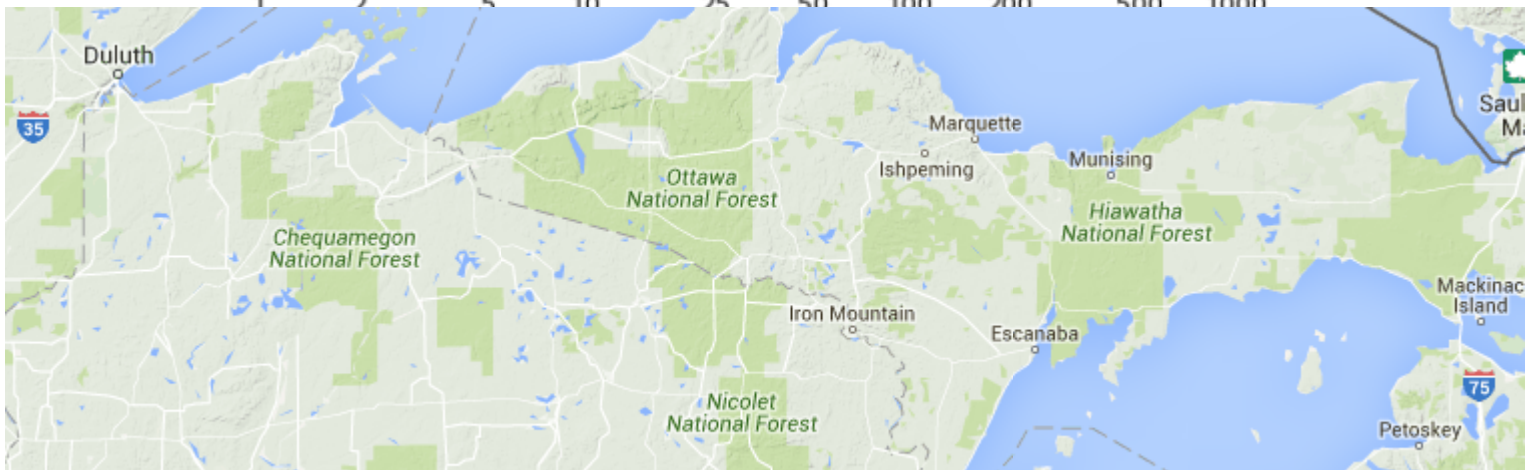
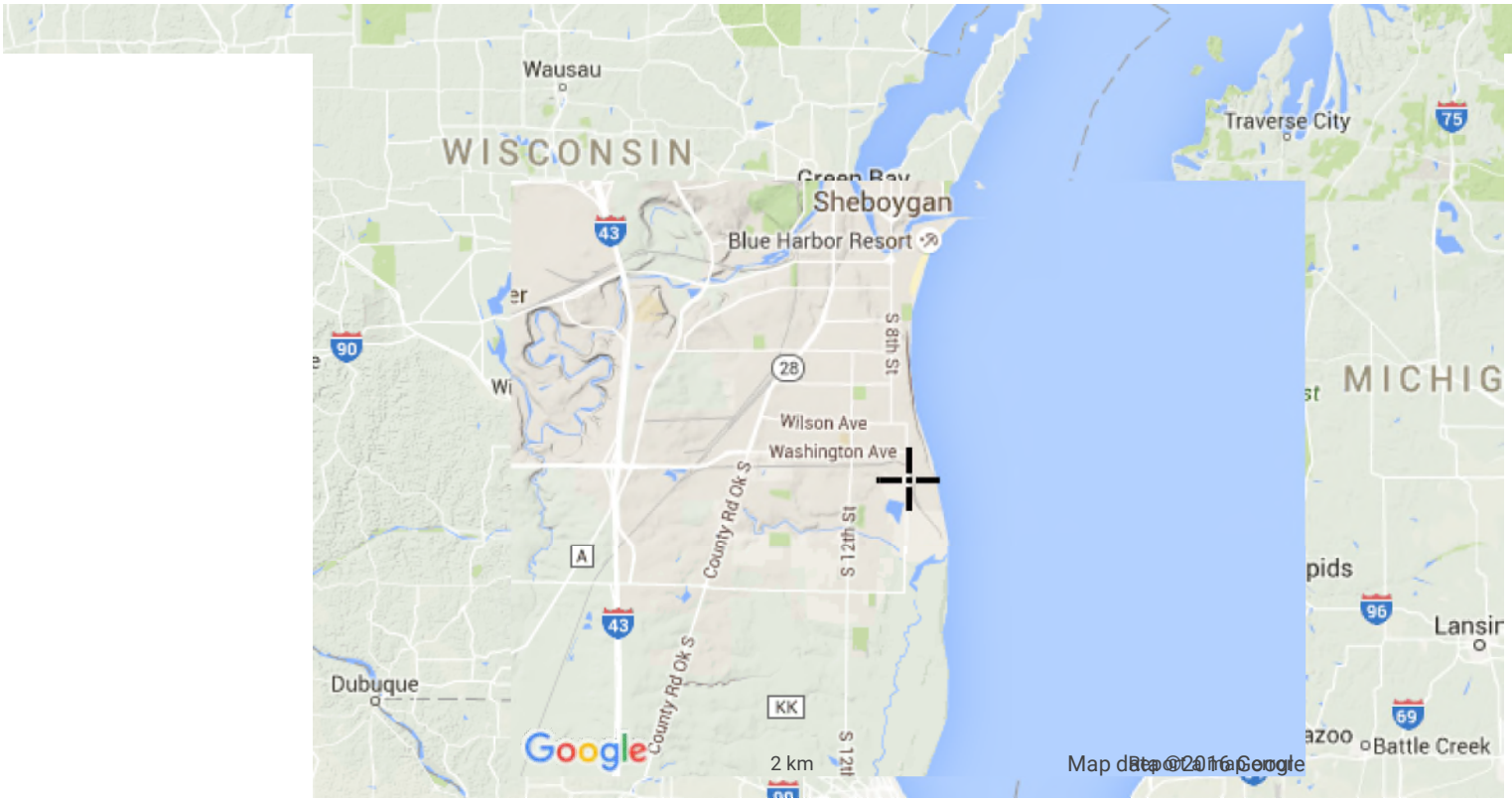
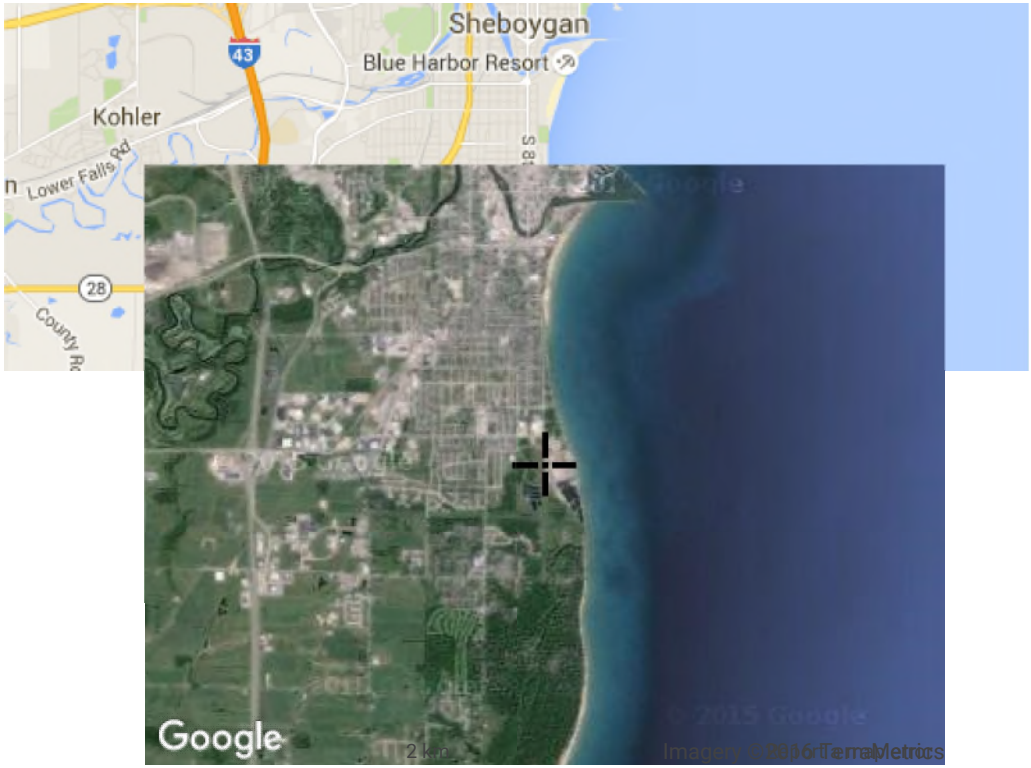
Maps & aerials

Small scale terrain





Large scale map



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
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Questions?: HDSC.Questions@noaa.gov

Disclaimer

APPENDIX C – Inflow Flood Control Analysis

Alliant Energy
Wisconsin Power and Light Company
Edgewater Generating Station
Sheboygan, WI

Inflow Design Flood Control System Plan

HEC
Harrington Engineering & Construction, Inc.

By TJH Date 7/11/16 Subject NORTH A POND Sheet No. 1 of 1

Chk: Date ZERO-DISCHARGE ANALYSIS Proj. # 16-004

1/4" x 1/4"

- NORTH A POND RECEIVES RAINFALL FROM 2.7 ACRES, FIGURE 1
- 1000-YEAR RETURN RAINFALL 10.3 INCHES
- ASSUMING NO INFILTRATION LOSS

$$\text{VOLUME} = 10.3\text{IN} / 12\text{IN/ft} \times 2.7\text{ACRE} = 2.32\ \text{ACRE-FEET}$$

- 2016 WATER SURFACE AT APPROXIMATELY ELEVATION 607 FT.

$\text{AREA}_{607} = 40{,}000\ \text{ft}^2$

1.02 ACRE-FT

$\text{AREA}_{608} = 49{,}000\ \text{ft}^2$

2.96 ACRE-FT

$\text{AREA}_{610} = 80{,}000\ \text{ft}^2$

$$\text{WATER ELEVATION}_{\text{MAX.}} = 2.32\ \text{ACRE-FT} - 1.02\ \text{ACRE-FT} = 1.3\ \text{ACRE-FT}$$

$$= \frac{2.96\ \text{ACRE-FT} - 1.3\ \text{ACRE-FT}}{2.96\ \text{ACRE-FT}} (2\text{FT}) = 1.12\ \text{FT}$$

$$= 608 + 1.12\ \text{FT} = \underline{609.1\ \text{FT}}$$

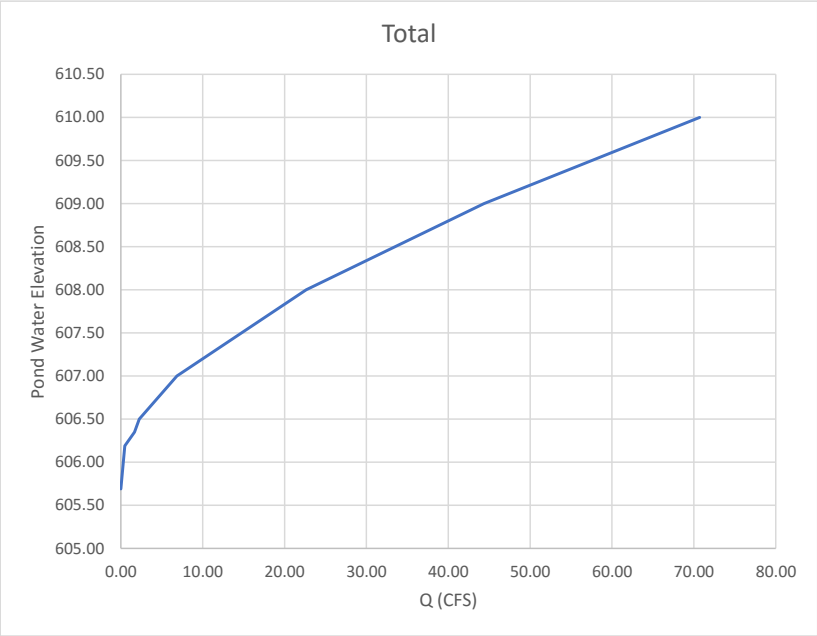
EGS - Slag Pond Outlet Discharge Curve

V-notch weir topped by a broad crested weir

Broad Crested Weir Equation
Q = Cw * L * H^1.5

3.3 = Cw
3 = L (ft)

Elevation Ft	Q Total CFS	Q Broad Crested Weir Flow CFS	
605.69	0.00		Ref; Surveyed Elevation Figures.pdf
606.19	0.47		with 6 inches of flow in the V-notch Weir
606.35	1.67		Top of V-Notch Weir, Ref: V Notch Weir Slag Pond.pdf
606.50	2.25	0.58	
607.00	6.86	5.19	
608.00	22.65	20.98	
609.00	44.38	42.71	
610.00	70.71	69.04	



Check Capacity of Pipe from Slag Pond to the B pond with both at peak water level

4	FT = Pipe Diameter Steel
1	Hydraulic Radius in FT
12.0125	k in Q equation
591	FT = Pipe Inlet Invert Elevation
580	= Length (Ft)
0.025	= n
599.2	= B Pond Tail Water Elevation (Ft)

BARROW FLOW CONTROL

Q CFS	Elevation Slag Pond	Head Ft
83.5893	607.5	8.3

Peak discharge into the B Pond is 14 (Slag Pond) + 6 CFS (A Pond South) so there is plenty of pipe capacity

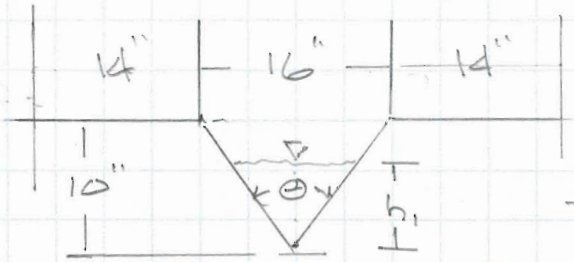
HEC
Harrington Engineering & Construction, Inc.

By TJH Date 7/7/16 Subject SLAG POND BASE FLOW — V-NOTCH WEIR Sheet No. 1 of 2

Chk: Date Proj. # 16-004

1/4" x 1/4"

$$Q = c \tan\left(\frac{\Theta}{2}\right) g^{1/2} (h_1 + k)^{5/2} \quad *$$



$\tan \Theta/2 = 8"/10" = 0.80$

$\Theta = 77°$

FOR $\Theta = 77° \approx 80°$

$C = 0.575$

$k = 0.003$ ft

$h_1 = 10"$

$$Q = 0.575\,(0.80)\sqrt{32.2\ \text{ft/sec}^2}\,\left(10"/12"/\text{ft} + 0.003\ \text{ft}\right)^{5/2}$$

$= 1.67\ \text{ft}^3/\text{sec}$

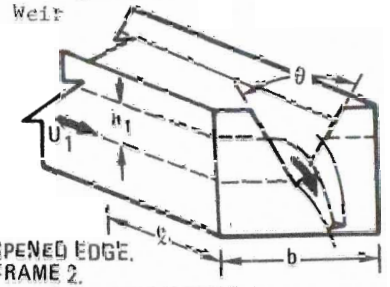
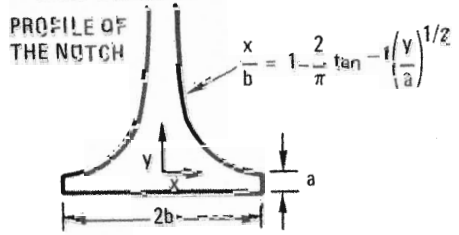
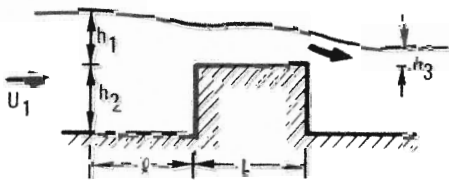
1.1 MGD

CHECK @ $h_1 = 6"$ $Q = 0.47$ CFS (210 gpm)

CHART FROM USA BLUEBOOK INDICATES ≈ 180 gpm

* BLEVINS, "APPLIED FLUID DYNAMICS HANDBOOK"

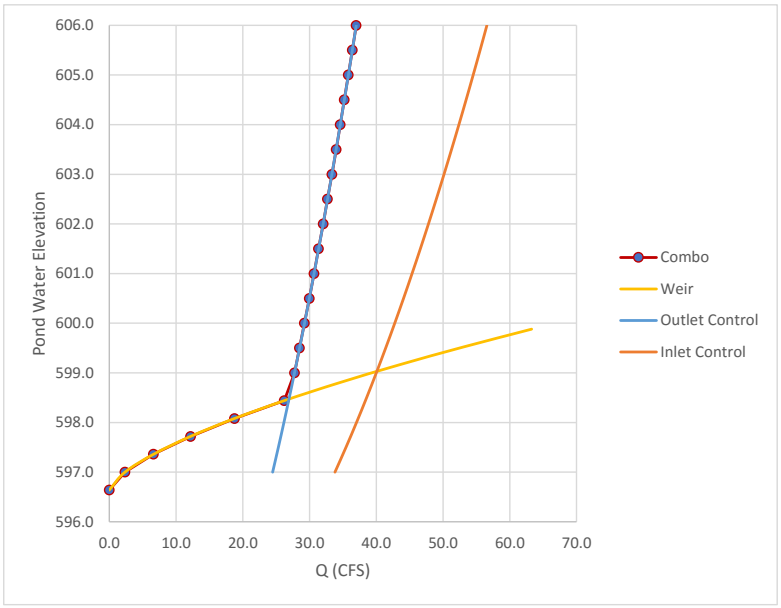
Table 8-16. Weirs. *(Continued)*

Description	Discharge, Q	Limitations
3. Triangular Notch, Thin Plate Weir  SHARPENED EDGE. SEE FRAME 2.	$Q = C \tan\left(\frac{\theta}{2}\right) g^{1/2} (h_1 + k)^{5/2}$, where C and k are functions of the notch angle θ: θ(Deg) = 20, 40, 60, 80, 90-100 C = 0.59, 0.58, 0.575, 0.575, 0.58 k(m) = 0.0028, 0.0017, 0.0012, 0.001, 0.001 k(ft) = 0.009, 0.0055, 0.004, 0.003, 0.003 Shen, Ref. 8-63	$h_1 \geq 0.05$ m, $h_2 > 0.45$ m, $h_1/h_2 \leq 0.4$ m, $b > 0.9$ m, $\frac{h_1}{b} \tan\left(\frac{\theta}{2}\right) < 2$
4. Proportional Sutro Notch, Thin Plate Weir  SEE COLUMN 1 OF FRAME 2 OR 3 FOR OVERALL FORM OF WEIR. SEE FRAME 1 FOR EDGE DETAIL.	$Q = 2^{3/2} Ca^{1/2} bg^{1/2} (h_1 - a/3)$ $0.6 < C < 0.7$ Pratt, Ref. 8-64 h_1 = depth of approach flow above base of notch (see frame 2 or 3). Note: Notch is symmetric about y axis. One-half notch shown (i.e., $x > 0$ or $x < 0$) may be used to yield one-half above discharge. Form of notch is fixed by values chosen for a and b.	
5. Long-Base Rectangular Weir  	$Q = \left(\frac{2}{3}\right)^{3/2} Cb\, g^{1/2} \left(h_1 + \frac{U_1^2}{2g}\right)^{3/2}$, where $U_1 = Q/(bh_1)$. The equation must be solved by trial and error for Q given h_1. C is given as follows: C = 0.848 F, where F is a function of h_1/L and $h_1/(h_1 + h_2)$	$h_3/h_1 < 0.8$

$\frac{h_1}{h_1 + h_2}$	F, h_1/L = 0.2	0.4	0.6	0.8	1.0	1.5	2.0
0.350	1.01	1.01	1.05	1.11	1.17	1.28	1.35
0.500	1.02	1.02	1.06	1.11	1.17	1.28	1.34
0.500	1.03	1.04	1.07	1.11	1.17	1.28	1.34
0.600	1.05	1.06	1.08	1.12	1.17	1.27	1.32
0.700	--	1.09	1.11	1.14	1.17	1.24	1.30

Singer and Crabbe, Ref. 8-65

EGS - Pond B Outlet Discharge Curve



2	FT = Pipe Diameter Steel
0.5	Hydraulic Radius in FT
7.4237	k in Q equation
591	FT = Pipe Inlet Invert Elevation
130	= Length (Ft)
0.025	= n
0.6	= Co for Inlet Control
590	= Tail Water Elevation (Ft)
3.5	= Weir Width
3.1	= Weir Coefficient

OUTLET CONTROL / BARROW CONTROL

Q CFS	Elevation	Head Ft
24.471	597.0	7.0
25.33	597.5	7.5
26.161	598.0	8.0
26.966	598.5	8.5
27.748	599.0	9.0
28.508	599.5	9.5
29.249	600.0	10.0
29.971	600.5	10.5
30.676	601.0	11.0
31.366	601.5	11.5
32.04	602.0	12.0
32.701	602.5	12.5
33.349	603.0	13.0
33.984	603.5	13.5
34.608	604.0	14.0
35.22	604.5	14.5
35.822	605.0	15.0
36.414	605.5	15.5
36.997	606.0	16.0

INLET CONTROL

Q CFS	Elevation	Head (to pipe middle) Ft
33.811	597.0	5
35.461	597.5	5.5
37.038	598.0	6
38.55	598.5	6.5
40.005	599.0	7
41.409	599.5	7.5
42.767	600.0	8
44.084	600.5	8.5
45.362	601.0	9
46.605	601.5	9.5
47.815	602.0	10
48.996	602.5	10.5
50.149	603.0	11
51.276	603.5	11.5
52.379	604.0	12
53.459	604.5	12.5
54.518	605.0	13
55.557	605.5	13.5
56.576	606.0	14

Weir Equation

Q = Cw * L * H^1.5

H Ft	Q CFS	
596.6	0.0	ELEVATION used by Miller in 2011
597.0	2.3	
597.4	6.6	
597.7	12.2	
598.1	18.7	
598.4	26.2	
598.8	34.4	
599.2	43.4	
599.5	53.0	
599.9	63.3	

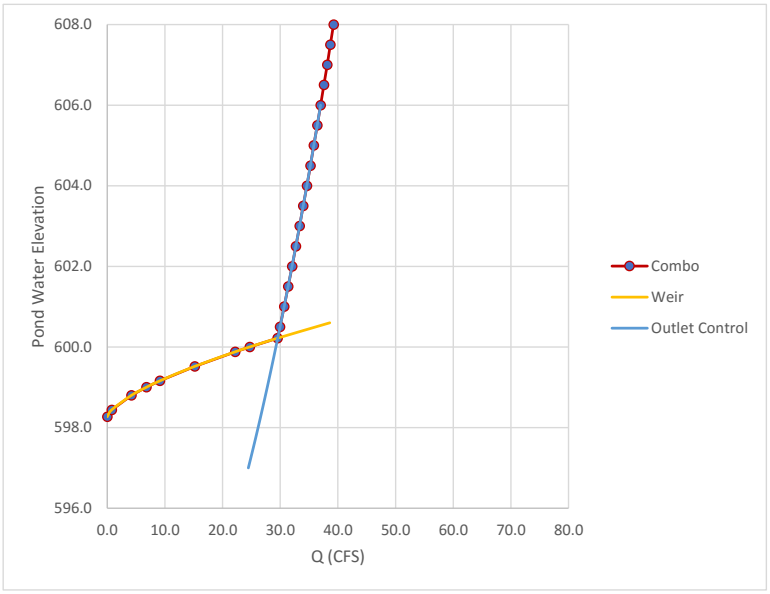
Combo Discharge Curve

596.6	0.0	Weir Control
597.0	2.3	
597.4	6.6	
597.7	12.2	
598.1	18.7	
598.4	26.2	
599.0	27.7	Outlet Control
599.5	28.5	
600.0	29.2	
600.5	30.0	
601.0	30.7	
601.5	31.4	
602.0	32.0	
602.5	32.7	
603.0	33.3	
603.5	34.0	
604.0	34.6	
604.5	35.2	
605.0	35.8	
605.5	36.4	
606.0	37.0	

EGS - Pond B Outlet Discharge Curve

Outlet Control Equations

BARROW FLOW CONTROLS
(See the other worksheet)



OUTLET CONTROL / BARROW CONTROL

Q CFS	Elevation	Head Ft
24.471	597.0	7.0
25.33	597.5	7.5
26.161	598.0	8.0
26.966	598.5	8.5
27.748	599.0	9.0
28.508	599.5	9.5
29.249	600.0	10.0
29.971	600.5	10.5
30.676	601.0	11.0
31.366	601.5	11.5
32.04	602.0	12.0
32.701	602.5	12.5
33.349	603.0	13.0
33.984	603.5	13.5
34.608	604.0	14.0
35.22	604.5	14.5
35.822	605.0	15.0
36.414	605.5	15.5
36.997	606.0	16.0
37.571	606.5	16.5
38.136	607.0	17.0
38.693	607.5	17.5
39.241	608.0	18.0

Weir Equation
Q = Cw * L * H^1.5

H Ft	Q CFS	
598.3	0.0	ELEVATION measured by HHS in 2016
598.4	0.8	
598.8	4.2	
599.0	6.8	
599.2	9.1	
599.5	15.2	
599.9	22.2	
600.0	24.7	
600.2	29.5	
600.6	38.6	
		Weir Control

Combo Discharge Curve

H Ft	Q CFS	
598.3	0.0	
598.4	0.8	
598.8	4.2	
599.0	6.8	
599.2	9.1	
599.5	15.2	
599.9	22.2	
600.0	24.7	
600.2	29.5	Outlet Control
600.5	30.0	
601.0	30.7	
601.5	31.4	
602.0	32.0	
602.5	32.7	
603.0	33.3	
603.5	34.0	
604.0	34.6	
604.5	35.2	
605.0	35.8	
605.5	36.4	
606.0	37.0	
606.5	37.6	
607.0	38.1	
607.5	38.7	
608.0	39.2	

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
1	SCS Runoff	37.44	1	717	1.821	----	------	------	Slag Pond Areas
2	Manual	3.71	1	0	7.364	----	-----	------	Slag Pond Base Flow
3	Combine	41.15	1	717	9.185	1, 2	------	------	Slag Pond In-Flow
4	Reservoir	14.07	1	725	8.450	3	607.46	1.406	Slag Pond Routing
5	SCS Runoff	53.56	1	716	2.548	----	------	------	A Pond South Areas
6	Manual	3.72	1	0	7.384	----	-----	------	A South Base Flow
7	Combine	57.28	1	716	9.931	5, 6	------	------	A South In-Flow
8	Reservoir	6.06	1	780	7.388	7	609.97	3.306	A Pond South Routing
9	SCS Runoff	68.87	1	718	3.550	----	------	------	B Pond Areas
10	Combine	85.56	1	718	19.389	4, 8, 9	------	------	B Pond In-Flow
11	Reservoir	23.26	1	749	17.588	10	599.92	3.409	B Pond Routing

Proj. file: 1000 Year Model HHS.gpw | Return Period: 1,000 yr | Run date: 07-10-2016

Hydrograph Report

Hyd. No. 1

Slag Pond Areas

Hydrograph type	= SCS Runoff	Peak discharge	= 37.44 cfs
Storm frequency	= 1,000 yrs	Time interval	= 1 min
Drainage area	= 2.86 ac	Curve number	= 77
Basin Slope	= 5.0 %	Hydraulic length	= 310 ft
Tc method	= LAG	Time of conc. (Tc)	= 6.1 min
Total precip.	= 10.30 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 1.821 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
8.93	0.38	15.73	0.72
9.13	0.41	15.93	0.68
9.33	0.43	16.13	0.65
9.53	0.45	16.33	0.64
9.73	0.50	16.53	0.62
9.93	0.57	16.73	0.61
10.13	0.65	16.93	0.60
10.33	0.75	17.13	0.58
10.53	0.86	17.33	0.57
10.73	1.03	17.53	0.55
10.93	1.21	17.73	0.54
11.13	1.39	17.93	0.53
11.33	1.92	18.13	0.51
11.53	2.61	18.33	0.50
11.73	11.21	18.53	0.48
11.93	36.14	18.73	0.47
12.13	5.60	18.93	0.46
12.33	3.94	19.13	0.44
12.53	2.70	19.33	0.43
12.73	2.20	19.53	0.41
12.93	1.92	19.73	0.40
13.13	1.67	19.93	0.38
13.33	1.51		
13.53	1.36		
13.73	1.24	...End	
13.93	1.13		
14.13	1.04		
14.33	1.00		
14.53	0.96		
14.73	0.92		
14.93	0.88		
15.13	0.84		
15.33	0.80		
15.53	0.76		

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 2

Slag Pond Base Flow

Hydrograph type	= Manual	Peak discharge	= 3.71 cfs
Storm frequency	= 1,000 yrs	Time interval	= 1 min

Hydrograph Volume = 7.364 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
0.00	3.71 <<	6.80	3.71 <<	13.60	3.71 <<	20.40	3.71 <<
0.20	3.71 <<	7.00	3.71 <<	13.80	3.71 <<	20.60	3.71 <<
0.40	3.71 <<	7.20	3.71 <<	14.00	3.71 <<	20.80	3.71 <<
0.60	3.71 <<	7.40	3.71 <<	14.20	3.71 <<	21.00	3.71 <<
0.80	3.71 <<	7.60	3.71 <<	14.40	3.71 <<	21.20	3.71 <<
1.00	3.71 <<	7.80	3.71 <<	14.60	3.71 <<	21.40	3.71 <<
1.20	3.71 <<	8.00	3.71 <<	14.80	3.71 <<	21.60	3.71 <<
1.40	3.71 <<	8.20	3.71 <<	15.00	3.71 <<	21.80	3.71 <<
1.60	3.71 <<	8.40	3.71 <<	15.20	3.71 <<	22.00	3.71 <<
1.80	3.71 <<	8.60	3.71 <<	15.40	3.71 <<	22.20	3.71 <<
2.00	3.71 <<	8.80	3.71 <<	15.60	3.71 <<	22.40	3.71 <<
2.20	3.71 <<	9.00	3.71 <<	15.80	3.71 <<	22.60	3.71 <<
2.40	3.71 <<	9.20	3.71 <<	16.00	3.71 <<	22.80	3.71 <<
2.60	3.71 <<	9.40	3.71 <<	16.20	3.71 <<	23.00	3.71 <<
2.80	3.71 <<	9.60	3.71 <<	16.40	3.71 <<	23.20	3.71 <<
3.00	3.71 <<	9.80	3.71 <<	16.60	3.71 <<	23.40	3.71 <<
3.20	3.71 <<	10.00	3.71 <<	16.80	3.71 <<	23.60	3.71 <<
3.40	3.71 <<	10.20	3.71 <<	17.00	3.71 <<	23.80	3.71 <<
3.60	3.71 <<	10.40	3.71 <<	17.20	3.71 <<	24.00	3.71 <<
3.80	3.71 <<	10.60	3.71 <<	17.40	3.71 <<		
4.00	3.71 <<	10.80	3.71 <<	17.60	3.71 <<		
4.20	3.71 <<	11.00	3.71 <<	17.80	3.71 <<	...End	
4.40	3.71 <<	11.20	3.71 <<	18.00	3.71 <<		
4.60	3.71 <<	11.40	3.71 <<	18.20	3.71 <<		
4.80	3.71 <<	11.60	3.71 <<	18.40	3.71 <<		
5.00	3.71 <<	11.80	3.71 <<	18.60	3.71 <<		
5.20	3.71 <<	12.00	3.71 <<	18.80	3.71 <<		
5.40	3.71 <<	12.20	3.71 <<	19.00	3.71 <<		
5.60	3.71 <<	12.40	3.71 <<	19.20	3.71 <<		
5.80	3.71 <<	12.60	3.71 <<	19.40	3.71 <<		
6.00	3.71 <<	12.80	3.71 <<	19.60	3.71 <<		
6.20	3.71 <<	13.00	3.71 <<	19.80	3.71 <<		
6.40	3.71 <<	13.20	3.71 <<	20.00	3.71 <<		
6.60	3.71 <<	13.40	3.71 <<	20.20	3.71 <<		

Hydrograph Report

Hyd. No. 4

Slag Pond Routing

Hydrograph type	= Reservoir	Peak discharge	= 14.07 cfs
Storm frequency	= 1,000 yrs	Time interval	= 1 min
Inflow hyd. No.	= 3	Reservoir name	= Slag Pond
Max. Elevation	= 607.46 ft	Max. Storage	= 1.406 acft

Storage Indication method used.

Outflow hydrograph volume = 8.450 acft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.40	3.71	605.85	-----	-----	----	----	----	----	----	----	----	0.15
0.60	3.71	605.93	-----	-----	----	----	----	----	----	----	----	0.22
0.80	3.71	606.00	-----	-----	----	----	----	----	----	----	----	0.30
1.00	3.71	606.08	-----	-----	----	----	----	----	----	----	----	0.37
1.20	3.71	606.15	-----	-----	----	----	----	----	----	----	----	0.44
1.40	3.71	606.22	-----	-----	----	----	----	----	----	----	----	0.72
1.60	3.71	606.28	-----	-----	----	----	----	----	----	----	----	1.17
1.80	3.71	606.33	-----	-----	----	----	----	----	----	----	----	1.55
2.00	3.71	606.38	-----	-----	----	----	----	----	----	----	----	1.88
2.20	3.71	606.41	-----	-----	----	----	----	----	----	----	----	2.16
2.40	3.71	606.44	-----	-----	----	----	----	----	----	----	----	2.39
2.60	3.71	606.47	-----	-----	----	----	----	----	----	----	----	2.60
2.80	3.71	606.49	-----	-----	----	----	----	----	----	----	----	2.77
3.00	3.71	606.51	-----	-----	----	----	----	----	----	----	----	2.91
3.20	3.71	606.52	-----	-----	----	----	----	----	----	----	----	3.03
3.40	3.71	606.53	-----	-----	----	----	----	----	----	----	----	3.14
3.60	3.71	606.54	-----	-----	----	----	----	----	----	----	----	3.22
3.80	3.71	606.55	-----	-----	----	----	----	----	----	----	----	3.30
4.00	3.71	606.56	-----	-----	----	----	----	----	----	----	----	3.36
4.20	3.71	606.57	-----	-----	----	----	----	----	----	----	----	3.41
4.40	3.71	606.57	-----	-----	----	----	----	----	----	----	----	3.46
4.60	3.71	606.58	-----	-----	----	----	----	----	----	----	----	3.50
4.80	3.71	606.58	-----	-----	----	----	----	----	----	----	----	3.53
5.00	3.72	606.59	-----	-----	----	----	----	----	----	----	----	3.56
5.20	3.73	606.59	-----	-----	----	----	----	----	----	----	----	3.59
5.40	3.74	606.59	-----	-----	----	----	----	----	----	----	----	3.61
5.60	3.76	606.60	-----	-----	----	----	----	----	----	----	----	3.63
5.80	3.77	606.60	-----	-----	----	----	----	----	----	----	----	3.65
6.00	3.78	606.60	-----	-----	----	----	----	----	----	----	----	3.67
6.20	3.79	606.60	-----	-----	----	----	----	----	----	----	----	3.69
6.40	3.81	606.60	-----	-----	----	----	----	----	----	----	----	3.70
6.60	3.82	606.61	-----	-----	----	----	----	----	----	----	----	3.72
6.80	3.83	606.61	-----	-----	----	----	----	----	----	----	----	3.74
7.00	3.85	606.61	-----	-----	----	----	----	----	----	----	----	3.75
7.20	3.86	606.61	-----	-----	----	----	----	----	----	----	----	3.77
7.40	3.88	606.61	-----	-----	----	----	----	----	----	----	----	3.78
7.60	3.89	606.62	-----	-----	----	----	----	----	----	----	----	3.80
7.80	3.91	606.62	-----	-----	----	----	----	----	----	----	----	3.81

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
8.00	3.92	606.62	-----	-----	----	----	----	----	----	----	----	3.83
8.20	3.95	606.62	-----	-----	----	----	----	----	----	----	----	3.85
8.40	3.98	606.62	-----	-----	----	----	----	----	----	----	----	3.86
8.60	4.02	606.63	-----	-----	----	----	----	----	----	----	----	3.88
8.80	4.06	606.63	-----	-----	----	----	----	----	----	----	----	3.91
9.00	4.10	606.63	-----	-----	----	----	----	----	----	----	----	3.93
9.20	4.13	606.64	-----	-----	----	----	----	----	----	----	----	3.96
9.40	4.15	606.64	-----	-----	----	----	----	----	----	----	----	3.99
9.60	4.17	606.64	-----	-----	----	----	----	----	----	----	----	4.01
9.80	4.23	606.65	-----	-----	----	----	----	----	----	----	----	4.04
10.00	4.30	606.65	-----	-----	----	----	----	----	----	----	----	4.08
10.20	4.39	606.66	-----	-----	----	----	----	----	----	----	----	4.12
10.40	4.50	606.66	-----	-----	----	----	----	----	----	----	----	4.17
10.60	4.62	606.67	-----	-----	----	----	----	----	----	----	----	4.23
10.80	4.80	606.68	-----	-----	----	----	----	----	----	----	----	4.30
11.00	4.99	606.69	-----	-----	----	----	----	----	----	----	----	4.39
11.20	5.33	606.70	-----	-----	----	----	----	----	----	----	----	4.49
11.40	5.78	606.72	-----	-----	----	----	----	----	----	----	----	4.66
11.60	7.98	606.76	-----	-----	----	----	----	----	----	----	----	4.92
11.80	19.65	606.92	-----	-----	----	----	----	----	----	----	----	6.20
12.00	35.30	607.37	-----	-----	----	----	----	----	----	----	----	12.78
12.20	8.47	607.41	-----	-----	----	----	----	----	----	----	----	13.37
12.40	7.23	607.32	-----	-----	----	----	----	----	----	----	----	11.93
12.60	6.13	607.23	-----	-----	----	----	----	----	----	----	----	10.54
12.80	5.82	607.16	-----	-----	----	----	----	----	----	----	----	9.35
13.00	5.53	607.10	-----	-----	----	----	----	----	----	----	----	8.39
13.20	5.33	607.05	-----	-----	----	----	----	----	----	----	----	7.62
13.40	5.17	607.01	-----	-----	----	----	----	----	----	----	----	7.00
13.60	5.02	606.97	-----	-----	----	----	----	----	----	----	----	6.65
13.80	4.91	606.94	-----	-----	----	----	----	----	----	----	----	6.40
14.00	4.80	606.91	-----	-----	----	----	----	----	----	----	----	6.16
14.20	4.73	606.89	-----	-----	----	----	----	----	----	----	----	5.95
14.40	4.69	606.86	-----	-----	----	----	----	----	----	----	----	5.76
14.60	4.66	606.84	-----	-----	----	----	----	----	----	----	----	5.59
14.80	4.62	606.82	-----	-----	----	----	----	----	----	----	----	5.45
15.00	4.58	606.81	-----	-----	----	----	----	----	----	----	----	5.32
15.20	4.54	606.79	-----	-----	----	----	----	----	----	----	----	5.20
15.40	4.50	606.78	-----	-----	----	----	----	----	----	----	----	5.10
15.60	4.46	606.77	-----	-----	----	----	----	----	----	----	----	5.00
15.80	4.42	606.76	-----	-----	----	----	----	----	----	----	----	4.92
16.00	4.38	606.75	-----	-----	----	----	----	----	----	----	----	4.84
16.20	4.36	606.74	-----	-----	----	----	----	----	----	----	----	4.76
16.40	4.34	606.73	-----	-----	----	----	----	----	----	----	----	4.70
16.60	4.33	606.72	-----	-----	----	----	----	----	----	----	----	4.65
16.80	4.32	606.72	-----	-----	----	----	----	----	----	----	----	4.60
17.00	4.30	606.71	-----	-----	----	----	----	----	----	----	----	4.55
17.20	4.29	606.71	-----	-----	----	----	----	----	----	----	----	4.51
17.40	4.27	606.70	-----	-----	----	----	----	----	----	----	----	4.48
17.60	4.26	606.70	-----	-----	----	----	----	----	----	----	----	4.45
17.80	4.25	606.69	-----	-----	----	----	----	----	----	----	----	4.42
18.00	4.23	606.69	-----	-----	----	----	----	----	----	----	----	4.39

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
18.20	4.22	606.69	-----	-----	----	----	----	----	----	----	----	4.36
18.40	4.20	606.68	-----	-----	----	----	----	----	----	----	----	4.34
18.60	4.19	606.68	-----	-----	----	----	----	----	----	----	----	4.32
18.80	4.18	606.68	-----	-----	----	----	----	----	----	----	----	4.30
19.00	4.16	606.68	-----	-----	----	----	----	----	----	----	----	4.28
19.20	4.15	606.67	-----	-----	----	----	----	----	----	----	----	4.26
19.40	4.13	606.67	-----	-----	----	----	----	----	----	----	----	4.24
19.60	4.12	606.67	-----	-----	----	----	----	----	----	----	----	4.22
19.80	4.10	606.67	-----	-----	----	----	----	----	----	----	----	4.21
20.00	4.09	606.67	-----	-----	----	----	----	----	----	----	----	4.19
20.20	4.08	606.66	-----	-----	----	----	----	----	----	----	----	4.17
20.40	4.08	606.66	-----	-----	----	----	----	----	----	----	----	4.16
20.60	4.08	606.66	-----	-----	----	----	----	----	----	----	----	4.15
20.80	4.07	606.66	-----	-----	----	----	----	----	----	----	----	4.14
21.00	4.07	606.66	-----	-----	----	----	----	----	----	----	----	4.13
21.20	4.07	606.66	-----	-----	----	----	----	----	----	----	----	4.12
21.40	4.07	606.66	-----	-----	----	----	----	----	----	----	----	4.11
21.60	4.06	606.65	-----	-----	----	----	----	----	----	----	----	4.10
21.80	4.06	606.65	-----	-----	----	----	----	----	----	----	----	4.10
22.00	4.06	606.65	-----	-----	----	----	----	----	----	----	----	4.09
22.20	4.05	606.65	-----	-----	----	----	----	----	----	----	----	4.09
22.40	4.05	606.65	-----	-----	----	----	----	----	----	----	----	4.08
22.60	4.05	606.65	-----	-----	----	----	----	----	----	----	----	4.08
22.80	4.05	606.65	-----	-----	----	----	----	----	----	----	----	4.07
23.00	4.04	606.65	-----	-----	----	----	----	----	----	----	----	4.07
23.20	4.04	606.65	-----	-----	----	----	----	----	----	----	----	4.06
23.40	4.04	606.65	-----	-----	----	----	----	----	----	----	----	4.06
23.60	4.03	606.65	-----	-----	----	----	----	----	----	----	----	4.06
23.80	4.03	606.65	-----	-----	----	----	----	----	----	----	----	4.05
24.00	3.71	606.65	-----	-----	----	----	----	----	----	----	----	4.05

...End

Reservoir Report

Hydraflow Hydrographs by Intelisolve

Reservoir No. 1 - Slag Pond

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	605.69	31,490	0.000	0.000
0.50	606.19	33,080	0.371	0.371
0.66	606.35	33,590	0.122	0.493
1.31	607.00	35,660	0.517	1.010
2.31	608.00	39,930	0.868	1.877
3.31	609.00	44,300	0.967	2.844
4.31	610.00	49,600	1.078	3.922

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 0.0	0.0	0.0	0.0
Span in	= 0.0	0.0	0.0	0.0
No. Barrels	= 0	0	0	0
Invert El. ft	= 0.00	0.00	0.00	0.00
Length ft	= 0.0	0.0	0.0	0.0
Slope %	= 0.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.00	0.00	0.00	0.00
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 0.00 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0.000	605.69	---	---	---	---	---	---	---	---	---	0.00
0.50	0.371	606.19	---	---	---	---	---	---	---	---	---	0.47
0.66	0.493	606.35	---	---	---	---	---	---	---	---	---	1.67
1.31	1.010	607.00	---	---	---	---	---	---	---	---	---	6.86
2.31	1.877	608.00	---	---	---	---	---	---	---	---	---	22.65
3.31	2.844	609.00	---	---	---	---	---	---	---	---	---	44.38
4.31	3.922	610.00	---	---	---	---	---	---	---	---	---	70.71

Hydrograph Report

Hyd. No. 5

A Pond South Areas

Hydrograph type	= SCS Runoff	Peak discharge	= 53.56 cfs
Storm frequency	= 1,000 yrs	Time interval	= 1 min
Drainage area	= 3.68 ac	Curve number	= 84
Basin Slope	= 5.9 %	Hydraulic length	= 345 ft
Tc method	= LAG	Time of conc. (Tc)	= 4.9 min
Total precip.	= 10.30 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 2.548 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
8.40	0.54	15.20	1.07
8.60	0.60	15.40	1.02
8.80	0.66	15.60	0.97
9.00	0.72	15.80	0.91
9.20	0.76	16.00	0.86
9.40	0.78	16.20	0.84
9.60	0.81	16.40	0.82
9.80	0.91	16.60	0.80
10.00	1.02	16.80	0.78
10.20	1.16	17.00	0.76
10.40	1.31	17.20	0.75
10.60	1.50	17.40	0.73
10.80	1.76	17.60	0.71
11.00	2.03	17.80	0.69
11.20	2.56	18.00	0.67
11.40	3.22	18.20	0.65
11.60	7.52	18.40	0.63
11.80	25.06	18.60	0.62
12.00	35.05	18.80	0.60
12.20	6.08	19.00	0.58
12.40	4.44	19.20	0.56
12.60	3.09	19.40	0.54
12.80	2.71		
13.00	2.34		
13.20	2.09	...End	
13.40	1.88		
13.60	1.69		
13.80	1.55		
14.00	1.40		
14.20	1.32		
14.40	1.27		
14.60	1.22		
14.80	1.17		
15.00	1.12		

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 6

A South Base Flow

Hydrograph type	= Manual	Peak discharge	= 3.72 cfs
Storm frequency	= 1,000 yrs	Time interval	= 1 min

Hydrograph Volume = 7.384 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
0.00	3.72 <<	6.80	3.72 <<	13.60	3.72 <<	20.40	3.72 <<
0.20	3.72 <<	7.00	3.72 <<	13.80	3.72 <<	20.60	3.72 <<
0.40	3.72 <<	7.20	3.72 <<	14.00	3.72 <<	20.80	3.72 <<
0.60	3.72 <<	7.40	3.72 <<	14.20	3.72 <<	21.00	3.72 <<
0.80	3.72 <<	7.60	3.72 <<	14.40	3.72 <<	21.20	3.72 <<
1.00	3.72 <<	7.80	3.72 <<	14.60	3.72 <<	21.40	3.72 <<
1.20	3.72 <<	8.00	3.72 <<	14.80	3.72 <<	21.60	3.72 <<
1.40	3.72 <<	8.20	3.72 <<	15.00	3.72 <<	21.80	3.72 <<
1.60	3.72 <<	8.40	3.72 <<	15.20	3.72 <<	22.00	3.72 <<
1.80	3.72 <<	8.60	3.72 <<	15.40	3.72 <<	22.20	3.72 <<
2.00	3.72 <<	8.80	3.72 <<	15.60	3.72 <<	22.40	3.72 <<
2.20	3.72 <<	9.00	3.72 <<	15.80	3.72 <<	22.60	3.72 <<
2.40	3.72 <<	9.20	3.72 <<	16.00	3.72 <<	22.80	3.72 <<
2.60	3.72 <<	9.40	3.72 <<	16.20	3.72 <<	23.00	3.72 <<
2.80	3.72 <<	9.60	3.72 <<	16.40	3.72 <<	23.20	3.72 <<
3.00	3.72 <<	9.80	3.72 <<	16.60	3.72 <<	23.40	3.72 <<
3.20	3.72 <<	10.00	3.72 <<	16.80	3.72 <<	23.60	3.72 <<
3.40	3.72 <<	10.20	3.72 <<	17.00	3.72 <<	23.80	3.72 <<
3.60	3.72 <<	10.40	3.72 <<	17.20	3.72 <<	24.00	3.72 <<
3.80	3.72 <<	10.60	3.72 <<	17.40	3.72 <<		
4.00	3.72 <<	10.80	3.72 <<	17.60	3.72 <<		
4.20	3.72 <<	11.00	3.72 <<	17.80	3.72 <<	...End	
4.40	3.72 <<	11.20	3.72 <<	18.00	3.72 <<		
4.60	3.72 <<	11.40	3.72 <<	18.20	3.72 <<		
4.80	3.72 <<	11.60	3.72 <<	18.40	3.72 <<		
5.00	3.72 <<	11.80	3.72 <<	18.60	3.72 <<		
5.20	3.72 <<	12.00	3.72 <<	18.80	3.72 <<		
5.40	3.72 <<	12.20	3.72 <<	19.00	3.72 <<		
5.60	3.72 <<	12.40	3.72 <<	19.20	3.72 <<		
5.80	3.72 <<	12.60	3.72 <<	19.40	3.72 <<		
6.00	3.72 <<	12.80	3.72 <<	19.60	3.72 <<		
6.20	3.72 <<	13.00	3.72 <<	19.80	3.72 <<		
6.40	3.72 <<	13.20	3.72 <<	20.00	3.72 <<		
6.60	3.72 <<	13.40	3.72 <<	20.20	3.72 <<		

Hydrograph Report

Hyd. No. 8

A Pond South Routing

Hydrograph type	= Reservoir	Peak discharge	= 6.06 cfs
Storm frequency	= 1,000 yrs	Time interval	= 1 min
Inflow hyd. No.	= 7	Reservoir name	= A Pond South
Max. Elevation	= 609.97 ft	Max. Storage	= 3.306 acft

Storage Indication method used.

Outflow hydrograph volume = 7.388 acft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.60	3.72	608.28	0.08	-----	----	----	----	----	----	----	----	0.08
0.80	3.72	608.31	0.11	-----	----	----	----	----	----	----	----	0.11
1.00	3.72	608.34	0.14	-----	----	----	----	----	----	----	----	0.14
1.20	3.72	608.37	0.16	-----	----	----	----	----	----	----	----	0.16
1.40	3.72	608.41	0.23	-----	----	----	----	----	----	----	----	0.23
1.60	3.72	608.44	0.30	-----	----	----	----	----	----	----	----	0.30
1.80	3.72	608.47	0.37	-----	----	----	----	----	----	----	----	0.37
2.00	3.72	608.50	0.44	-----	----	----	----	----	----	----	----	0.44
2.20	3.72	608.53	0.51	-----	----	----	----	----	----	----	----	0.51
2.40	3.72	608.55	0.58	-----	----	----	----	----	----	----	----	0.58
2.60	3.72	608.58	0.65	-----	----	----	----	----	----	----	----	0.65
2.80	3.72	608.61	0.75	-----	----	----	----	----	----	----	----	0.75
3.00	3.72	608.64	0.84	-----	----	----	----	----	----	----	----	0.84
3.20	3.72	608.66	0.93	-----	----	----	----	----	----	----	----	0.93
3.40	3.73	608.69	1.02	-----	----	----	----	----	----	----	----	1.02
3.60	3.75	608.71	1.11	-----	----	----	----	----	----	----	----	1.11
3.80	3.76	608.73	1.19	-----	----	----	----	----	----	----	----	1.19
4.00	3.77	608.76	1.28	-----	----	----	----	----	----	----	----	1.28
4.20	3.79	608.78	1.36	-----	----	----	----	----	----	----	----	1.36
4.40	3.81	608.80	1.45	-----	----	----	----	----	----	----	----	1.45
4.60	3.82	608.82	1.55	-----	----	----	----	----	----	----	----	1.55
4.80	3.84	608.84	1.64	-----	----	----	----	----	----	----	----	1.64
5.00	3.86	608.86	1.73	-----	----	----	----	----	----	----	----	1.73
5.20	3.87	608.88	1.82	-----	----	----	----	----	----	----	----	1.82
5.40	3.89	608.90	1.90	-----	----	----	----	----	----	----	----	1.90
5.60	3.91	608.91	1.98	-----	----	----	----	----	----	----	----	1.98
5.80	3.93	608.93	2.06	-----	----	----	----	----	----	----	----	2.06
6.00	3.95	608.95	2.14	-----	----	----	----	----	----	----	----	2.14
6.20	3.97	608.96	2.21	-----	----	----	----	----	----	----	----	2.21
6.40	3.99	608.98	2.28	-----	----	----	----	----	----	----	----	2.28
6.60	4.01	608.99	2.36	-----	----	----	----	----	----	----	----	2.36
6.80	4.03	609.01	2.44	-----	----	----	----	----	----	----	----	2.44
7.00	4.05	609.02	2.51	-----	----	----	----	----	----	----	----	2.51
7.20	4.07	609.04	2.58	-----	----	----	----	----	----	----	----	2.58
7.40	4.09	609.05	2.65	-----	----	----	----	----	----	----	----	2.65
7.60	4.11	609.06	2.72	-----	----	----	----	----	----	----	----	2.72
7.80	4.13	609.07	2.78	-----	----	----	----	----	----	----	----	2.78
8.00	4.15	609.09	2.85	-----	----	----	----	----	----	----	----	2.85

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
8.20	4.20	609.10	2.91	-----	----	----	----	----	----	----	----	2.91
8.40	4.26	609.11	2.97	-----	----	----	----	----	----	----	----	2.97
8.60	4.32	609.12	3.03	-----	----	----	----	----	----	----	----	3.03
8.80	4.38	609.13	3.09	-----	----	----	----	----	----	----	----	3.09
9.00	4.44	609.14	3.15	-----	----	----	----	----	----	----	----	3.15
9.20	4.48	609.16	3.21	-----	----	----	----	----	----	----	----	3.21
9.40	4.50	609.17	3.27	-----	----	----	----	----	----	----	----	3.27
9.60	4.53	609.18	3.33	-----	----	----	----	----	----	----	----	3.33
9.80	4.63	609.19	3.39	-----	----	----	----	----	----	----	----	3.39
10.00	4.74	609.20	3.45	-----	----	----	----	----	----	----	----	3.45
10.20	4.88	609.21	3.51	-----	----	----	----	----	----	----	----	3.51
10.40	5.03	609.22	3.58	-----	----	----	----	----	----	----	----	3.58
10.60	5.22	609.24	3.65	-----	----	----	----	----	----	----	----	3.65
10.80	5.48	609.25	3.73	-----	----	----	----	----	----	----	----	3.73
11.00	5.75	609.27	3.82	-----	----	----	----	----	----	----	----	3.82
11.20	6.28	609.29	3.91	-----	----	----	----	----	----	----	----	3.91
11.40	6.94	609.31	4.04	-----	----	----	----	----	----	----	----	4.04
11.60	11.24	609.35	4.22	-----	----	----	----	----	----	----	----	4.22
11.80	28.78	609.48	4.65	-----	----	----	----	----	----	----	----	4.65
12.00	38.77	609.84	5.49	-----	----	----	----	----	----	----	----	5.49
12.20	9.80	609.93	5.86	-----	----	----	----	----	----	----	----	5.86
12.40	8.16	609.95	5.97	-----	----	----	----	----	----	----	----	5.97
12.60	6.81	609.97	6.03	-----	----	----	----	----	----	----	----	6.03
12.80	6.43	609.97	6.05	-----	----	----	----	----	----	----	----	6.05
13.00	6.06	609.97 <<	6.06	-----	----	----	----	----	----	----	----	6.06 <<
13.20	5.81	609.97	6.05	-----	----	----	----	----	----	----	----	6.05
13.40	5.60	609.97	6.04	-----	----	----	----	----	----	----	----	6.04
13.60	5.41	609.96	6.02	-----	----	----	----	----	----	----	----	6.02
13.80	5.27	609.96	5.99	-----	----	----	----	----	----	----	----	5.99
14.00	5.12	609.95	5.96	-----	----	----	----	----	----	----	----	5.96
14.20	5.04	609.94	5.93	-----	----	----	----	----	----	----	----	5.93
14.40	4.99	609.94	5.90	-----	----	----	----	----	----	----	----	5.90
14.60	4.94	609.93	5.86	-----	----	----	----	----	----	----	----	5.86
14.80	4.89	609.92	5.82	-----	----	----	----	----	----	----	----	5.82
15.00	4.84	609.91	5.79	-----	----	----	----	----	----	----	----	5.79
15.20	4.79	609.90	5.75	-----	----	----	----	----	----	----	----	5.75
15.40	4.74	609.89	5.72	-----	----	----	----	----	----	----	----	5.72
15.60	4.69	609.88	5.68	-----	----	----	----	----	----	----	----	5.68
15.80	4.63	609.88	5.64	-----	----	----	----	----	----	----	----	5.64
16.00	4.58	609.87	5.60	-----	----	----	----	----	----	----	----	5.60
16.20	4.56	609.86	5.56	-----	----	----	----	----	----	----	----	5.56
16.40	4.54	609.85	5.52	-----	----	----	----	----	----	----	----	5.52
16.60	4.52	609.84	5.49	-----	----	----	----	----	----	----	----	5.49
16.80	4.50	609.83	5.45	-----	----	----	----	----	----	----	----	5.45
17.00	4.48	609.82	5.41	-----	----	----	----	----	----	----	----	5.41
17.20	4.47	609.81	5.38	-----	----	----	----	----	----	----	----	5.38
17.40	4.45	609.81	5.34	-----	----	----	----	----	----	----	----	5.34
17.60	4.43	609.80	5.31	-----	----	----	----	----	----	----	----	5.31
17.80	4.41	609.79	5.28	-----	----	----	----	----	----	----	----	5.28
18.00	4.39	609.78	5.24	-----	----	----	----	----	----	----	----	5.24
18.20	4.37	609.78	5.22	-----	----	----	----	----	----	----	----	5.22

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
18.40	4.35	609.77	5.21	-----	----	----	----	----	----	----	----	5.21
18.60	4.34	609.76	5.20	-----	----	----	----	----	----	----	----	5.20
18.80	4.32	609.75	5.19	-----	----	----	----	----	----	----	----	5.19
19.00	4.30	609.74	5.18	-----	----	----	----	----	----	----	----	5.18
19.20	4.28	609.74	5.16	-----	----	----	----	----	----	----	----	5.16
19.40	4.26	609.73	5.15	-----	----	----	----	----	----	----	----	5.15
19.60	4.24	609.72	5.14	-----	----	----	----	----	----	----	----	5.14
19.80	4.23	609.71	5.12	-----	----	----	----	----	----	----	----	5.12
20.00	4.21	609.70	5.11	-----	----	----	----	----	----	----	----	5.11
20.20	4.20	609.70	5.10	-----	----	----	----	----	----	----	----	5.10
20.40	4.20	609.69	5.09	-----	----	----	----	----	----	----	----	5.09
20.60	4.19	609.68	5.07	-----	----	----	----	----	----	----	----	5.07
20.80	4.19	609.67	5.06	-----	----	----	----	----	----	----	----	5.06
21.00	4.19	609.66	5.05	-----	----	----	----	----	----	----	----	5.05
21.20	4.18	609.66	5.04	-----	----	----	----	----	----	----	----	5.04
21.40	4.18	609.65	5.02	-----	----	----	----	----	----	----	----	5.02
21.60	4.17	609.64	5.01	-----	----	----	----	----	----	----	----	5.01
21.80	4.17	609.63	5.00	-----	----	----	----	----	----	----	----	5.00
22.00	4.17	609.63	4.99	-----	----	----	----	----	----	----	----	4.99
22.20	4.16	609.62	4.98	-----	----	----	----	----	----	----	----	4.98
22.40	4.16	609.61	4.96	-----	----	----	----	----	----	----	----	4.96
22.60	4.16	609.61	4.95	-----	----	----	----	----	----	----	----	4.95
22.80	4.15	609.60	4.94	-----	----	----	----	----	----	----	----	4.94
23.00	4.15	609.59	4.93	-----	----	----	----	----	----	----	----	4.93
23.20	4.14	609.58	4.92	-----	----	----	----	----	----	----	----	4.92
23.40	4.14	609.58	4.91	-----	----	----	----	----	----	----	----	4.91
23.60	4.14	609.57	4.89	-----	----	----	----	----	----	----	----	4.89
23.80	4.13	609.56	4.87	-----	----	----	----	----	----	----	----	4.87
24.00	3.72	609.56	4.85	-----	----	----	----	----	----	----	----	4.85

...End

Reservoir Report

Reservoir No. 3 - A Pond South

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	608.18	73,100	0.000	0.000
2.00	610.00	87,500	3.687	3.687

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 18.0	0.0	0.0	0.0
Span in	= 18.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 608.18	0.00	0.00	0.00
Length ft	= 40.0	0.0	0.0	0.0
Slope %	= 1.17	0.00	0.00	0.00
N-Value	= .025	.000	.000	.000
Orif. Coeff.	= 0.47	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.00	0.00	0.00	0.00
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 0.00 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0.000	608.18	0.00	---	---	---	---	---	---	---	---	0.00
2.00	3.687	610.00	6.16	---	---	---	---	---	---	---	---	6.16

Hydrograph Report

Hyd. No. 9

B Pond Areas

Hydrograph type	= SCS Runoff	Peak discharge	= 68.87 cfs
Storm frequency	= 1,000 yrs	Time interval	= 1 min
Drainage area	= 5.51 ac	Curve number	= 81
Basin Slope	= 3.8 %	Hydraulic length	= 390 ft
Tc method	= LAG	Time of conc. (Tc)	= 7.4 min
Total precip.	= 10.30 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 3.550 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
8.53	0.69	15.33	1.50
8.73	0.77	15.53	1.43
8.93	0.86	15.73	1.36
9.13	0.94	15.93	1.28
9.33	0.97	16.13	1.22
9.53	1.00	16.33	1.19
9.73	1.10	16.53	1.17
9.93	1.24	16.73	1.14
10.13	1.40	16.93	1.11
10.33	1.61	17.13	1.09
10.53	1.83	17.33	1.06
10.73	2.14	17.53	1.04
10.93	2.51	17.73	1.01
11.13	2.78	17.93	0.98
11.33	3.87	18.13	0.96
11.53	5.09	18.33	0.93
11.73	20.39	18.53	0.90
11.93	63.97	18.73	0.88
12.13	13.59	18.93	0.85
12.33	7.61	19.13	0.82
12.53	5.26	19.33	0.80
12.73	4.18	19.53	0.77
12.93	3.64	19.73	0.74
13.13	3.16	19.93	0.72
13.33	2.86	20.13	0.70
13.53	2.57	20.33	0.69
13.73	2.33		
13.93	2.13		
14.13	1.95	...End	
14.33	1.87		
14.53	1.80		
14.73	1.73		
14.93	1.65		
15.13	1.58		

Hydrograph Report

Hyd. No. 11

B Pond Routing

Hydrograph type	= Reservoir	Peak discharge	= 23.26 cfs
Storm frequency	= 1,000 yrs	Time interval	= 1 min
Inflow hyd. No.	= 10	Reservoir name	= B Pond
Max. Elevation	= 599.92 ft	Max. Storage	= 3.409 acft

Storage Indication method used.

Outflow hydrograph volume = 17.588 acft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
1.60	1.47	598.33	-----	-----	----	----	----	----	----	----	----	0.24
1.80	1.92	598.34	-----	-----	----	----	----	----	----	----	----	0.35
2.00	2.32	598.35	-----	-----	----	----	----	----	----	----	----	0.48
2.20	2.67	598.37	-----	-----	----	----	----	----	----	----	----	0.63
2.40	2.97	598.38	-----	-----	----	----	----	----	----	----	----	0.79
2.60	3.24	598.40	-----	-----	----	----	----	----	----	----	----	0.97
2.80	3.51	598.42	-----	-----	----	----	----	----	----	----	----	1.15
3.00	3.75	598.44	-----	-----	----	----	----	----	----	----	----	1.33
3.20	3.97	598.46	-----	-----	----	----	----	----	----	----	----	1.52
3.40	4.16	598.48	-----	-----	----	----	----	----	----	----	----	1.71
3.60	4.33	598.50	-----	-----	----	----	----	----	----	----	----	1.89
3.80	4.49	598.51	-----	-----	----	----	----	----	----	----	----	2.08
4.00	4.65	598.53	-----	-----	----	----	----	----	----	----	----	2.27
4.20	4.80	598.55	-----	-----	----	----	----	----	----	----	----	2.45
4.40	4.96	598.57	-----	-----	----	----	----	----	----	----	----	2.63
4.60	5.12	598.59	-----	-----	----	----	----	----	----	----	----	2.81
4.80	5.26	598.61	-----	-----	----	----	----	----	----	----	----	2.98
5.00	5.40	598.63	-----	-----	----	----	----	----	----	----	----	3.16
5.20	5.54	598.64	-----	-----	----	----	----	----	----	----	----	3.33
5.40	5.67	598.66	-----	-----	----	----	----	----	----	----	----	3.50
5.60	5.80	598.68	-----	-----	----	----	----	----	----	----	----	3.66
5.80	5.92	598.69	-----	-----	----	----	----	----	----	----	----	3.83
6.00	6.04	598.71	-----	-----	----	----	----	----	----	----	----	3.99
6.20	6.16	598.73	-----	-----	----	----	----	----	----	----	----	4.14
6.40	6.28	598.74	-----	-----	----	----	----	----	----	----	----	4.30
6.60	6.40	598.76	-----	-----	----	----	----	----	----	----	----	4.45
6.80	6.52	598.77	-----	-----	----	----	----	----	----	----	----	4.60
7.00	6.64	598.79	-----	-----	----	----	----	----	----	----	----	4.74
7.20	6.75	598.80	-----	-----	----	----	----	----	----	----	----	4.89
7.40	6.87	598.82	-----	-----	----	----	----	----	----	----	----	5.03
7.60	6.98	598.83	-----	-----	----	----	----	----	----	----	----	5.17
7.80	7.09	598.85	-----	-----	----	----	----	----	----	----	----	5.31
8.00	7.19	598.86	-----	-----	----	----	----	----	----	----	----	5.45
8.20	7.32	598.87	-----	-----	----	----	----	----	----	----	----	5.58
8.40	7.47	598.89	-----	-----	----	----	----	----	----	----	----	5.71
8.60	7.63	598.90	-----	-----	----	----	----	----	----	----	----	5.85
8.80	7.80	598.92	-----	-----	----	----	----	----	----	----	----	5.99
9.00	7.97	598.93	-----	-----	----	----	----	----	----	----	----	6.13

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
9.20	8.12	598.95	-----	-----	----	----	----	----	----	----	----	6.27
9.40	8.24	598.96	-----	-----	----	----	----	----	----	----	----	6.41
9.60	8.36	598.97	-----	-----	----	----	----	----	----	----	----	6.55
9.80	8.58	598.99	-----	-----	----	----	----	----	----	----	----	6.70
10.00	8.81	599.00	-----	-----	----	----	----	----	----	----	----	6.88
10.20	9.10	599.02	-----	-----	----	----	----	----	----	----	----	7.15
10.40	9.43	599.03	-----	-----	----	----	----	----	----	----	----	7.42
10.60	9.80	599.05	-----	-----	----	----	----	----	----	----	----	7.71
10.80	10.30	599.07	-----	-----	----	----	----	----	----	----	----	8.01
11.00	10.85	599.09	-----	-----	----	----	----	----	----	----	----	8.35
11.20	11.64	599.11	-----	-----	----	----	----	----	----	----	----	8.70
11.40	12.87	599.13	-----	-----	----	----	----	----	----	----	----	9.16
11.60	16.86	599.17	-----	-----	----	----	----	----	----	----	----	9.79
11.80	39.85	599.29	-----	-----	----	----	----	----	----	----	----	12.07
12.00	81.89	599.69	-----	-----	----	----	----	----	----	----	----	19.18
12.20	28.38	599.89	-----	-----	----	----	----	----	----	----	----	22.72
12.40	24.72	599.92	-----	-----	----	----	----	----	----	----	----	23.22
12.60	21.24	599.91	-----	-----	----	----	----	----	----	----	----	23.17
12.80	19.40	599.89	-----	-----	----	----	----	----	----	----	----	22.79
13.00	17.91	599.86	-----	-----	----	----	----	----	----	----	----	22.25
13.20	16.72	599.83	-----	-----	----	----	----	----	----	----	----	21.60
13.40	15.80	599.79	-----	-----	----	----	----	----	----	----	----	20.90
13.60	15.15	599.75	-----	-----	----	----	----	----	----	----	----	20.19
13.80	14.65	599.71	-----	-----	----	----	----	----	----	----	----	19.50
14.00	14.18	599.67	-----	-----	----	----	----	----	----	----	----	18.84
14.20	13.79	599.64	-----	-----	----	----	----	----	----	----	----	18.20
14.40	13.50	599.60	-----	-----	----	----	----	----	----	----	----	17.61
14.60	13.23	599.57	-----	-----	----	----	----	----	----	----	----	17.05
14.80	12.97	599.54	-----	-----	----	----	----	----	----	----	----	16.54
15.00	12.73	599.52	-----	-----	----	----	----	----	----	----	----	16.06
15.20	12.51	599.49	-----	-----	----	----	----	----	----	----	----	15.61
15.40	12.29	599.47	-----	-----	----	----	----	----	----	----	----	15.19
15.60	12.09	599.45	-----	-----	----	----	----	----	----	----	----	14.80
15.80	11.89	599.43	-----	-----	----	----	----	----	----	----	----	14.43
16.00	11.70	599.41	-----	-----	----	----	----	----	----	----	----	14.09
16.20	11.54	599.39	-----	-----	----	----	----	----	----	----	----	13.77
16.40	11.41	599.37	-----	-----	----	----	----	----	----	----	----	13.47
16.60	11.29	599.36	-----	-----	----	----	----	----	----	----	----	13.19
16.80	11.18	599.34	-----	-----	----	----	----	----	----	----	----	12.94
17.00	11.07	599.33	-----	-----	----	----	----	----	----	----	----	12.70
17.20	10.97	599.32	-----	-----	----	----	----	----	----	----	----	12.48
17.40	10.88	599.31	-----	-----	----	----	----	----	----	----	----	12.28
17.60	10.78	599.30	-----	-----	----	----	----	----	----	----	----	12.09
17.80	10.69	599.29	-----	-----	----	----	----	----	----	----	----	11.91
18.00	10.61	599.28	-----	-----	----	----	----	----	----	----	----	11.75
18.20	10.54	599.27	-----	-----	----	----	----	----	----	----	----	11.59
18.40	10.47	599.26	-----	-----	----	----	----	----	----	----	----	11.45
18.60	10.41	599.25	-----	-----	----	----	----	----	----	----	----	11.32
18.80	10.35	599.25	-----	-----	----	----	----	----	----	----	----	11.20
19.00	10.29	599.24	-----	-----	----	----	----	----	----	----	----	11.08
19.20	10.24	599.23	-----	-----	----	----	----	----	----	----	----	10.98

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
19.40	10.18	599.23	-----	-----	----	----	----	----	----	----	----	10.88
19.60	10.12	599.22	-----	-----	----	----	----	----	----	----	----	10.78
19.80	10.07	599.22	-----	-----	----	----	----	----	----	----	----	10.69
20.00	10.01	599.21	-----	-----	----	----	----	----	----	----	----	10.61
20.20	9.96	599.21	-----	-----	----	----	----	----	----	----	----	10.53
20.40	9.93	599.20	-----	-----	----	----	----	----	----	----	----	10.45
20.60	9.90	599.20	-----	-----	----	----	----	----	----	----	----	10.38
20.80	9.87	599.20	-----	-----	----	----	----	----	----	----	----	10.32
21.00	9.85	599.19	-----	-----	----	----	----	----	----	----	----	10.26
21.20	9.82	599.19	-----	-----	----	----	----	----	----	----	----	10.20
21.40	9.80	599.19	-----	-----	----	----	----	----	----	----	----	10.15
21.60	9.77	599.18	-----	-----	----	----	----	----	----	----	----	10.10
21.80	9.75	599.18	-----	-----	----	----	----	----	----	----	----	10.06
22.00	9.72	599.18	-----	-----	----	----	----	----	----	----	----	10.02
22.20	9.70	599.18	-----	-----	----	----	----	----	----	----	----	9.98
22.40	9.68	599.18	-----	-----	----	----	----	----	----	----	----	9.94
22.60	9.66	599.17	-----	-----	----	----	----	----	----	----	----	9.90
22.80	9.64	599.17	-----	-----	----	----	----	----	----	----	----	9.87
23.00	9.62	599.17	-----	-----	----	----	----	----	----	----	----	9.84
23.20	9.60	599.17	-----	-----	----	----	----	----	----	----	----	9.81
23.40	9.57	599.17	-----	-----	----	----	----	----	----	----	----	9.78
23.60	9.55	599.16	-----	-----	----	----	----	----	----	----	----	9.75
23.80	9.52	599.16	-----	-----	----	----	----	----	----	----	----	9.72
24.00	8.90	599.16	-----	-----	----	----	----	----	----	----	----	9.69

...End

Reservoir Report

Reservoir No. 4 - B Pond

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	598.30	89,300	0.000	0.000
0.70	599.00	92,350	1.460	1.460
1.70	600.00	92,350	2.120	3.580
3.70	602.00	102,800	4.480	8.060
5.70	604.00	110,000	4.885	12.945
7.70	606.00	118,000	5.234	18.179

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 0.0	0.0	0.0	0.0
Span in	= 0.0	0.0	0.0	0.0
No. Barrels	= 0	0	0	0
Invert El. ft	= 0.00	0.00	0.00	0.00
Length ft	= 0.0	0.0	0.0	0.0
Slope %	= 0.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

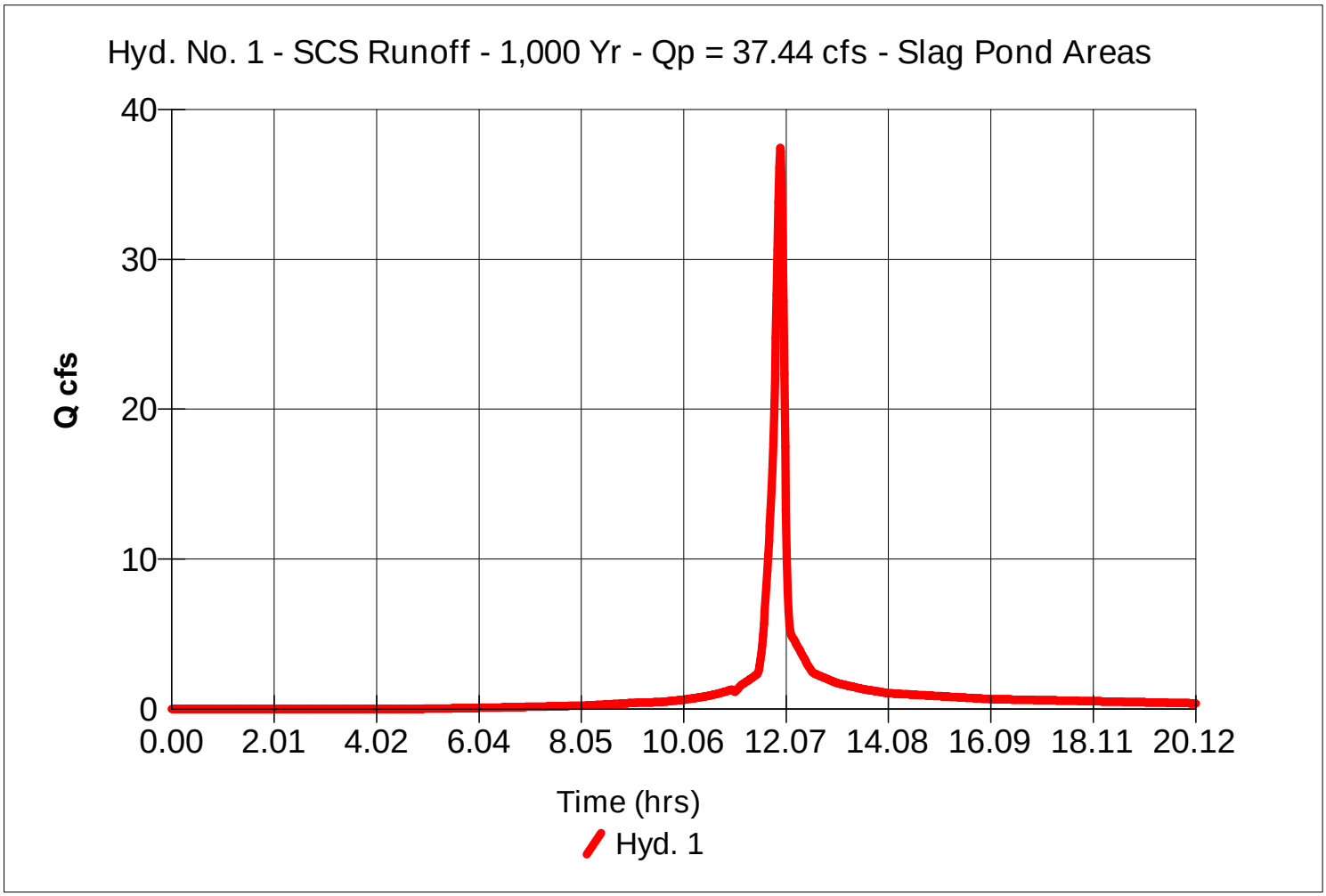
	[A]	[B]	[C]	[D]
Crest Len ft	= 0.00	0.00	0.00	0.00
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	0.00	0.00	0.00
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

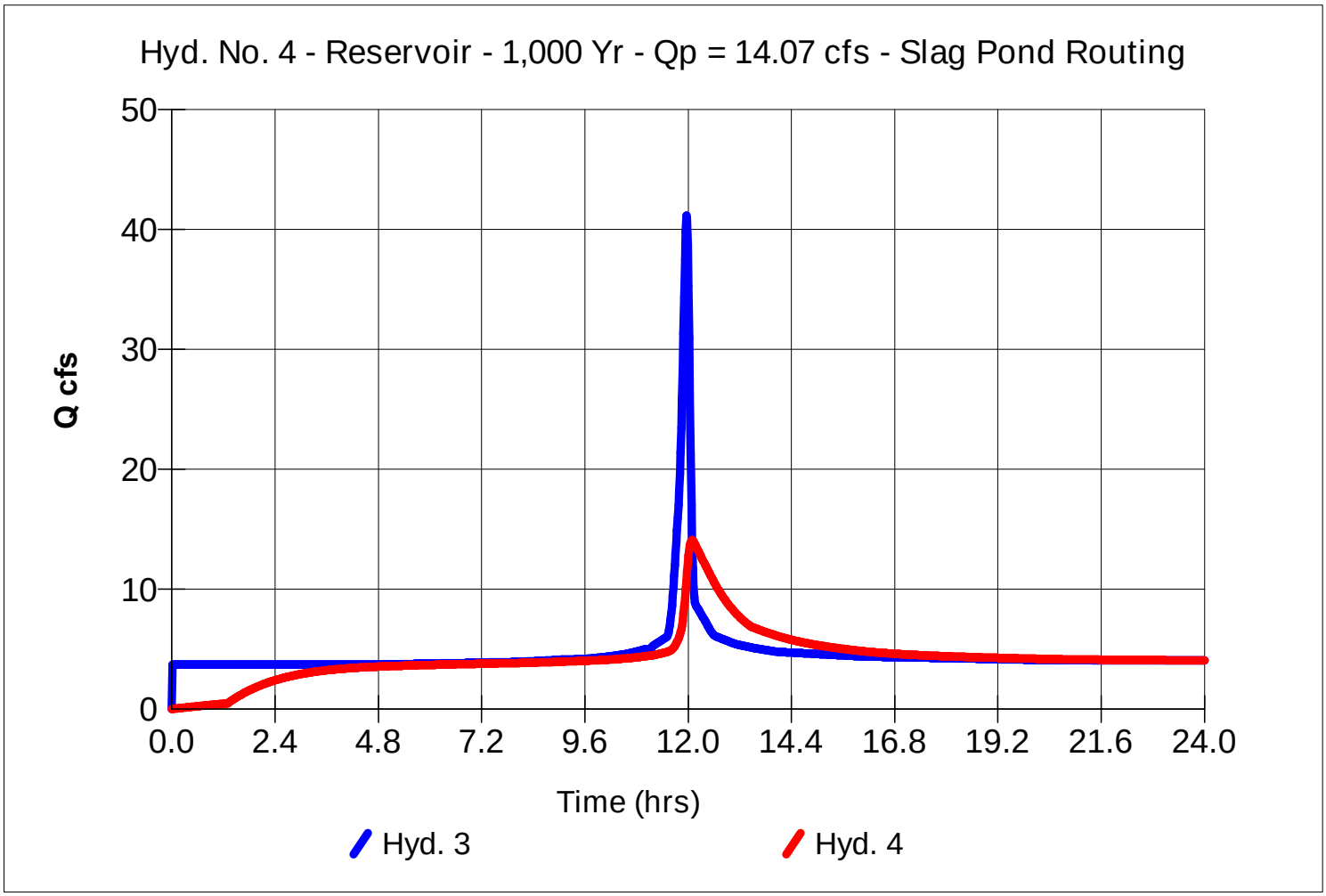
Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 0.00 ft

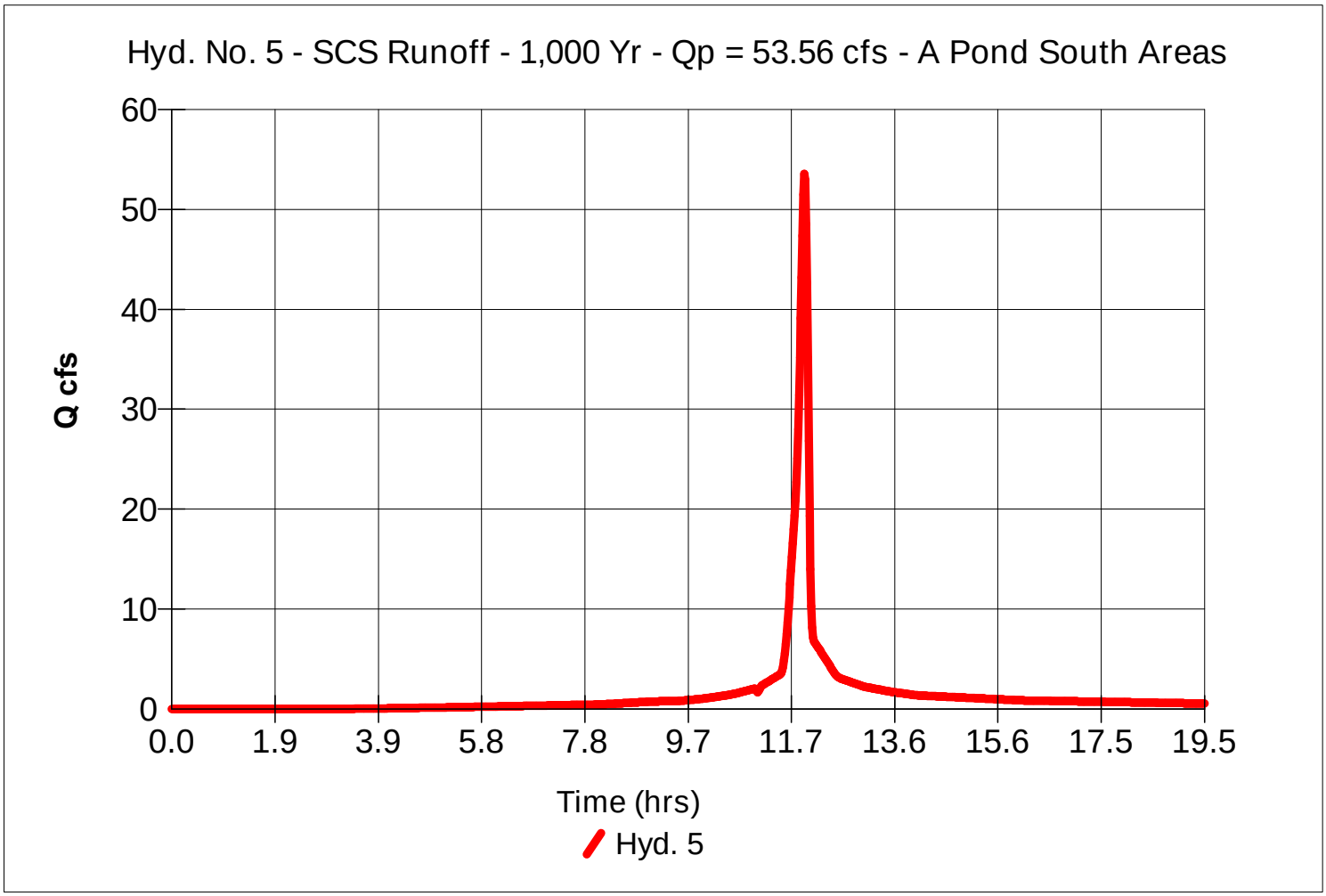
Note: All outflows have been analyzed under inlet and outlet control.

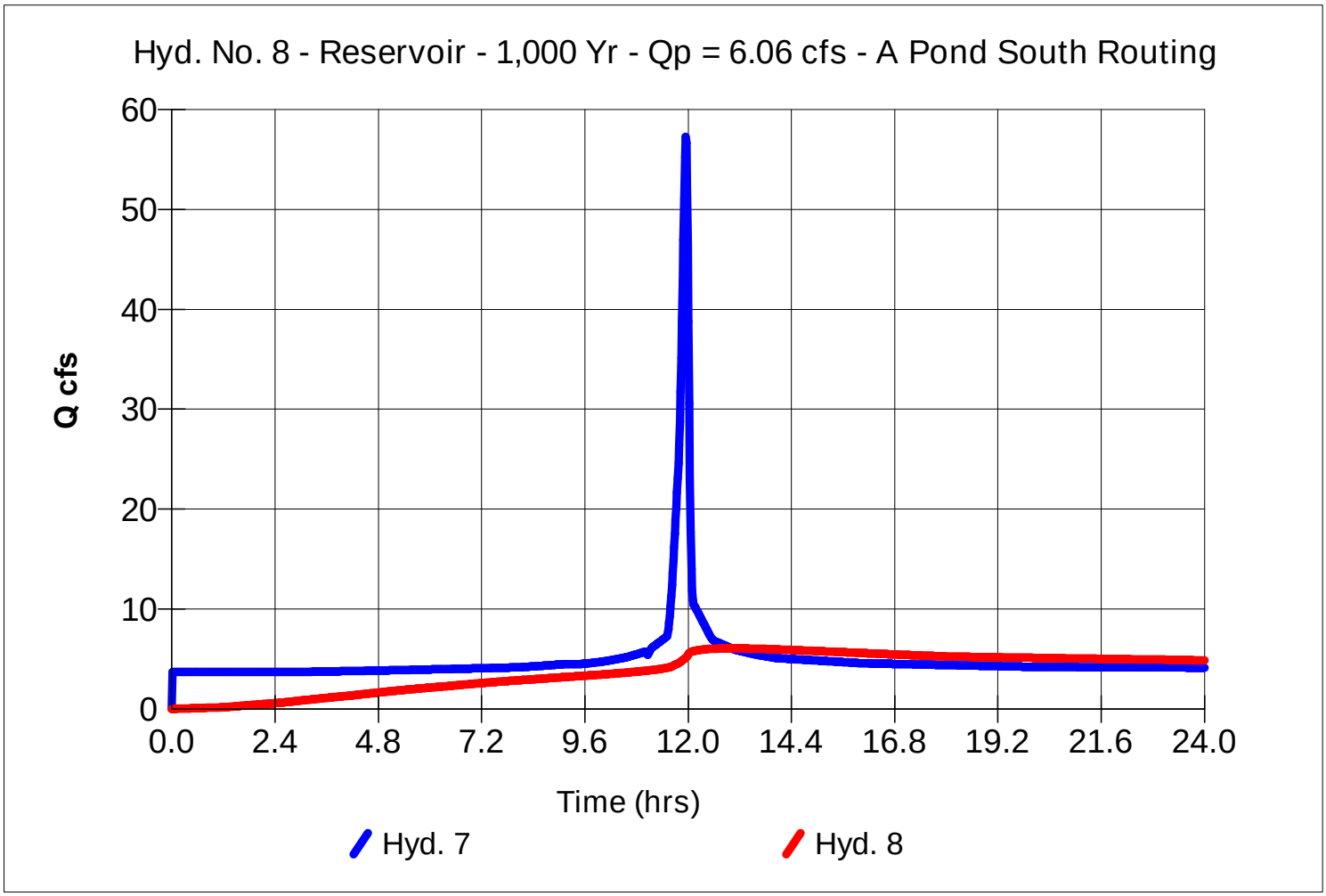
Stage / Storage / Discharge Table

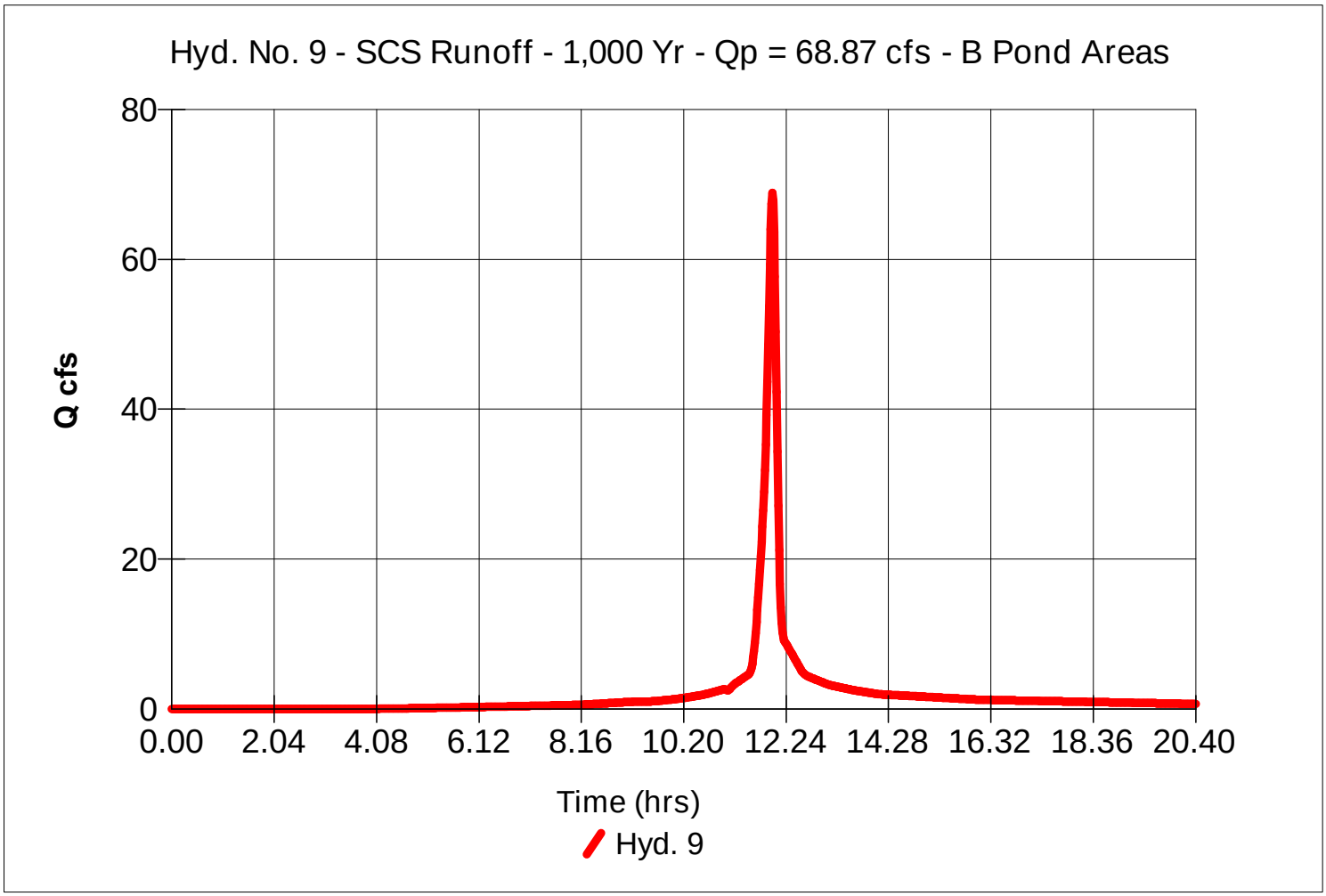
Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0.000	598.30	---	---	---	---	---	---	---	---	---	0.00
0.70	1.460	599.00	---	---	---	---	---	---	---	---	---	6.80
1.70	3.580	600.00	---	---	---	---	---	---	---	---	---	24.70
3.70	8.060	602.00	---	---	---	---	---	---	---	---	---	32.00
5.70	12.945	604.00	---	---	---	---	---	---	---	---	---	34.60
7.70	18.179	606.00	---	---	---	---	---	---	---	---	---	37.00

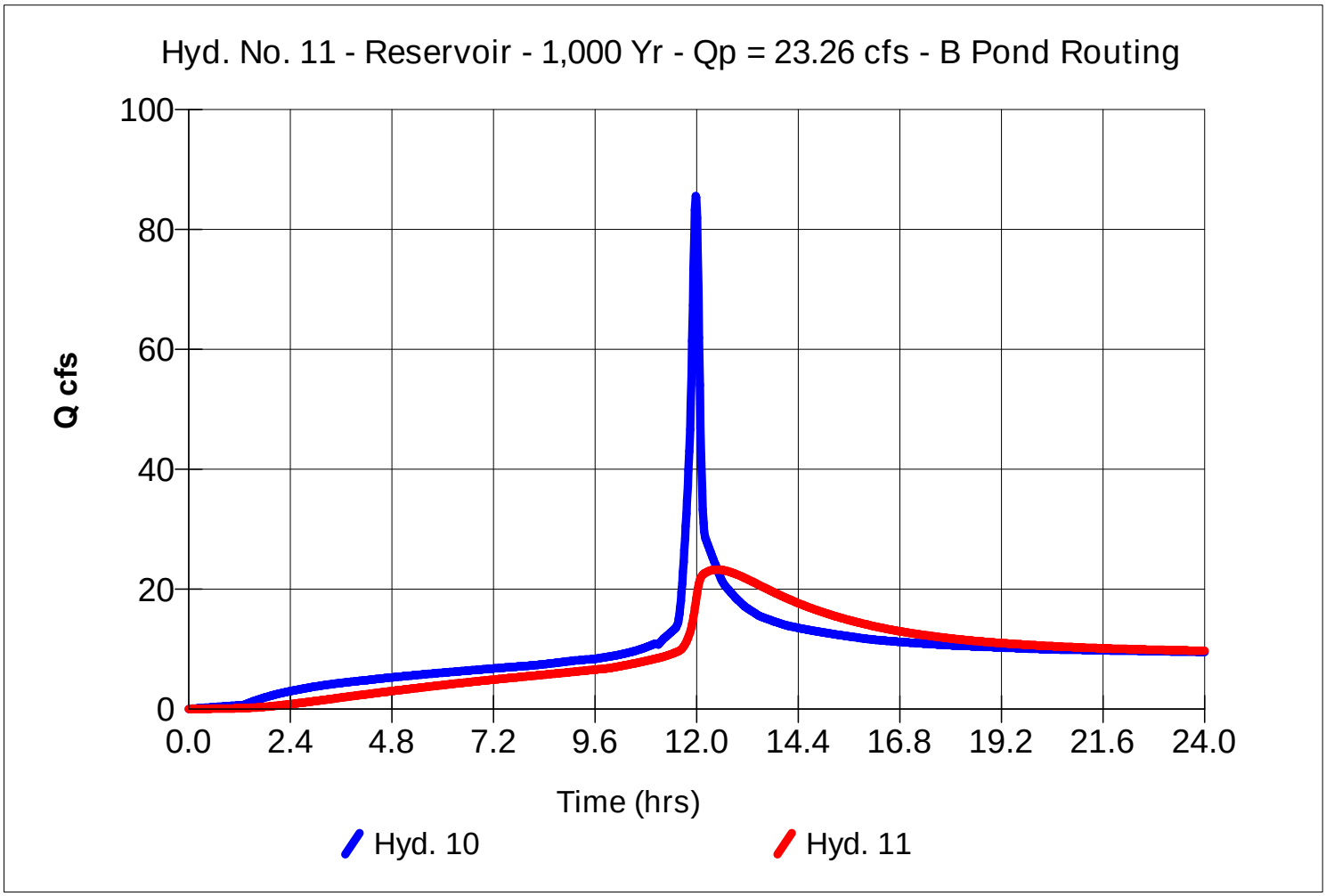

Hyd. No. 1 - SCS Runoff - 1,000 Yr - Qp = 37.44 cfs - Slag Pond Areas
Q cfs
40
30
20
10
0
0.00
2.01
4.02
6.04
8.05
10.06
12.07
14.08
16.09
18.11
20.12
Time (hrs)
Hyd. 1


Hyd. No. 4 - Reservoir - 1,000 Yr - Qp = 14.07 cfs - Slag Pond Routing
Q cfs
50
40
30
20
10
0
0.0
2.4
4.8
7.2
9.6
12.0
14.4
16.8
19.2
21.6
24.0
Time (hrs)
Hyd. 3
Hyd. 4


Hyd. No. 5 - SCS Runoff - 1,000 Yr - Qp = 53.56 cfs - A Pond South Areas
Q cfs
60
50
40
30
20
10
0
0.0
1.9
3.9
5.8
7.8
9.7
11.7
13.6
15.6
17.5
19.5
Time (hrs)
Hyd. 5


Hyd. No. 8 - Reservoir - 1,000 Yr - Qp = 6.06 cfs - A Pond South Routing
Q cfs
60
50
40
30
20
10
0
0.0
2.4
4.8
7.2
9.6
12.0
14.4
16.8
19.2
21.6
24.0
Time (hrs)
Hyd. 7
Hyd. 8


Hyd. No. 9 - SCS Runoff - 1,000 Yr - Qp = 68.87 cfs - B Pond Areas
Q cfs
80
60
40
20
0
0.00
2.04
4.08
6.12
8.16
10.20
12.24
14.28
16.32
18.36
20.40
Time (hrs)
Hyd. 9


Hyd. No. 11 - Reservoir - 1,000 Yr - Qp = 23.26 cfs - B Pond Routing
Q cfs
100
80
60
40
20
0
0.0
2.4
4.8
7.2
9.6
12.0
14.4
16.8
19.2
21.6
24.0
Time (hrs)
Hyd. 10
Hyd. 11