SCOTT'S MILL HYDRO, LLC

March 18, 2022

The Honorable Kimberly Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

RE: APPLICATION FOR ORIGINAL LICENSE FOR MAJOR WATER POWER PROJECTS 10 MEGAWATTS OR LESS SCOTT'S MILL DAM HYDROELECTRIC PROJECT, FERC PROJECT NO. 14867-001

Dear Secretary Bose:

Scott's Mill Hydro, LLC (Scott's Mill) is pleased to submit to the Federal Energy Regulatory Commission (Commission or FERC) the enclosed final License Application (Initial Statement, Exhibits A, E, F, and G) for an original license for the Scott's Mill Hydropower Project, FERC No. 14867 ("Project"). Exhibit F contains design drawings of the project works and qualifies as CEII according to the criteria set forth in 18 C.F.R. 388.113(c). Also Sheet 2 of Exhibit G contains CEII information and is filed separately.

The Application is submitted pursuant to the Commission regulations 18 C.F.R. §4.60 and 4.61. By letter dated August 5th and the Commission's order dated November 18, 2021, Scott's Mill was required to convert its exemption application to a license application. The August 5, 2021 letter stated that Scott's Mill would have 90 days from the date of the August letter to provide the requested information, but did not require Scott's Mill to refile the entire application. The 90-day period was superseded by the Commission's November 18 rehearing order which allowed for a 60-day period from November 18th.

The Commission's November 18th order did not specify if the entire application was to be refiled or converted to a license application with the additional information requested by the Commission. On December 9, 2021, Commission staff and Scott's Mill conferred on the current additional information request and agreed that all parties would benefit if all supplements to the original application filed in June 2020 (i.e., March 31, 2021 filing, responses to the Commission's August 5, 2021 additional information request, inclusion of the settlement agreement with resource agencies, and a minor adjustment to the transmission line route to minimize disruptions to U.S. Pipe operations) were contained in one document. Scott's Mill agreed to update and refile the entire application.

On December 15, 2021, Scott's Mill requested an additional 60 days to prepare responses to the Commission's additional information requests and update the license application. Scott's Mill updated Commission staff on March 7, 2022 and Commission staff responded on March

8, 2022 that it would be ideal if the final license application includes the signed Settlement Agreement (SA) and measures proposed in the FLA are consistent with those in the SA. Applicant reviewed a near final version of the SA in early March 2022 and attempted to make the application consistent with the SA. However, it is possible that minor additional changes to the SA may be made prior to its signing. If there are changes that make any portion of the application inconsistent with the SA, Applicant will flag those changes when the signed SA is filed.

Concurrent with the filing of the application, Applicant is notifying via certified mail, property owners adjacent to project works and the impoundment of the filing of the license application along with a copy of Exhibit G (sheet 1). Applicant is also noticing the application filing in the local newspaper and will file the proof of publication when it is available.

The updated license application can be found on Scott's Mill's web site at www.scottsmillhydro.com. Attachment 1 to this letter provides a roadmap of changes to the application since the exemption application was filed on June 20, 2020.

If you have any questions, please contact me at the below address or at Scott's Mill at scottsmillhydro@yahoo.com. You may also contact Wayne Dyok at (916) 719-7022.

Sincerely,

Wayne M Dyok for

Mark Fendig, President

ATTACHMENT 1

ROADMAP TO LICENSE APPLICATION

The license application has been modified from the previous exemption application filed with the Commission in June 2020.

1. Project Distribution List has been expanded and updated.

2. The Initial Statement For License Exemption has been replaced with the Initial Statement for Application for License for a Major Water Power Project, 10 Megawatts or less.

3. Exhibit A has been updated to provide River Miles based on Virginia Department of Wildlife Resources measurement system, which differs from FEMA's RM system. Project operation will remain run-of-river but is dependent upon inflow from the upstream Reusens Project. Applicant modified proposed project operation to enable flow adjustments of up to two hours per day for a total of 10 days during the summer peak electrical demand days to maximize annual capacity values. Applicant has analyzed several storm events and has made minor changes to upstream water levels based on the storm analyses. However, the results of Applicant's previous analysis was minimally affected. Minor adjustments were also made to provide consistent project statistics. In particular the reservoir area was adjusted from 316 acres at normal operating level to 305 acres based on updated GIS measurements. The single-line diagram was updated to respond to Commission staff's information request. Figure A-3 contains CEII information and is filed separately along with the one-line diagram. Monthly project flow statistics are provided in Exhibit E.

4. Exhibit E has been revised to be a comprehensive document incorporating the information from previous filings and including responses to the Commission's August 5, 2021 letter and November 18, 2021 decision on Applicant's exemption application rehearing request. Section 1.0 Summary better describes Applicant's proposed project operation and water levels during flood conditions based on the analysis of historic storms. Section 2.0 Application identifies that the Applicant is requesting a license for a major water project less than 10 MW. Section 4.2 presents a comprehensive list of environmental measures including associated capital and annual operating costs. Section 5 Consultation and Compliance updates the consultation process to include a history of the exemption application consultation, subsequent consultation and the status of the Settlement Agreement. Section 5.2, Compliance updates the status of the 401 Water Quality Certification Application. Applicant consulted with the Virginia Department of Environmental Quality on March 2, 2022 and it was agreed that Applicant would file the 401 when the Settlement Agreement is signed. Since that is expected to be within the next month,

that should not present a significant delay in processing the application and will ensure the joint permit application is fully consistent with the signed Settlement Agreement. Section 6.3.2 Water Resources was updated to include the results of the analysis of historic storms. This is also described in Section 6.3.2.1.3. (There is no change in headpond water levels for 10-year flood flows, but for 50-year and 100-year flood flows, the headpond levels were determined to be up to 2 feet higher than during existing conditions at the maximum flows. At the highest flood levels modeled (207,000 cfs and approximately 300-year flood level) the differential between pre- and post-project water levels is reduced to about 1.4 feet. Section 6.3.2.1.6 Water Quality has been updated with recent data provided by VDEQ. Table E-6-2 includes data through 2019. Additional information is provided in new Appendix L. Section 6.3.3 Aquatic Resources was modified to note that Muskellunge are no longer stocked in the James River. American Eel data were clarified and Appendix M was added to present additional eel data and other fisheries data. VDWR annual field survey data was updated to include information through 2020. In Section 6.3.3.2.4 Applicant included additional analyses on entrainment. In Section 6.3.4.2, additional information was presented on wetland compensatory mitigation. New Appendix N was added to present a hydric soils map and a wetlands mapping assessment conducted in 2021. In Section 6.3.6, recreation resources within 60 miles of Scott's Mill were updated with distances from the project and recreation references were added. The visual impacts Section 6.3.7.2.2 was replaced with the updated writeup that was filed on March 31, 2021, including a key viewing areas map.

5. Exhibit E - Appendix A consultation was updated to add consultation documents from the Final Exemption Application (FEA) to the License Application filing (titled Appendix A1). The original consultation prior to the FEA was unchanged and is included in Appendix A.

6. Exhibit E - Appendix B was unchanged. Appendix B1 was added to provide responses to the Commission's October 28, 2020 letter and Appendix B2 to provide responses to the Commission's August 5, 2021 letter. The appendices to the October 28, 2020 letter filed on March 31, 2021 are excluded since these were used to update the final license application.

7. Exhibit E - Appendices C through J were unchanged except Table 1 in Appendix G was replaced with the updated table of dominant species that was filed on March 31, 2021. Appendix I is filed separately as privileged information.

8. Exhibit E - Appendix K – Storm Analysis was added. This includes the model that was prepared per FERC's additional information request. There are three Excel files that are included as part of Appendix K.

9. Exhibit E - Appendix L provides additional water quality data from VDEQ. It includes a water quality data spreadsheet.

10. Exhibit E - Appendix M provides additional information on American Eel and other fisheries data. The supplemental fisheries data is provided in an Excel spreadsheet.

11. Exhibit E - Appendix N provides the hydric soils map and 2021 wetlands mapping information.

12. Exhibit F - Supporting Design Report (SDR) was revised to include a more rigorous analysis on dam stability in response to the Commission's August 5, 2021 letter. Additional research uncovered the original dam specifications for the Horseshoe section of the dam. The 1981 data prepared for the previous FERC license was determined to be in error both in dam orientation and upstream slope. The updated analysis is presented before the previous powerhouse stability analysis, which is unchanged. A preamble was added to the SDR. The Exhibit F drawings are provided in the exhibit. These drawings are unchanged from the FEA filing.

13. Exhibit G was revised and signed by the land surveyor. A PDF of the Exhibit G was filed along with the GIS files.

SCOTT'S MILL HYDRO, LLC

Scott's Mill Hydropower Project Distribution

- Ms. Kimberly Bose, Secretary, Federal Energy Regulatory Commission
- Mr. Jon Smith, Federal Energy Regulatory Commission
- Mr. Jody Callihan, Federal Energy Regulatory Commission
- Division of Dam Safety and Inspection, Federal Energy Regulatory Commission
- Mr. Wayne King, Federal Energy Regulatory Commission, Regional Office
- Ms. Catherine Gray, Cultural Resources Specialist, Cherokee Nation
- Chief, Tuscarora Indian Nation
- Kaleigh Pollack, Monacan Nation
- Ms. Erin Thompson, Tribal Historical Preservation Officer, Absentee-Shawnee
- Brett Barnes, Tribal Historical Preservation Officer, Eastern Shawnee Tribe of Oklahoma
- Ms. Kim Jumper, Tribal Historical Preservation Officer, Shawnee Tribe
- Russell Townsend, Tribal Historical Preservation Officer, Eastern Band of Cherokee Indians
- Joe Bunch, United Keetoowah Band of Cherokee Indians
- Ms. K. Penrod, Delaware Nation
- Nansemond Indian Tribal Association
- Mr. Robert Gray, Pamunkey Indian Tribe
- Virginia Council on Indians
- Patwomeck Tribe
- Mattaponi Indian Tribe
- Nottoway Indian Tribe of Virginia
- Rappahannock Tribe
- Cheroenhaka (Nottoway) Tribe

- Mr. Ken Hogan, U.S. Fish and Wildlife Service
- Ms. Cindy Shultz, Virginia Field Office, U.S. Fish and Wildlife Service
- Director, National Marine Fisheries Service (Ms. Julie Crocker)
- National Park Service (Nathan Hilbert)
- U.S. Department of Agriculture, Forest Service, Washington, DC (L. B. Stull)
- Mr. David Whitmore, U.S. Forest Service, Roanoke
- Ms. Ginny Davis, U.S. Environmental Protection Agency (USEPA)
- Ms. Karen Delgrosso, USEPA
- Ms. Barbara Rudnick, USEPA
- Advisory Council on Historic Preservation
- U.S. Bureau of Indian Affairs (Johnna Blackhair)
- U.S. Bureau of Land Management, Springfield VA Office (S. Banks)
- Mr. George Palmer, Virginia Department of Wildlife Resources
- Mr. Alan Weaver, Virginia Dept. of Wildlife Resources
- Ms. Jennifer Wampler, Virginia Department of Conservation and Recreation
- Ms. Roger W. Kirchen, Virginia Department of Historic Resources
- Mr. Marc Holma, Virginia Department of Historic Resources
- Ms. Julie Langan, Virginia Department of Historic Resources
- Mr. Michael Johnson, Virginia Marine Resources Commission
- Mr. Gary F. Christie, Executive Director, Central Virginia Planning District
- Mr. Dean C. Rodgers, County of Amherst
- J.S. Bryant, County of Amherst
- Patrick Nalley, County of Amherst
- Erin Hawkins, City of Lynchburg
- Nancy Lilly, City of Lynchburg
- Mr. Timothy Mitchell, City of Lynchburg Utilities
- Mr. Greg Poff, City of Lynchburg
- Mr. Mark Singelton, Executive Director, American Whitewater

- Ms. Lisa Pappas, The Nature Conservancy
- Hydro Reform Coalition (Kelly Catlett)
- Mr. Rob Campbell, VCNA
- Mr. Bob Gates, Eagle Creek Renewable Energy
- Mr. Michael Scarzelli, Eagle Creek Renewable Energy
- Mr. John Wagner, Electric Department, Town of Bedford
- DB Crawford
- Kevin Daniels
- Slusser, Lynchburg Education
- Jonathan Crowder, Merrick Company
- Rick McLaughlin, Merrick Company
- Mr. David Duquette, Littoral Power Systems
- Mr. Ben Leatherland, Hurt and Proffitt
- Mr. Randy Lichtenberger, Hurt and Proffitt
- Mr. Mike Wilson, Director of Municipal Engineering, Hurt and Proffitt
- Mr. Mark Fendig, Scott's Mill Hydro, LLC
- Mr. Wayne Dyok, Consultant, Scott's Mill Hydro
- Mr. John T. Eddins, Advisory Council on Historic Preservation
- Mr. Bruce Maytubby, Regional Director, Bureau of Indian Affairs
- Mr. Zach Reichold, Bureau of Land Management
- Mr. Charles Baker, Floodplain Management Specialist, FEMA
- Mr. Stephan Nevshehirlian, NEPA Program Manager
- Mr. Harold Peterson, Bureau of Indian Affairs, Eastern Region
- Mr. Lou Chiarella, Asst. Admin. For Habitat Conservation, NOAA
- Mr. William McDavitt, NOAA Fisheries Service, GARFO
- Mr. Jeffrey R. Duncan, Southeastern Rivers Program Manager, National Park Service
- Mr. Kevin Mendik, Esq. NPS Hydro Program Coordinator, U.S National Park Service

- Mr. Joby P. Timm, US Forest Service, George Washington & Jefferson National Forests
- Ms. Jennifer Frye, U.S. Army Corps of Engineers, Norfolk District
- Mr. Alfred Boykin, FEMA, Mitigation Division, Dam Safety
- Mr. Andrew Titler, Attorney-Advisor, U.S. Department of Interior
- Mr. Wayne King, Regional Engineer, Office of Energy Projects, Division of Dam Safety & Inspections, Atlanta Regional Offie
- Mr. James Smalls, Assistant Director for NEPA, U.S. Forest Service
- Mr. Joseph Grist, Office of Water Supply, Department of Environmental Quality
- Mr. Scott Smith, Region 2 Fisheries Manager, VA Department of Wildlife Recourses
- Mr. Timothy Hatton, Natural Heritage Director, VA Dept. Conservation & Recreation
- Mr. Alan Weaver, Fish Passage Coordinator, VA Department of Wildlife Recourses
- Mr. Mike Johnson, Virginia Marine Recourses Commission
- Ms. Jackie Miller, Soil and Water Conservation Director
- Mr. Brian Watson, VA Department of Wildlife Recourses
- Mr. Robbie Rhur, Environ. Program Planner, VA Department of Conservation & Recreation
- Mr. Reid Wodicka, Interim City Manager, City of Lynchburg
- Mr. Robert A. Hopkins, PE, Director of Public Utilities, Amherst County Service Authority
- Mr. Robert Hiss, Bedford County Administrator
- Mr. Kevin Leamy, Director of Natural Recourses, County of Bedford
- Ms. Kelly Hitchcock, Planning & Development Director, Central VA Planning District Commission
- Mr. Jamie Brunkow, James River Association
- Mr. William Trout, Director, American Canal Society

- Mr. Robert Campbell, James River Association
- Mr. Bill Tanger, Friends of the Rivers of Virginia
- Mr. Alan Spivey, Coastal Canoeist
- Ms. Elizabeth Parcell, Process Supervisor, Appalachian Power Company
- A. Kendall Sydnor
- B.Y Calvert III

Cities and Towns Within 15 Miles of Scott's Mill Dam And a Population of 5,000 or More

Abert, VA
2500 Abert Road,
Lynchburg VA 24501

Amherst, VA
174 S. Main Street,
P.O. Box 280 Amherst, VA 24521

Bedford, VA 21
5 East Main Street,
Bedford VA 24523

Forest, VA
110 Vista Center Dr,
Forest VA 24551

Lynchburg, VA
900 Church Street,
Lynchburg VA 24504

Madison Heights, VA
153 Washington St, P.O. Box 390
Amherst, Virginia 24521

Monroe, VA
129 Francis Ave,
Monroe VA 24574

Timberlake. VA
900 Church Street,
Lynchburg, VA 24504

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

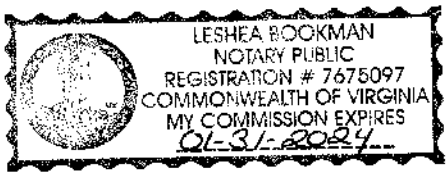
CERTIFICATION

Commonwealth of Virginia
County of Amherst]

I, Mark Fendig, Managing Partner of Scott's Mill Hydro, LLC, (FERC Project No. P-14867), 733 Elon Road, Big Island, Virginia 24539, being duly sworn, certifies under penalty of perjury that the foregoing and documents attached hereto are true and correct.

Mark Fendig
Managing Partner
Scott's Mill Hydro, LLC

Subscribed and sworn to before me, a notary public of the Commonwealth of Virginia, this 14th day of March, 2022.



SCOTT'S MILL DAM

HYDROELECTRIC PROJECT
FERC PROJECT NO. 14867

Application for Federal Energy Regulatory Commission License

March 18, 2022

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ACRONYMS AND ABBREVIATIONS

APE ..... Area of Potential Effects
ASA ..... American Sportfishing Association
AVG ..... Average
AW..... American Whitewater
BOD ..... Biological Oxygen Demand
CC ..... Coastal Canoeist
CFR ..... Code of Federal Regulations
cfs ..... Cubic Feet Per Second
CPUE ..... Catch Per Unit Effort
CWA ..... Clean Water Act
CZMA ..... Coastal Zone Management Act
dBA ..... Decibel
DO ..... Dissolved Oxygen
DOI ..... Department of the Interior
EL ..... Elevation
ESA ..... Endangered Species Act
FERC ..... Federal Energy Regulatory Commission
FPA ..... Federal Power Act
GPS ..... Global Positioning System
HPMP ..... Historic Properties Management Plan
HW ..... High Water
ILP ..... Integrated Licensing Process
in ..... Inch
km ..... Kilometer
km^2 ..... Square Kilometer
kV ..... Kilovolt
kVA ..... Kilovolt amp
kW ..... Kilowatt
kWh ..... Kilowatt Hour
LRMP ..... Land Resources Management Plan
m ..... Meter
mi ..... Mile
mm ..... Millimeter
MOA ..... Memorandum of Agreement
msl ..... Mean Sea Level
MW ..... Megawatt
MWh ..... Megawatt – hour
NEPA ..... National Environmental Policy Act
NHPA ..... National Historic Preservation Act
NMFS ..... National Marine Fisheries Service
NPS ..... National Park Service

NRHP ..... National Register of Historic Places
O&M ..... Operations and Maintenance
PCB ..... Polychlorinated Biphenyls
PMF ..... Probable Maximum Flood
ppb ..... Parts Per Billion
PURPA ..... Public Utility Regulatory Policy Act
REA ..... Ready for Environmental Analysis
RM ..... River Mile
ROS ..... Recreation Opportunity Spectrum
ROW ..... Right-of-Way
rpm ..... Revolutions Per Minute
SA ..... Settlement Agreement
SC ..... Special Concern
SCC ..... Virginia State Corporation Commission
SHPO ..... Virginia State Historic Preservation Officer
SIO ..... Scenic Integrity Objectives
SF ..... Safety Factor
SMS ..... Scenery Management System
SOC ..... Species of Special Concern
sq ..... Square
SR ..... State Route
TLP ..... Traditional Licensing Process
tsf ..... Tons Per Square Foot
TW ..... Tail Water
USEPA ..... U.S. Environmental Protection Agency
USFS ..... U.S. Forest Service
USFWS ..... U.S. Fish and Wildlife Services
USGS ..... U.S. Geological Survey
V ..... Volt
VA ..... Virginia
VDCR ..... Virginia Department of Conservation and Recreation
VDEQ ..... Virginia Department of Environmental Quality
VDWR ..... Virginia Department of Wildlife Resources
VDOT ..... Virginia Department of Transportation
VFWIS ..... Virginia Fish and Wildlife Information Service
VMRC ..... Virginia Marine Resources Commission
VMS ..... Visual Management System
VPSC ..... Virginia Public Service Corporation
VQO ..... Visual Quality Objectives
VWC ..... Virginia Wilderness Committee
WCA ..... Wildlife Coordination Act

INITIAL STATEMENT

BEFORE THE FEDERAL ENERGY REGULATORY COMISSION

Application for License for a Major Water Power Project, 10 Megawatts or Less

(1) Scott's Mill Hydro, LLC, applies to the Federal Energy Regulatory Commission (the "Commission" or "FERC") for an original license for the Scott's Mill Hydropower Project (the "Project"), FERC 14867, as described hereinafter.

(2) Location of the Project is:
State: Virginia
County: Bedford and Amherst Counties
Township or nearby town: Lynchburg
Stream or other body of water: James River

(3) Name and Business Address:
Scott's Mill Hydro, LLC
Attention: Mark Fendig
P.O. Box 13
Coleman Falls, VA 24536
Telephone: (540) 320-6762

(4) Applicant's Authorized Agent's Address and Phone Number:
Mr. Mark Fendig
Luminaire Technologies, Inc
9932 Wilson Highway
Mouth-of-Wilson, VA 24363
Telephone: (540) 320-6762

(5) Scott's Mill Hydro, LLC is a limited liability company and is claiming preference under Section 7(a) of the Federal Power Act.

(6)

(i) The statutory or regulatory requirements of Virginia that affect the project as proposed, with respect to bed and banks and to the appropriation, division, and use of water for power purposes, and with respect to the right to engage in the business of developing, transmitting, and distributing power and in any other business necessary to accomplish the purposes of the license under the Federal Power Act, are:

- Virginia Code: Title 10.1, Conservation (600-659, 1182-1197.4, 2117-2134); Title 29.1 Game, Inland Fisheries, and Boating (500-577, 700-750); and Title 62.1, Waters of the State, Ports and Harbors (10-13, 44.2-45.108, 80-115.1)

(ii) Scott's Mill Hydro, LLC will continue to comply with each of the above-cited laws as applicable.

- Scott's Mill Hydro, LLC has consulted with the Virginia Department of Wildlife Resources (VDWR) and the Virginia Department of Marine Resources (VDMR) in compliance with the above-cited Virginia Code.

- In addition, Applicant plans to file an application for Water Quality Certification with the Commonwealth of Virginia under Section 401 of the Clean Water Act once the settlement agreement with Virginia Department of Environmental Quality (VDEQ), VDWR and the U.S. Fish and wildlife Service (USFWS) is signed. This is expected to be in late March.

(7) Project Description:
The existing Scott's Mill dam was constructed in the 1840s. Applicant proposes to install nine 54-inch turbine/generator units provided by Littoral Power Systems Inc. (LPS React Turbines). LPS is the provider of the Project's modular civil works and related subassemblies. The Project's total capacity is 4.5 MW. The powerplant will be constructed immediately downstream of the existing arch section of the dam. After construction of the powerplant, a two-foot high concrete cap will be added to the existing spillway to maintain water elevations similar to existing conditions when flows equal the hydraulic capacity of the plant.

The Scott's Mill Dam is owned by and leased to Scott's Mill Hydro, LLC:

Luminaire Technologies, Inc.
Attention: Mr. Mark Fendig
9932 Wilson Highway
Mouth-of-Wilson VA, 24363

(8) There are no lands of the United States affected by the Project.

(9) Construction of the Project is planned to start within one year of license issuance.
The following exhibits are filed herewith and are hereby made a part of this application:

Exhibit A ..... Project Description and Proposed Mode of Operation

Exhibit E ..... Environmental Report

Exhibit F ..... Drawings of the Project Works, Supporting Design Report

Exhibit G ..... Map of Project

EXHIBIT A

PROJECT DESCRIPTION AND PROPOSED MODE OF OPERATION

Scott's Mill Hydropower Project

FERC Project No. 14867

EXHIBIT A
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EXHIBIT A

PROJECT DESCRIPTION AND MODE OF OPERATION

1.0 GENERAL PROJECT DESCRIPTION

The Scott's Mill Hydroelectric Project is located on the upper James River at river-mile 258.5[1] in Bedford and Amherst Counties, Virginia and is within the City of Lynchburg, Virginia. The Project is approximately half a mile north-northeast of downtown Lynchburg. The existing Scott's Mill Dam was constructed circa 1840. A 3.6-mile long pool extends upstream of the dam to the next dam upriver, Reusens Dam (FERC No. 2376). Several islands lie within the Scott's Mill Dam pool, including Daniel Island, Treasure Island and Woodruff Island. Harris Creek enters the James River from the north near Treasure Island.

The nearest U.S. Geological Survey gage is at Holcomb Rock (Station No. 02025500), approximately 11 miles upstream of Scott's Mill Dam (the "Holcomb Rock Gage"). The total drainage area at the Holcomb Rock Gage is 3,256 square miles, representing about one third of the drainage of the James River Basin.

The global positioning system (GPS) location of the Project is 37.424466 N, -79.140858 W. **Figure A-1** shows the general location of the project in the James River Basin.

Figures A-2, A-3 and **A-4** show the general vicinity of the project, the local project area and FERC project boundaries, respectively. Photographs taken at the Dam and vicinity of the project are included in Exhibit E, **Appendix C**.

Applicant proposes to construct a 4.5 MW power plant immediately downstream of the arch section of the dam on the right side (west side) of the James River (see artist renderings in **Figures A-5, A-6, and A-7**). At low and average flows, there is a one-to-two foot head over the existing spillway. After the power plant is constructed, Applicant proposes to place a two-foot high concrete cap on the existing dam to maintain approximately the same water elevation as occurs during flow conditions comparable to the hydraulic capacity of the turbines (i.e., 4,500 cfs). This will reduce water level fluctuations in the headpond for flows up to 4,500 cfs.

[1] River mile is distance upstream from Chesapeake Bay and is based on Virginia Department of Wildlife Resources measuring system. (FEMA's 2008 Flood Insurance Study uses river mile 252.2 for the location of Scott's Mill Dam.)

2.0 PHYSICAL COMPOSITION OF EXISTING AND FUTURE DEVELOPMENTS

This Project is comprised of an existing dam and headpond each of which is described below. This is followed by a discussion of potential development options.

2.1 DAM

The Scott's Mill Dam was constructed circa 1840. From left to right looking downstream, the left overflow spillway is a 735-foot-long by 15-foot-high masonry construction with a crest elevation of 514.4 feet (NAVD 88). There is a stone pier (old fishway) between the spillway and arch sections of the dam that is 25 feet wide. The right overflow spillway (arch section) is a 140-foot-long by 16-foot-high masonry construction with a crest elevation of 514.8 feet. The right abutment is 36 feet wide and constructed of concrete. To the west of the abutment is a 22-foot side canal head gate (water works) structure with three sluice gates each measuring 3 feet by 3 feet. Pertinent Project data is summarized in **Table A-1**.

2.2 HEADPOND

The headpond upstream of Scott's Mill Dam encompasses approximately 305[2] acres at a normal operating pool elevation of 516.4 feet (NAVD88). There is no usable storage as the Project is a run-of-river facility. The total drainage area at the Holcomb Rock Gage is 3,256 square miles, representing about one-third of the drainage of the James River Basin.

The average daily flow at the Holcomb Rock Gage, from July 1927 to 2020 was 3,692 cfs. During this period, the highest average daily discharge recorded was 180,000 cfs on November 5, 1985, and the lowest discharge was 223 cfs on July 27, 1930. The highest daily flows most frequently occur in March and, less frequently, in January, February and April. The lowest daily flows occur most frequently in September and, less frequently, in July, August, October and November. In general, flows in the James River can vary rapidly from one day to the next. Monthly maximum, average, median and low flow statistics are presented in **Exhibit E, Table E-6-1**.

The monthly percent exceedance values for the period of record at the Holcomb Rock Gage range from 883 cfs (September) to 4,790 cfs (March). The Annual and Monthly flow duration curves at such location are presented in **Figures A-8 through A-20**.

2.3 PROPOSED DEVELOPMENT

Dam, Spillway, Penstock, Canal, Powerhouse, Tailrace and Other Structures

[2] Previous estimates of the reservoir area put it at 316 acres. New GIS measurements indicated that the area is 305 acres.

The proposed facilities would consist of the following: (1) a new modular powerhouse containing nine generating units with a total installed capacity of 4.5 MW; (2) a new 1200-foot-long underground transmission line; and (3) appurtenant facilities, which include the addition of a 2-foot high concrete cap onto the existing spillway (**Table A-2**).[3] The project would have an estimated annual generation of approximately 20,700 MWh. Generated power would be sold to United States Pipe and Foundry Company, LLC ("U.S. Pipe") or into the PJM system. U.S. Pipe is located adjacent to the dam. There are no federal or state lands associated with the project.

Generating equipment alternatives evaluated include new turbines of various types, including vertical Kaplan, vertical Francis, bulb-type horizontal Kaplan, horizontal pit Kaplan, axial-flow pit type, and a Natel hydroEngine linear pelton. Vertical Kaplan turbines were considered uneconomical for this site due to the required negative runner setting and large volume of rock excavations that would be required for elbow draft tubes. A second vertical turbine option – Francis open-flume turbines — can be set above tailwater, but would require either large-diameter runners (which are costly and difficult to procure) or many smaller units, which would be uneconomical. Therefore, both types of vertical units were dismissed for the proposed project. Small, standard, horizontal bulb-style turbines are available in the required sizes, and would require less excavation for the draft tube as the setting is only slightly below (and in some cases above) the tailwater. Two potential layouts using bulb-style horizontal Kaplan turbines (Eco-bulbs manufactured by Andritz) were included in the evaluation. One option included the use of three 2,600-mm units, while the second included the use of four 2,240-mm units. These designs were rejected principally due to cost, not only of the units themselves but of the civil works entailed.

Two pre-owned equipment packages were offered to the Applicant. One such package that was evaluated was from an unknown Chinese supplier of horizontal tubular fixed-blade turbines, and included three 1,250-kW units and one 350-kW unit. Fixed Kaplans are not typically efficient over varying head and flow conditions, which are typical of run-of-river operations in general and the Project site in particular, and as such, this opportunity was not pursued. The second used equipment package was from Canadian Hydro Components. Two options were proposed, the first of which included three 2,000-mm units and one 1,250-mm unit, both horizontal pit Kaplans with belt-drive gearboxes. The second option proposed three 2,250-mm horizontal pit Kaplan units with right-angle gearboxes. Owing to cost and anticipated maintenance issues, this opportunity was also not pursued.

Applicant evaluated three less conventional equipment packages. The first was from Mavel and included two 2,800-mm horizontal pit Kaplan units with parallel gearboxes. The second was from Canadian Hydro Components and included two options. The first option was for four units, three having 2,000-mm runners and one having a 1,250-mm runner. The second option was for three equal-sized units with a runner diameter of 2,250 mm.

[3] Note that two-foot high flashboards were historically used at the dam.

Applicant also evaluated Natel's hydroEngine linear pelton, but this option was rejected because it is still in development. The hydroEngine has the advantage of reducing fish mortality. However, at this time the turbine efficiencies have not proven to be equivalent to more traditional units. Should Natel complete development of their hydroEngine turbine, Applicant may reconsider use of this turbine considering cost, efficiency and fish survival through the turbines.

The package adopted for purposes herein includes the installation of nine 54-inch 0.5 MW LPS/Rickly axial flow turbine units (now names LPS React Turbines). In addition to cost advantages particularly when factoring in civil works, the units have typical rotational speeds of less than 250 rpm. All units are variable rpm and have fixed runners and variable frequency drive electronics. One unit contains articulable inlet guide vanes.

The units do not require speed increasers (i.e., gearboxes). Speed increasers have historically been prone to mechanical failure and require more maintenance than other equipment components. Eliminating any style of speed increaser will significantly reduce maintenance and project operational costs. Equipment selection was based on generation potential, cost and maintenance expectations. In sum, Applicant elected to go with the LPS React units because of all-in cost, ease of maintenance, and environmental factors. There is no provision for adding additional turbines in the future.

2.3.1 PROJECT LAYOUT

The proposed powerhouse will be approximately 168 feet wide and will be located immediately downstream of the 140-foot-long gravity arch spillway (see **Figure A-3**). The top portion of the existing arch spillway will be removed to allow water to flow into the powerhouse. Using this technique, the spillway can be used in conjunction with an upstream cofferdam during construction. The final elevation of the cofferdam will be determined during final design, but the height of the cofferdam is expected to have a maximum elevation of about 521.8 feet. A cofferdam at this elevation would provide protection for a 3-year flood (i.e, approximately 60,000 cfs). Because of the prefabricated, modular nature of the construction, work is anticipated to be completed much more quickly than with a traditional poured-concrete structure. Additionally, the powerhouse is designed to survive full inundation, and the site characteristics do not give rise to material concern about inundation of adjacent lands. As such, a 3-year flood protection level should be sufficient, since such floods typically occur during the winter and spring months. Once the powerhouse is completed, a portion of the upstream spillway section will be removed in the wet.

While the Project's long, capacious existing spillway makes it highly unlikely that the powerhouse will be overtopped even in extreme flow conditions, as noted above, the powerhouse is designed to survive full inundation and allow flood flows to pass over it without limitation. In this regard, it should be noted the Project will have only a minor effect on pre- vs. post-construction water levels during a 100-year flood; this is because

at very high flow rates, the backwater effects are the primary control of flows at Scott's Mill Dam (see FEMA, 2008).

2.3.2 PROJECT OPERATION

The headpond elevation at the site will be held constant at just above the dam crest until inflows exceed the maximum hydraulic capacity of the turbine array (4,500 cfs)[4]. The project will continue to be run-of-river. However, during periods of peak annual electrical demand in the PJM system, Applicant proposes to vary flow on up to 10 days per year for one to two hours each day to obtain capacity value from PJM. The Cushaw Project has recently conducted such tests in conjunction with Virginia resource agencies and no significant impacts were observed. A similar no-significant impact is anticipated at Scott's Mill. However, this would need to be verified by testing and further consultation.

The upstream Reusens Project is currently undergoing relicensing and is proposing some level of peaking operations. If this is approved by the Commission, a possible future option could be to operate Scott's Mill in conjunction with the Reusens Dam hydroelectric project upstream, such that Reusens could be operated with some level of peaking capacity and constant flows (i.e., run-of-river flows) could be released downstream from Scott's Mill. In the latter case, operations would be coordinated with the Reusens project to provide base flows into the Scott's Mill headpond plus some level of peaking flow during times of maximum power demand. The current normal headwater elevation is about 516 feet, about 1½ feet above the spillway crest.

Applicant proposes to increase the spillway height with a two-foot high concrete cap. This will achieve two goals: (i) maintaining a constant upstream water level at average flows closer to the existing water level and (ii) increasing the gross head at the plant resulting in increased energy generation.

The minimum tailwater elevation at the site is about 499 feet (**Table A-3 and Figure A-21**). This tailwater elevation results in a maximum net head available for energy generation of 17 feet with the two-foot-high cap.

The available flow at Scott's Mill dam has been updated to include recent flow data at the Holcomb Rock Gage. A flow duration curve was developed using data from the Holcomb Rock Gage. The period of record is from 1927 to the 2020 and represents 93 years of recorded flows. The drainage area for the Holcomb Rock Gage is about one percent less than the drainage area at the proposed Project. Thus, gage flow data is considered for purposes hereof to be representative of site flow without adjustment.

[4] Scott's Mill anticipates that the upstream Reusens Project will mainly be run of river. If Reusens is allowed to peak, Scott's Mill will generally attempt to maintain constant flows downstream. However, some level of headpond fluctuation may be inevitable under this operational mode.

Fish passage flows for upstream migration of American Eel and Sea Lamprey are expected to be about 1 cfs and would not be available for generation when these species are present. When a vertical slot fishway (or other fish passage design) is constructed for other fish species, additional flows of approximately 25 to 50 cfs may be needed to operate such a facility. These flows are estimated to reduce generation about one percent (or about the same as the average inflow between Holcomb Rock and Scott's Mill) and have therefore not been included in the energy estimates. Up to 225 cfs may be needed for downstream fish passage. This will be verified through CFD model studies and passage effectiveness studies and could reduce generation.

Generation potential was estimated based on gross head and the flow duration curve. The flow duration curve shows the percentage of time that a specified flow is equaled or exceeded in a typical year. Annual generation potential is estimated to be about 20,700 MWh. This does not include an allowance for unscheduled outages of the plant, which would be expected to result in slightly reduced generation. Nevertheless, downtime is minimized owing to the Project's multiple-turbine configuration, which renders it significantly more tolerant of faults than a traditional installation.

Project operations during flood conditions would increase headpond water levels by 1.4 to 2.6 feet relative to exist condition flood levels (see Exhibit K – Analysis of Flood Events). A study conducted by the FEMA in 2008 indicates that Scott's Mill is no longer a control point during high flood flows, but does have an effect on upstream water levels. Estimates of headpond levels using the weir equation indicate that water levels during flows above 4,500 cfs will initially increase slightly faster under post-project conditions because of the reduced length of the spillway from power plant construction and the two-foot high cap. The maximum differential would be about 2.6 feet at a flow of about 50,000 cfs. As flows increase above that level, the differential decrease until there is about a 2-foot differential at the 100-year flood level (**Table A-3 and Figure A-22**).

The project will be remotely operated.

Power from the project will either be used by U.S. Pipe which is located adjacent to the dam, or sold into the PJM grid.

Applicant estimates that the cost to develop the license application is approximately $350,000.

Since the project is proposed to operate in a run-of-river mode, the value of project power is not provided. Applicant considers this proprietary information.

Since the application is for an original license, the increase or decrease in project generation is not applicable. Additionally, the project has not yet been constructed so there is no book value.

Annual operation and maintenance expenses, including insurance and administrative and general expenses are estimated to be about $300,000.

The primary purpose of the project is to generate electrical energy.

A detailed single-line diagram is provided as **Figure A-23**.

Applicant will ensure the safe operation of the project. Safety is of paramount importance to the Applicant. The Project will be operated by an experienced operator, who currently operates the Cushaw, Holcomb Rock and Coleman Falls projects on the James River, upstream of Scott's Mill dam and the Moomaw hydropower project on the Maury River. The managing partner of Scott's Mill has been successfully maintaining the three upstream James River projects for over fifteen years. Applicant will periodically conduct inspections of the dam and powerhouse at a frequency consistent with Commission guidelines. Since the minimum recorded flow is greater than the 100 cfs minimum hydraulic capacity of the hydraulic turbines, Applicant anticipates that there will always be sufficient flow to operate at least one unit. Applicant anticipates that the project will shut down at flows greater than 25,000 cfs because of the reduced head and to avoid potential damage from debris during flood events.

3.0 LANDS OF THE UNITED STATES

There are no lands of the United States within the project boundary.

TABLE A-1: SCOTT'S MILL DAM DATA

Dam	
Year Completed	ca. 1840
Type	concrete gravity
Length	875 feet
Maximum Height	16 feet
Top of Dam Elevation (based on msl) (Estimated at northeast abutment)	514.4 feet
Spillway	
Length (Estimated)	875 feet (140 feet) right + (735 feet) left[5]
Crest Elevation	514.8 feet arch section, 514.4 feet left section
Number of Tainter Gates	0
Number of Flashboards	0
Headpond	
Drainage Area	3,300 sq. mi. (approximately)
Normal Maximum Surface Area	305 acres
Normal Maximum Surface Elevation	516.4 feet
Gross Storage Capacity	N/A (run-of-river operation only)
Usable Storage	N/A (run-of-river operation only)
Federal Lands within Project Boundary	None
Hazard Potential Classification	"Low"

[5] Handedness is determined looking downstream

TABLE A-2: SCOTT'S MILL POWERPLANT AND COST DATA

Powerplant	
Number of Generating Units	9
Unit capacity	500 kW
Provision for Future Units	No
Type of Hydraulic Turbines	LPS React 54-inch axial turbines
Plant Operation	Automatic, Run-of-river
Average Annual Generation	20,700 MWh
Average Head on Plant	15 feet net at 3,630 cfs
Reservoir Surface Area	305 acres
Gross Storage Capacity	N/A; the Project is a run-of-river facility
Minimum Hydraulic Capacity	100 cfs
Maximum Hydraulic Capacity	500 cfs per unit, plant total 4,500 cfs
Average Stream Flow	3,630 cfs
Powerhouse Dimensions	136 feet by 20 feet (see **Figure A-3**)
Transmission Line Length	1200 feet
Capital Cost	$15,000,000
Environmental Mitigation - Fish Passage	$735,000 initial, $1,500,000 plus later
Recreation	$230,000

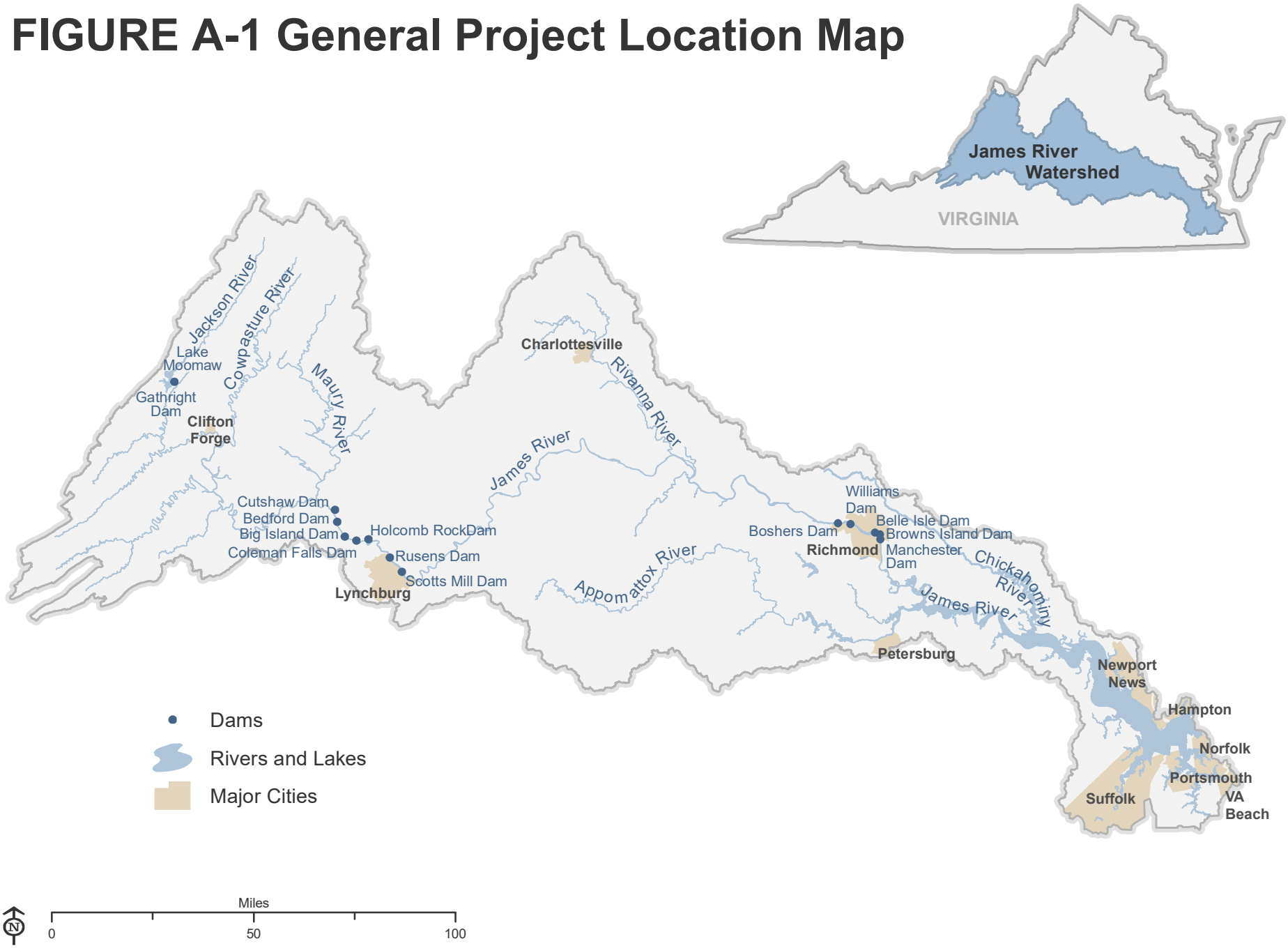
TABLE A-3: TAILWATER AND HEADWATER LEVELS

Flow (cfs)	Exist HW Elev. (ft)	TW Elev. (ft)	Max OP US WL (ft)	US WL DIFF (ft)	Comments
700	515.2	499.4	516.4	1.2	
830	515.3		516,4	1.1	
980	515.3		516.4	1.1	
1190	515.3		516.4	1.1	
1200	515.4	499.7	516.4	1.0	
1440	515.4	499.8	516.4	1.0	
1540	515.5	499.8	516.4	0.9	
1690	515.5	500.2	516.4	0.9	
1860	515.4	500.4	516.4	1.0	
3200	515.9	501.4	516.4	0.5	
4800	516.3	503.1	516.6	0.3	
8800	516.9	504.9	517.8	0.9	
11,700	516.8		518.8	2.0	
25,100	518.5	507.8	521.0	2.5	Power plant shut down
79,100	524.0	518.0	526.5	2.5	10-year flood from FEMA
129,300	528.0	526.0	530.3	2.3	50-year flood
159,000	532.5	532.0	534.5	2.0	100-year flood
255,000	540.0	538.2	541.4	1.4	500-year flood

NOTES:

1. All elevations reference to NAVD 88.
2. Existing upstream water levels based on gauge readings. Above 25,000 cfs water levels based on FEMA analysis.
3. Tailwater levels based on measurements to 25,100 cfs. Above 25,000 cfs water levels based on FEMA analysis.
4. Operational water level maintained at 516.4 feet until hydraulic capacity of plant is reached (4500 cfs).
5. Operational upstream water level based on weir submergence and weir equation Q=CLH**1.5, where Q flow in cfs, C is coefficient (3.5), L is spillway length in feet (735), and H is head in feet. Use FEMA level above 50-year flood for existing conditions, flood analysis for elevation difference with existing conditions (see Appendix K). For 100-year flood FEMA calculated headpond of 532.5 feet and model calculated headpond of 531.9.
6. Above 50-year flood backwater dominates water levels and Scott's Mill dam causes a minor headloss over the dam.

FIGURE A-1 General Project Location Map



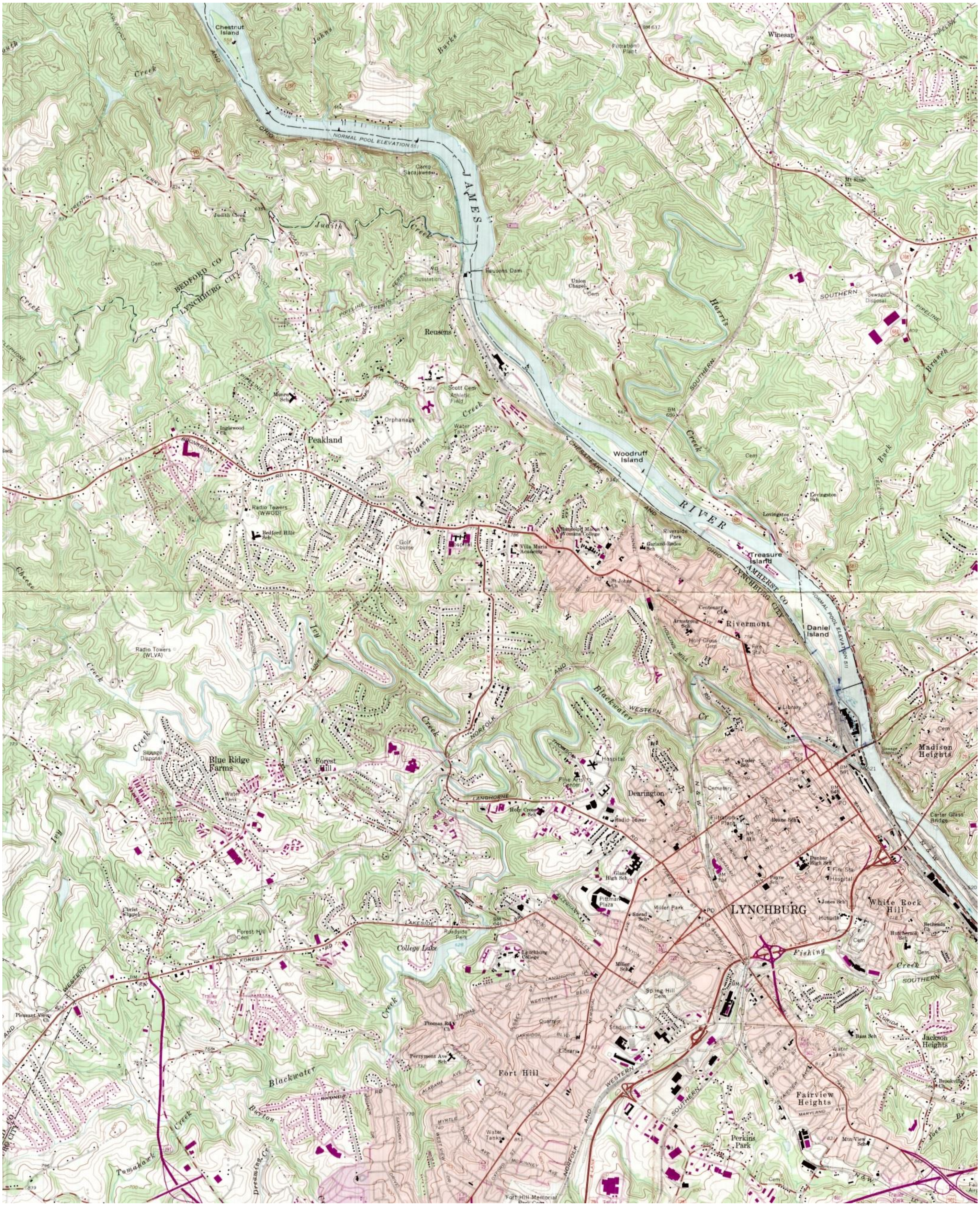


FIGURE A-2 PROJECT VACINITY MAP SCOTT'S MILL DAM

FIGURE A-3 PROJECT LOCATION MAP

THE PROJECT LOCATION MAP IS EXCLUDED FROM THIS VERSION OF EXHIBIT A AS IT IS CONSIDERED CRITICAL ENERGY INFRASTRUCTURE INFORMATION.

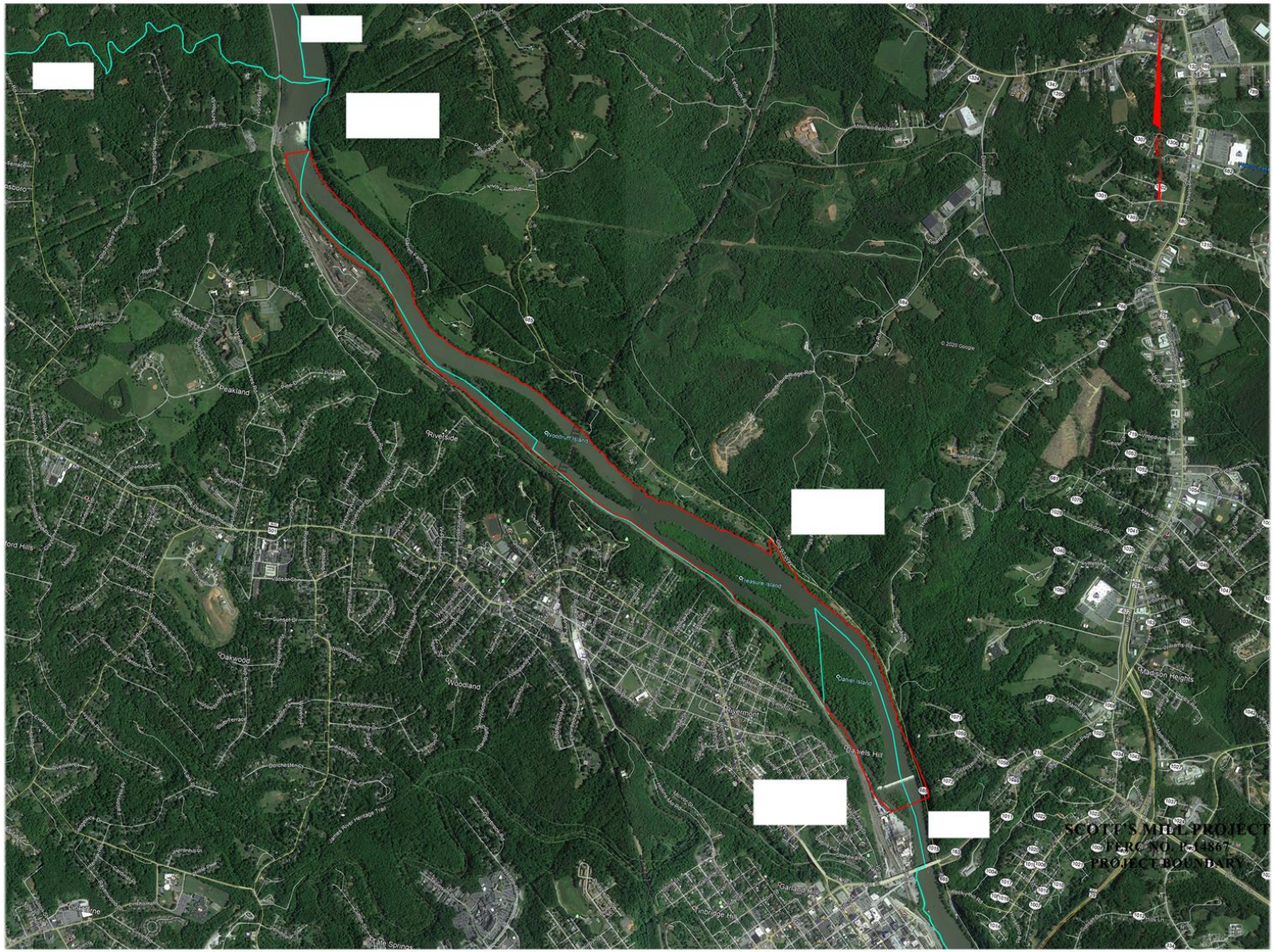


FIGURE A-4 PROJECT BOUNDARY MAP

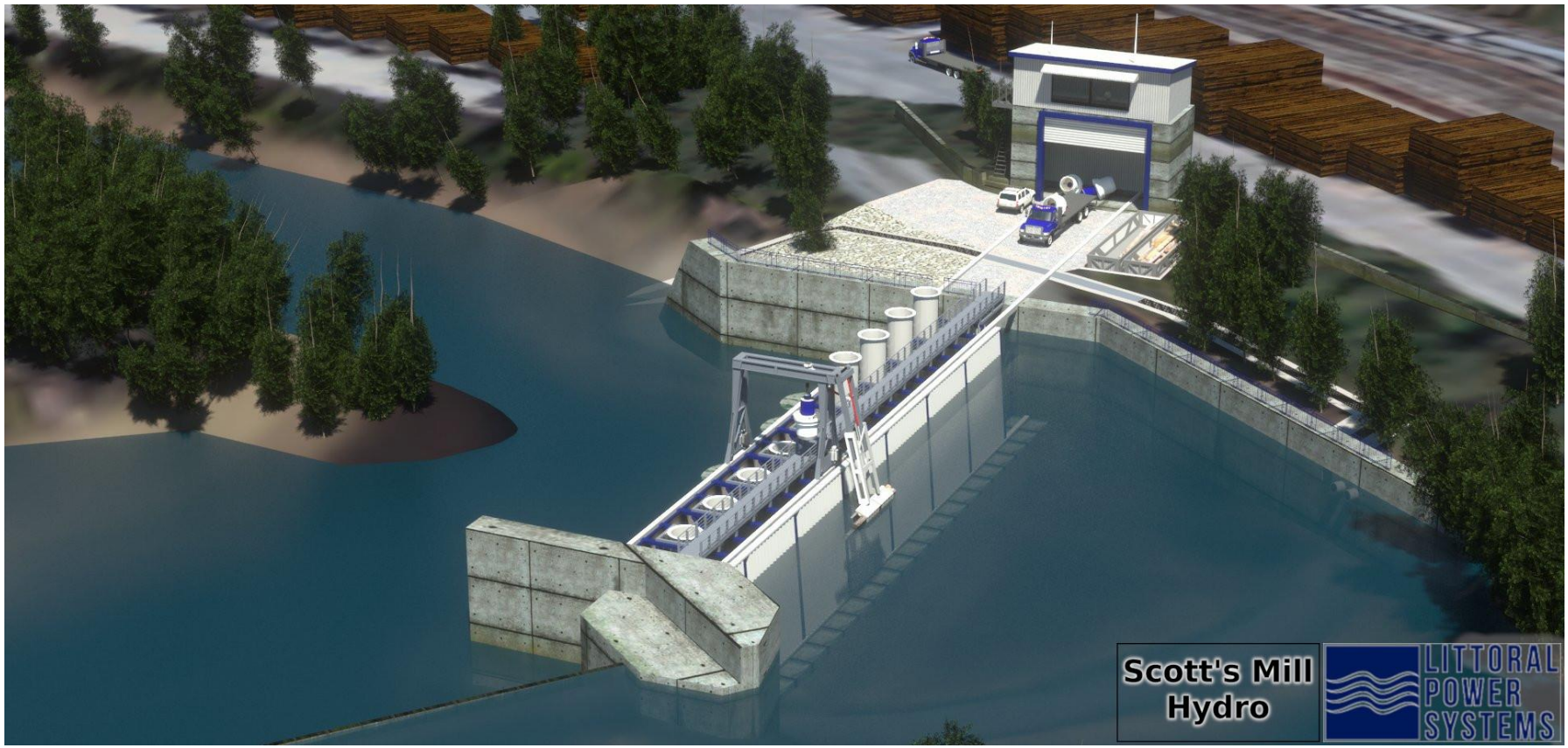


FIGURE A-5 ARTIST RENDERING

FIGURE A-6 ARTIST RENDERING

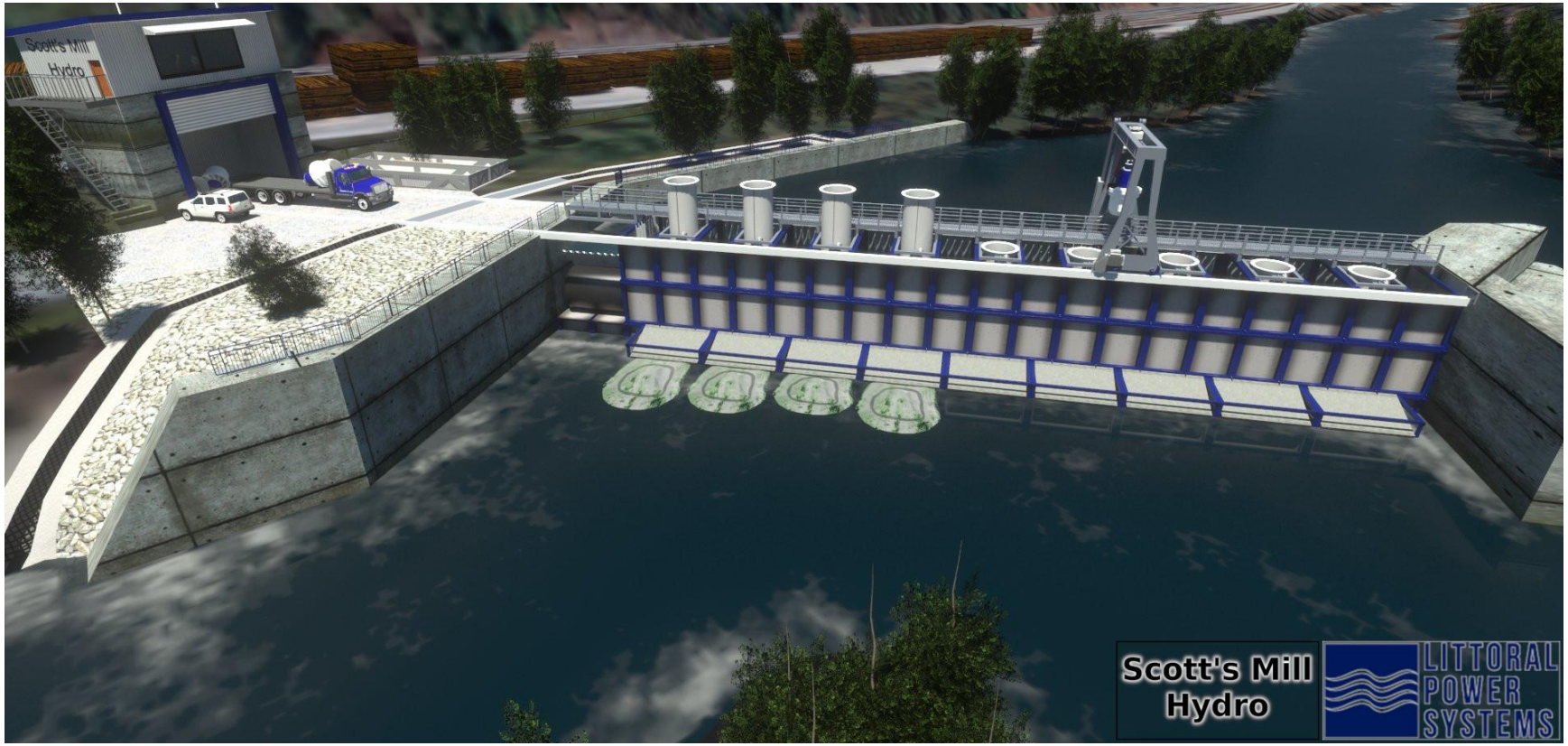


FIGURE A-7 ARTIST RENDERING

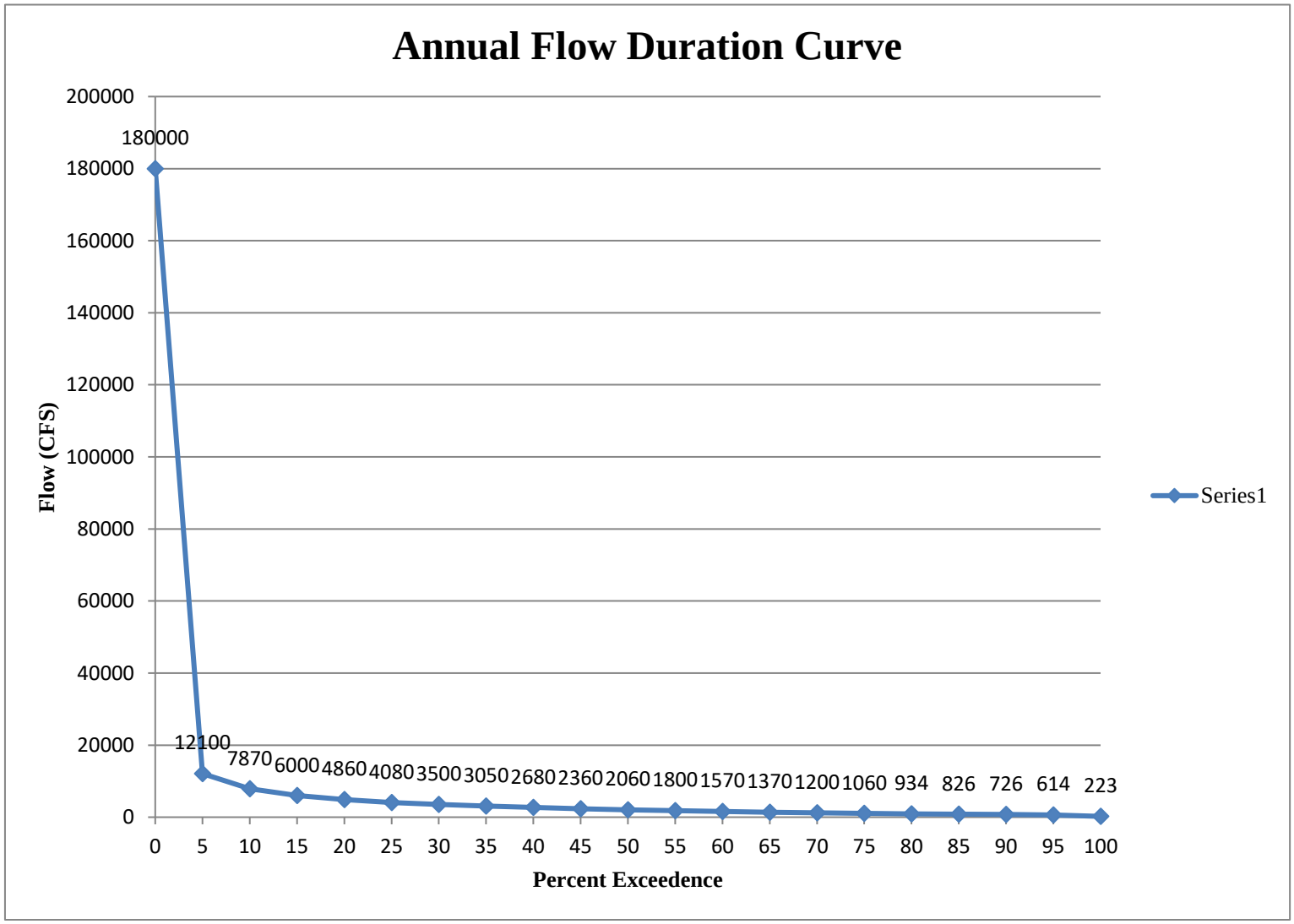

Annual Flow Duration Curve
Flow (CFS)
Percent Exceedence
Series1
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100
180000
12100
7870
6000
4860
4080
3500
3050
2680
2360
2060
1800
1570
1370
1200
1060
934
826
726
614
223

FIGURE A-8

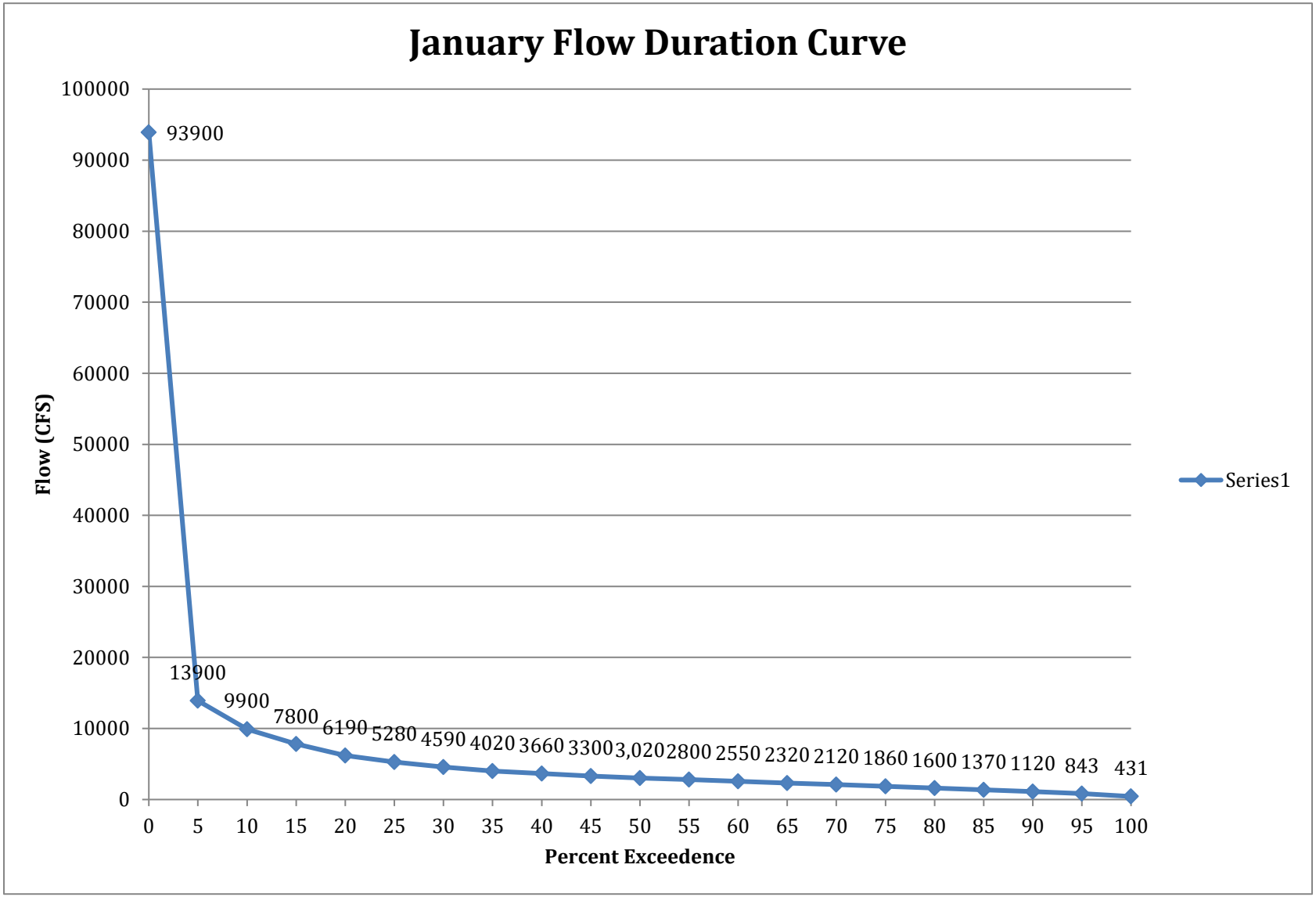

January Flow Duration Curve
Flow (CFS)
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
93900
13900
9900
7800
6190
5280
4590
4020
3660
3300
3,020
2800
2550
2320
2120
1860
1600
1370
1120
843
431
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Percent Exceedence
Series1

FIGURE A-9

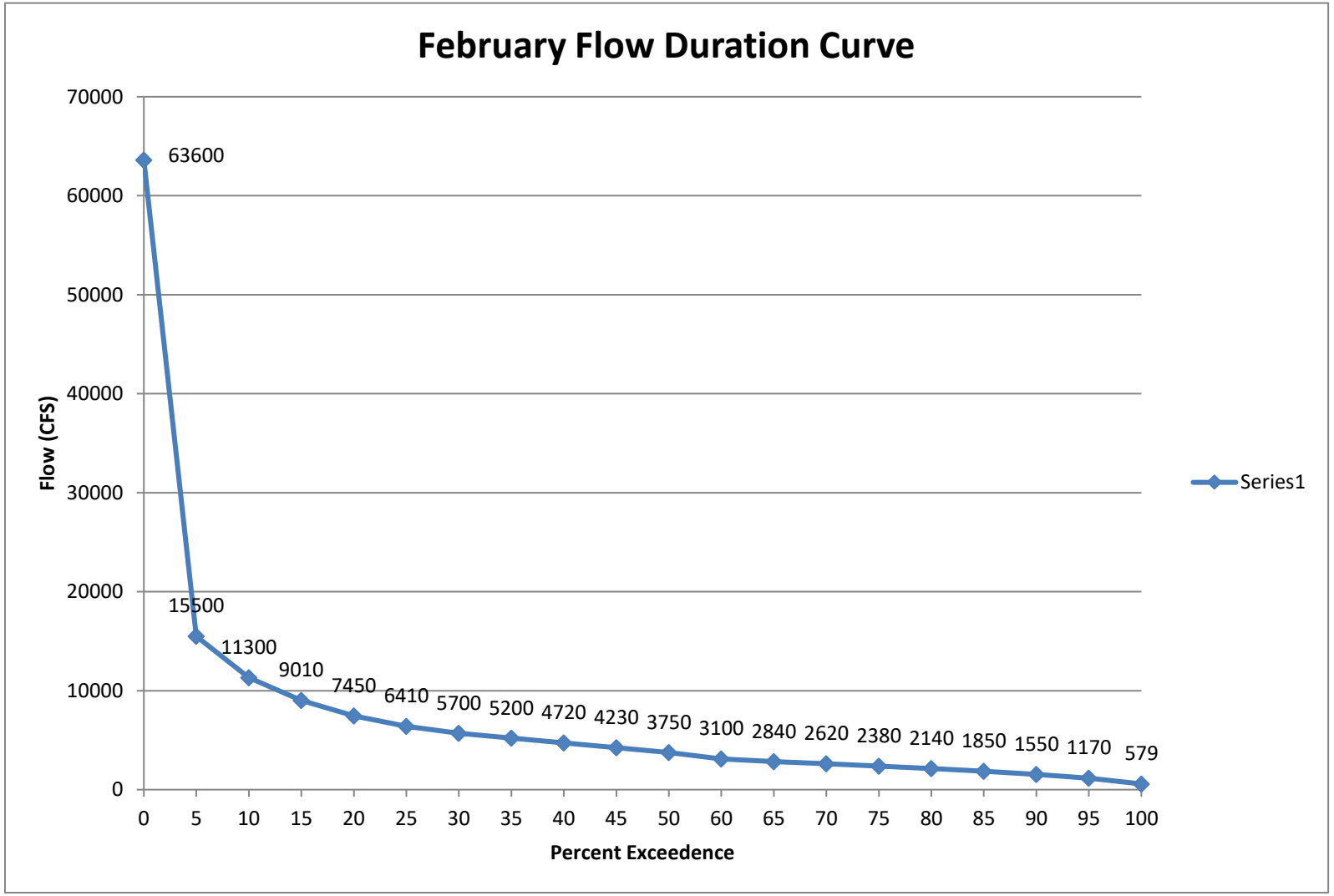

February Flow Duration Curve
70000
60000
50000
40000
30000
20000
10000
0
Flow (CFS)
63600
15500
11300
9010
7450
6410
5700
5200
4720
4230
3750
3100
2840
2620
2380
2140
1850
1550
1170
579
0
5
10
15
20
25
30
35
40
45
50
60
65
70
75
80
85
90
95
100
Percent Exceedence
Series1

FIGURE A-10

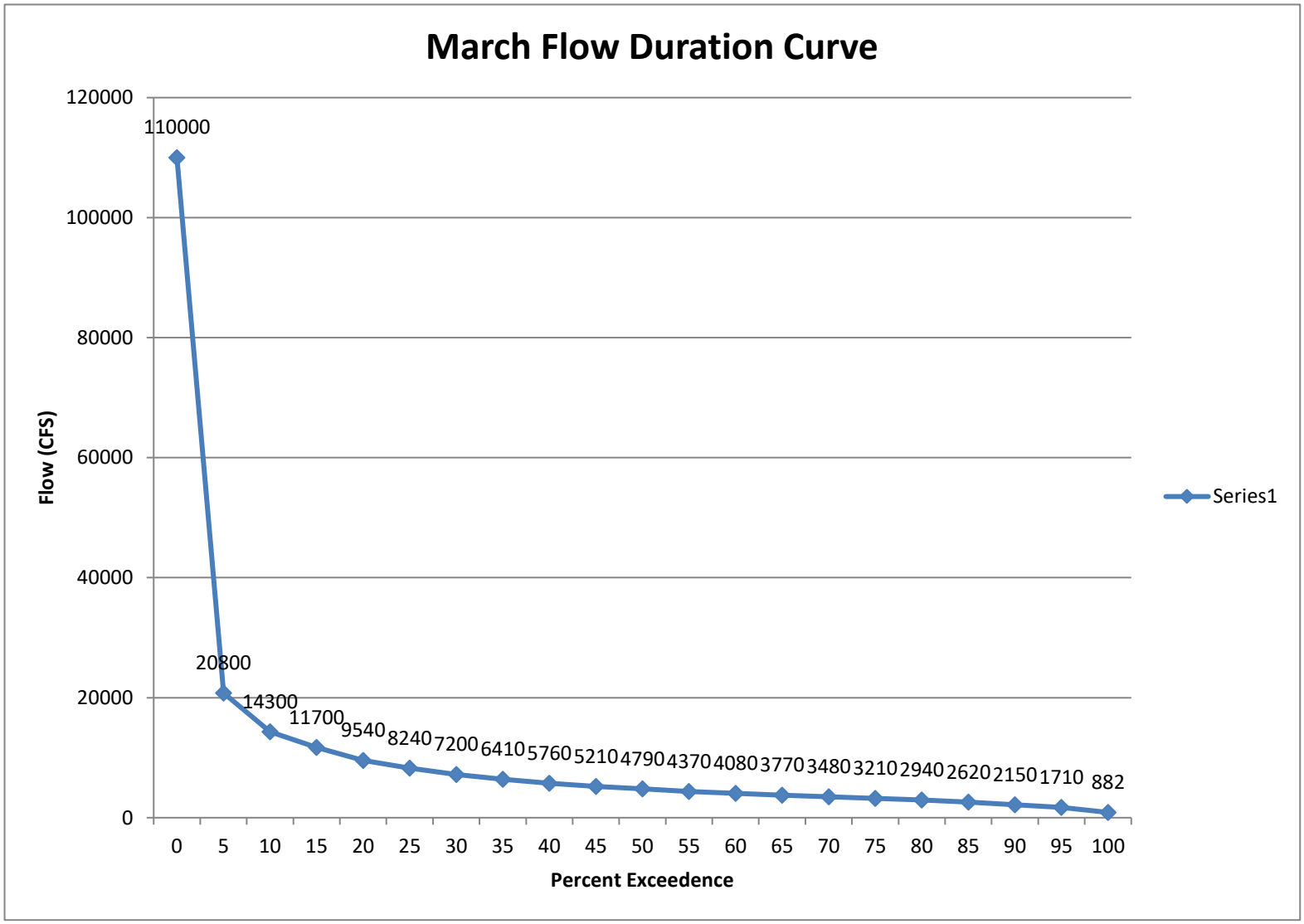

March Flow Duration Curve
120000
100000
80000
60000
40000
20000
0
Flow (CFS)
110000
20800
14300
11700
9540
8240
7200
6410
5760
5210
4790
4370
4080
3770
3480
3210
2940
2620
2150
1710
882
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Percent Exceedence
Series1

FIGURE A-11

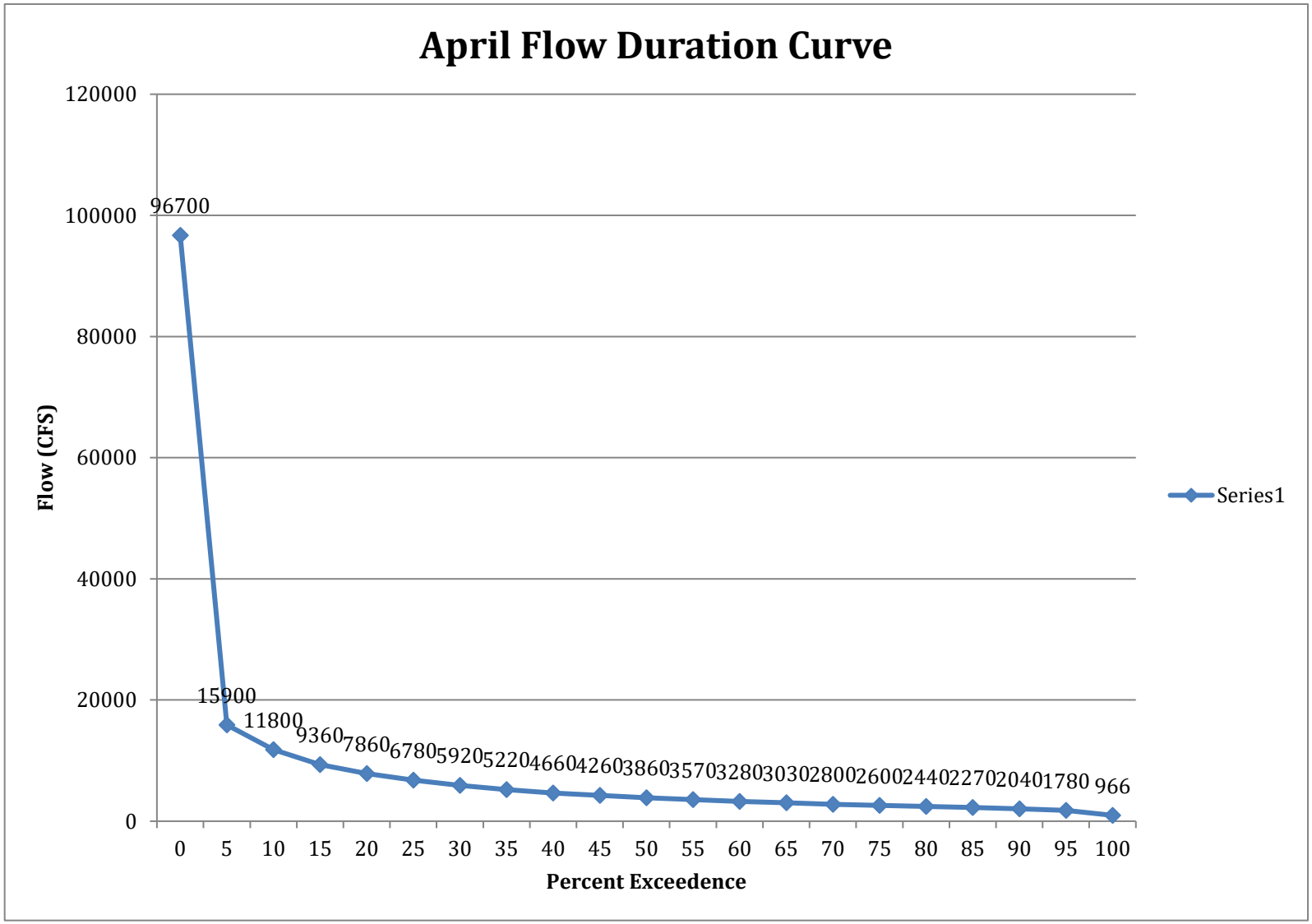

April Flow Duration Curve
120000
100000
80000
60000
40000
20000
0
Flow (CFS)
96700
15900
11800
9360
7860
6780
5920
5220
4660
4260
3860
3570
3280
3030
2800
2600
2440
2270
2040
1780
966
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Percent Exceedence
Series1

FIGURE A-12

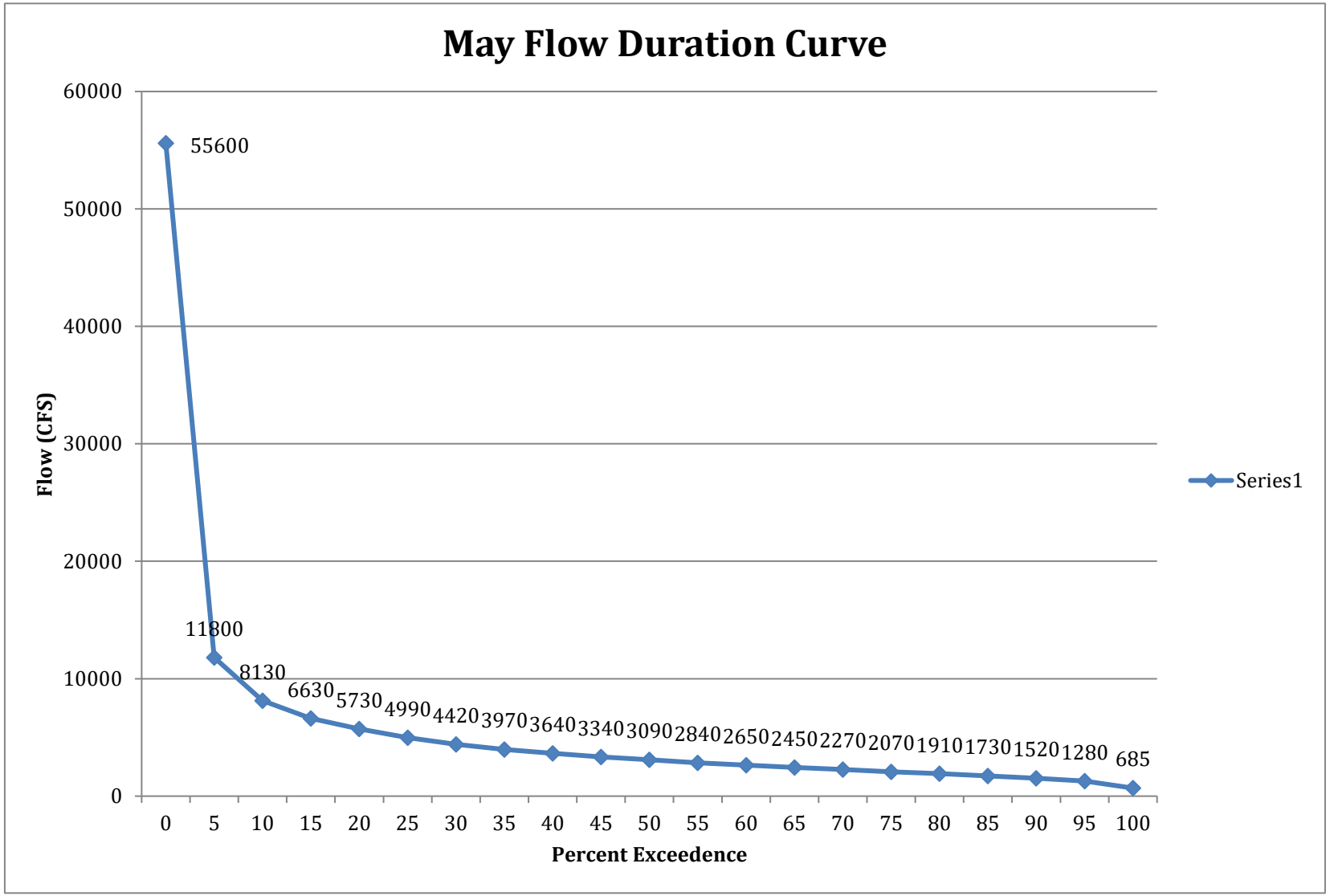

May Flow Duration Curve
60000
50000
40000
30000
20000
10000
0
Flow (CFS)
55600
11800
8130
6630
5730
4990
4420
3970
3640
3340
3090
2840
2650
2450
2270
2070
1910
1730
1520
1280
685
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100
Percent Exceedence
Series1

FIGURE A-13

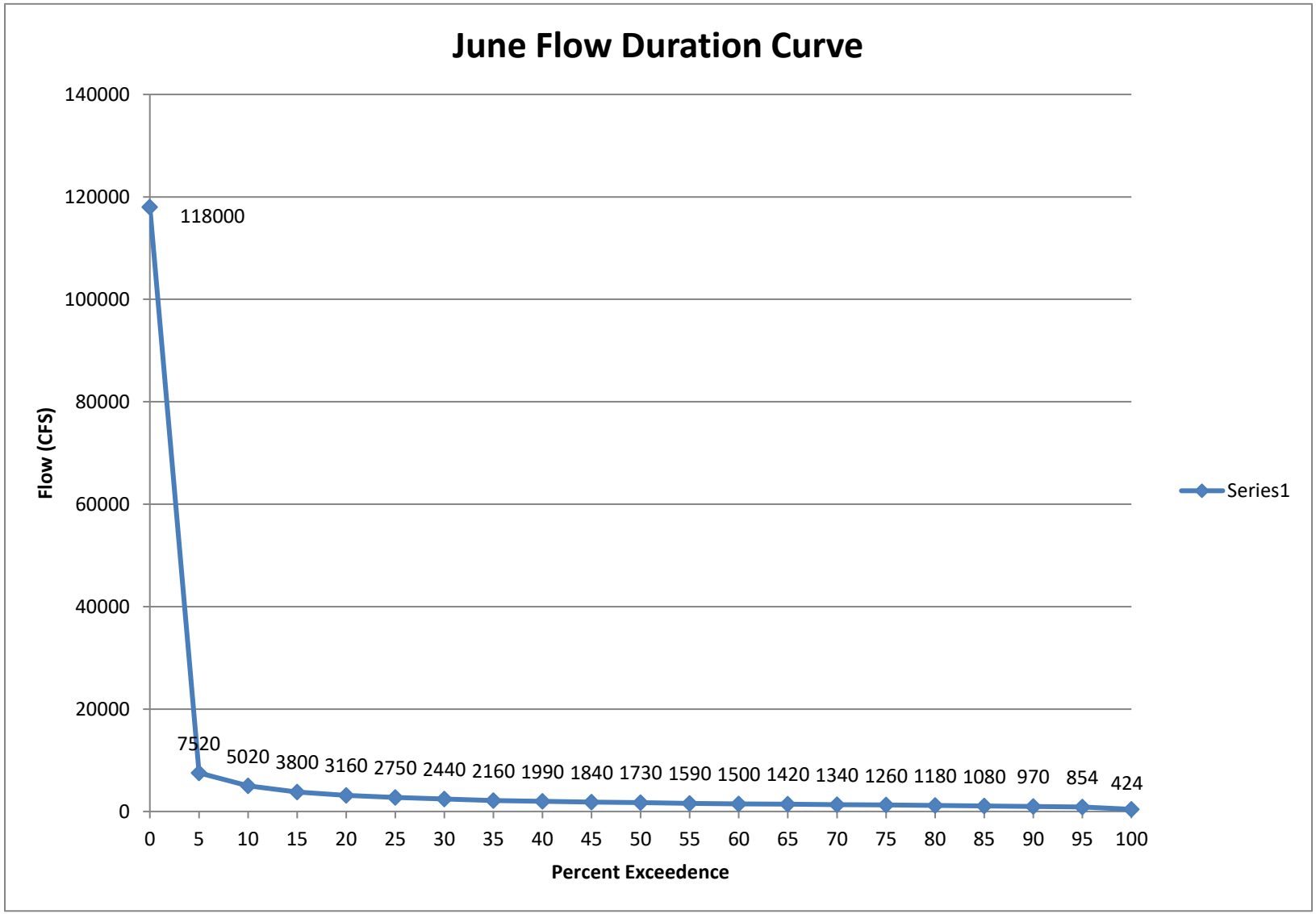

June Flow Duration Curve
140000
120000
100000
80000
60000
40000
20000
0
Flow (CFS)
118000
7520
5020
3800
3160
2750
2440
2160
1990
1840
1730
1590
1500
1420
1340
1260
1180
1080
970
854
424
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Percent Exceedence
Series1

FIGURE A-14

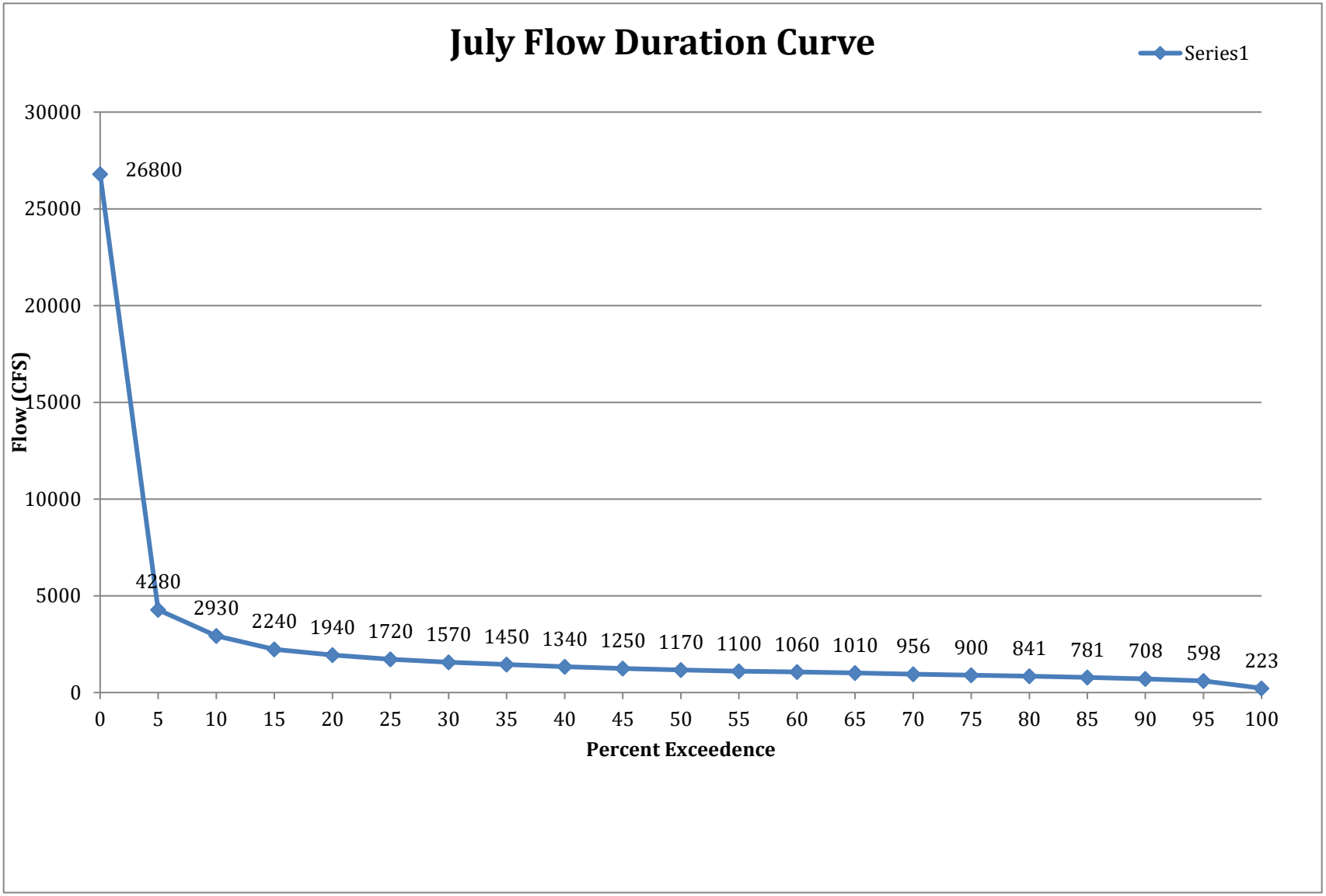

July Flow Duration Curve
Series1
30000
25000
20000
15000
10000
5000
0
Flow (CFS)
26800
4280
2930
2240
1940
1720
1570
1450
1340
1250
1170
1100
1060
1010
956
900
841
781
708
598
223
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Percent Exceedence

FIGURE A-15

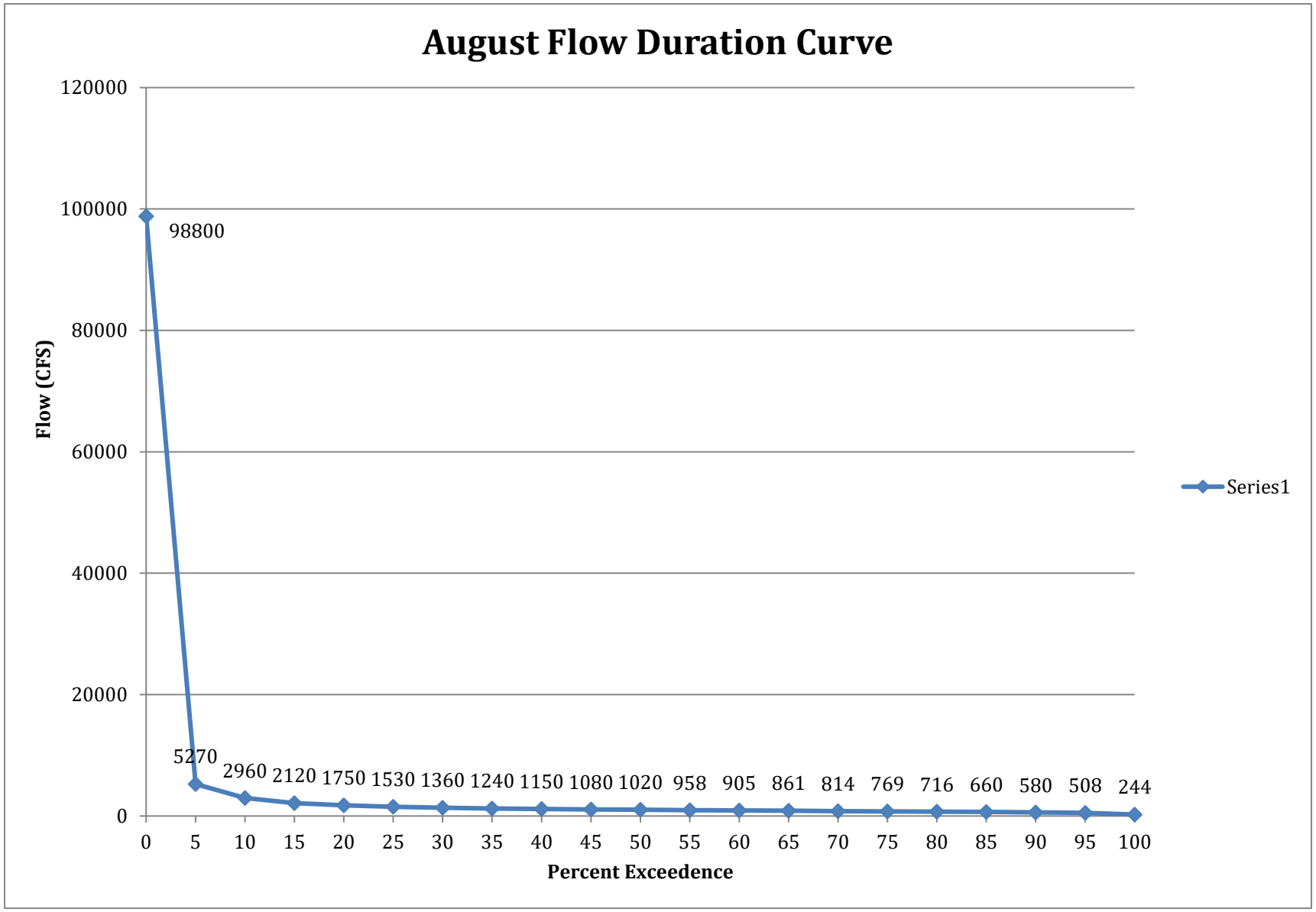

August Flow Duration Curve
120000
100000
80000
60000
40000
20000
0
Flow (CFS)
98800
5270
2960
2120
1750
1530
1360
1240
1150
1080
1020
958
905
861
814
769
716
660
580
508
244
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Percent Exceedence
Series1

FIGURE A-16

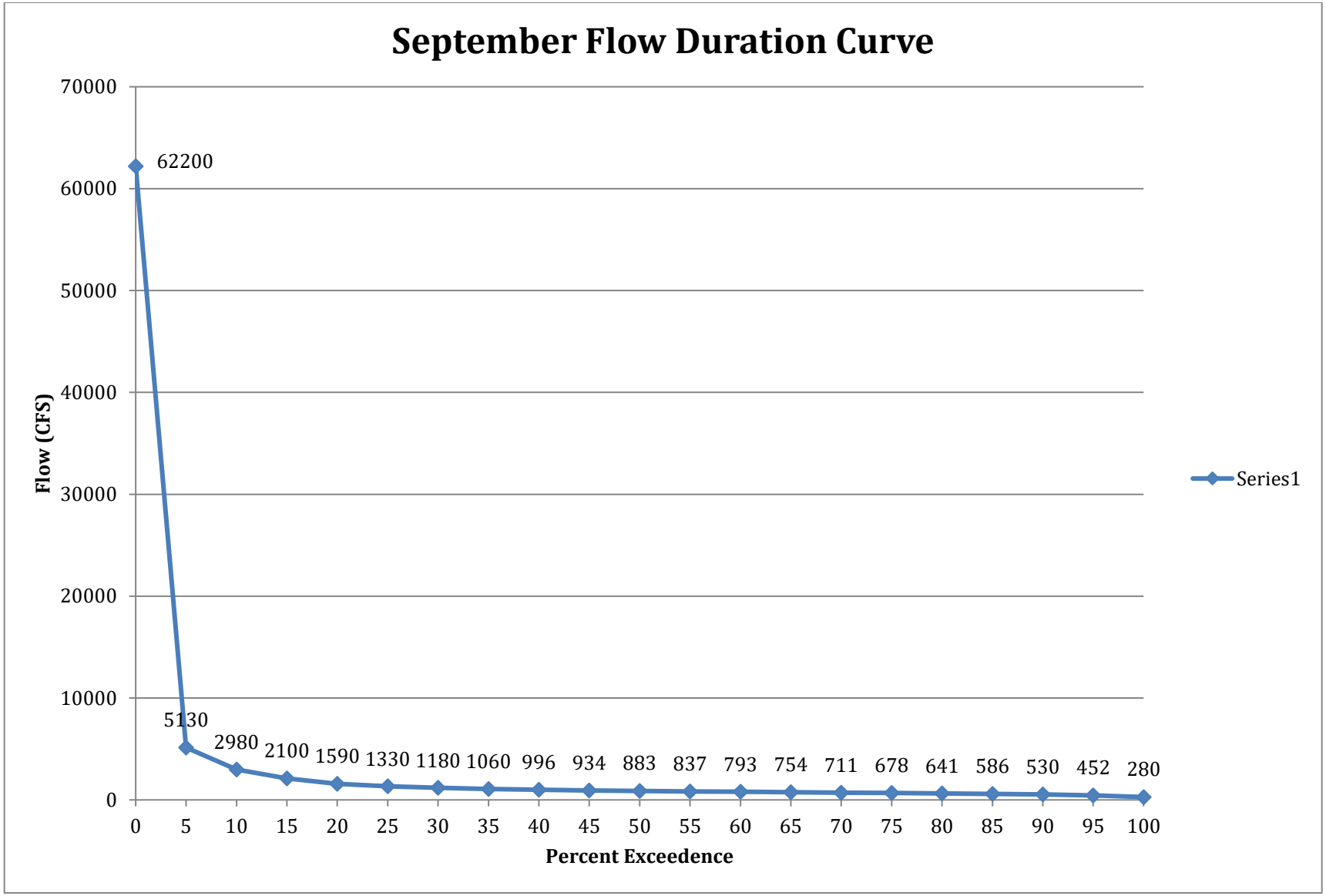

September Flow Duration Curve
70000
60000
50000
40000
30000
20000
10000
0
Flow (CFS)
62200
5130
2980
2100
1590
1330
1180
1060
996
934
883
837
793
754
711
678
641
586
530
452
280
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Percent Exceedence
Series1

FIGURE A-17

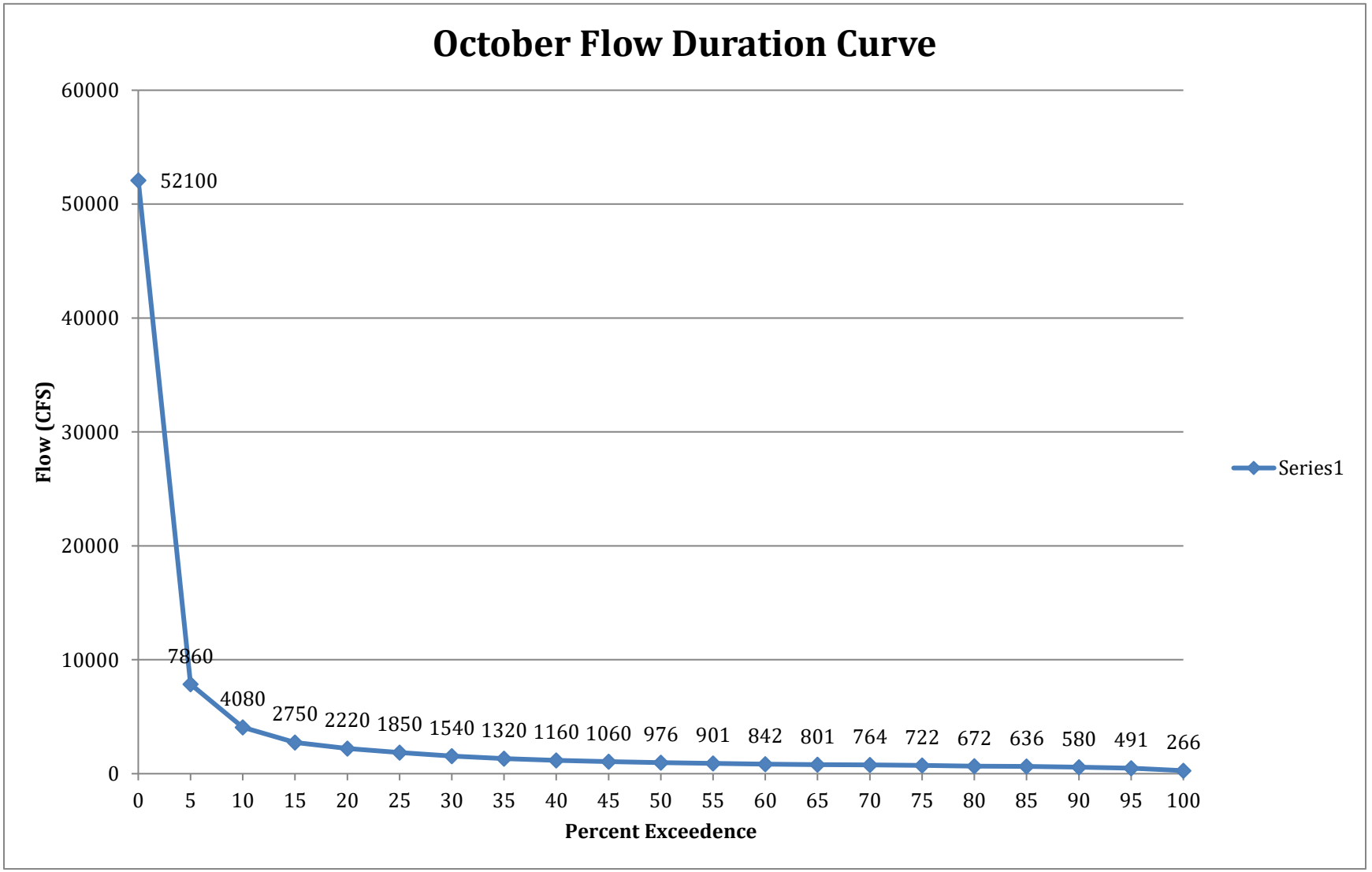

October Flow Duration Curve
60000
50000
40000
30000
20000
10000
0
Flow (CFS)
52100
7860
4080
2750
2220
1850
1540
1320
1160
1060
976
901
842
801
764
722
672
636
580
491
266
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Percent Exceedence
Series1

FIGURE A-18

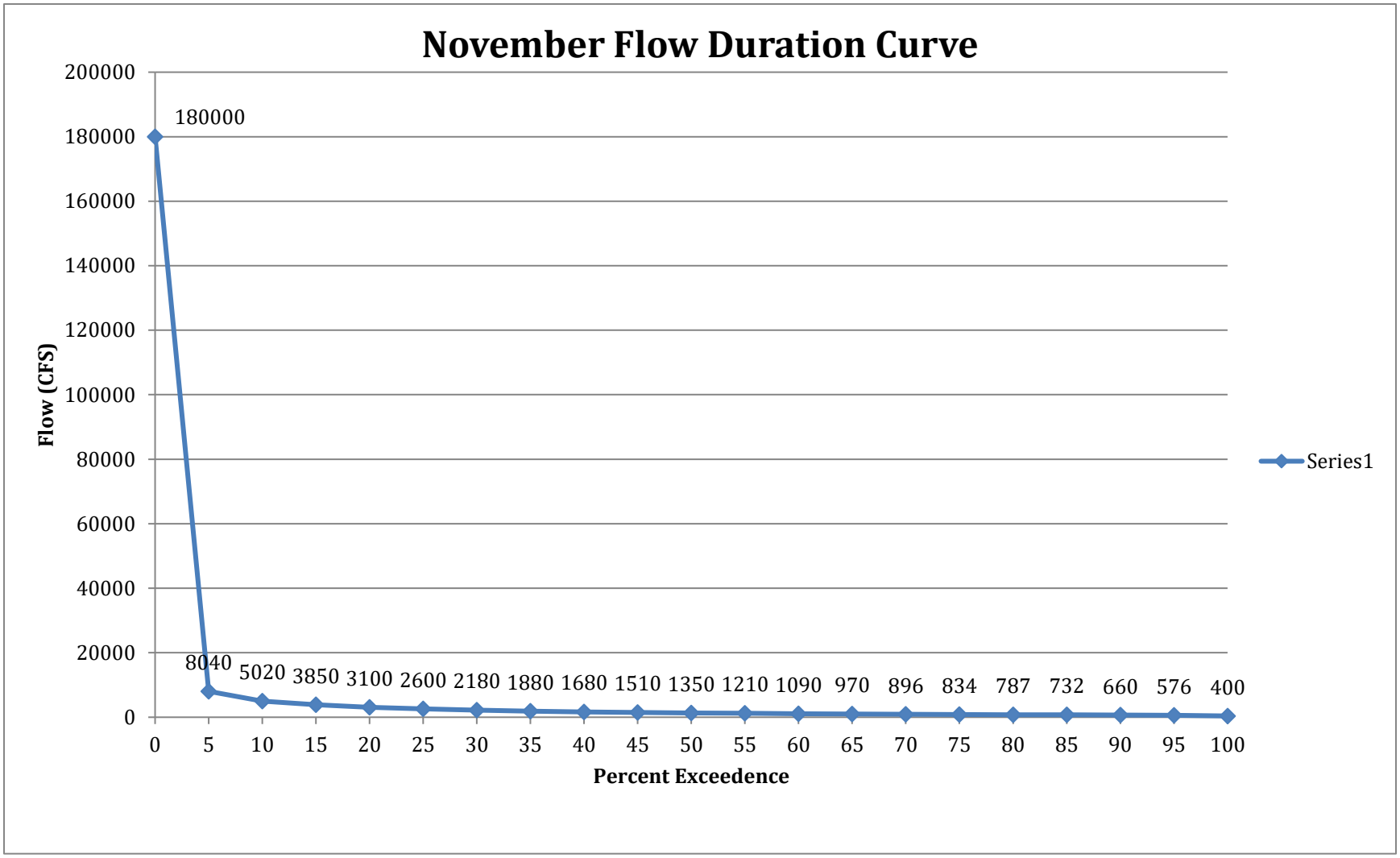

November Flow Duration Curve
Flow (CFS)
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
180000
8040
5020
3850
3100
2600
2180
1880
1680
1510
1350
1210
1090
970
896
834
787
732
660
576
400
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Percent Exceedence
Series1

FIGURE A-19

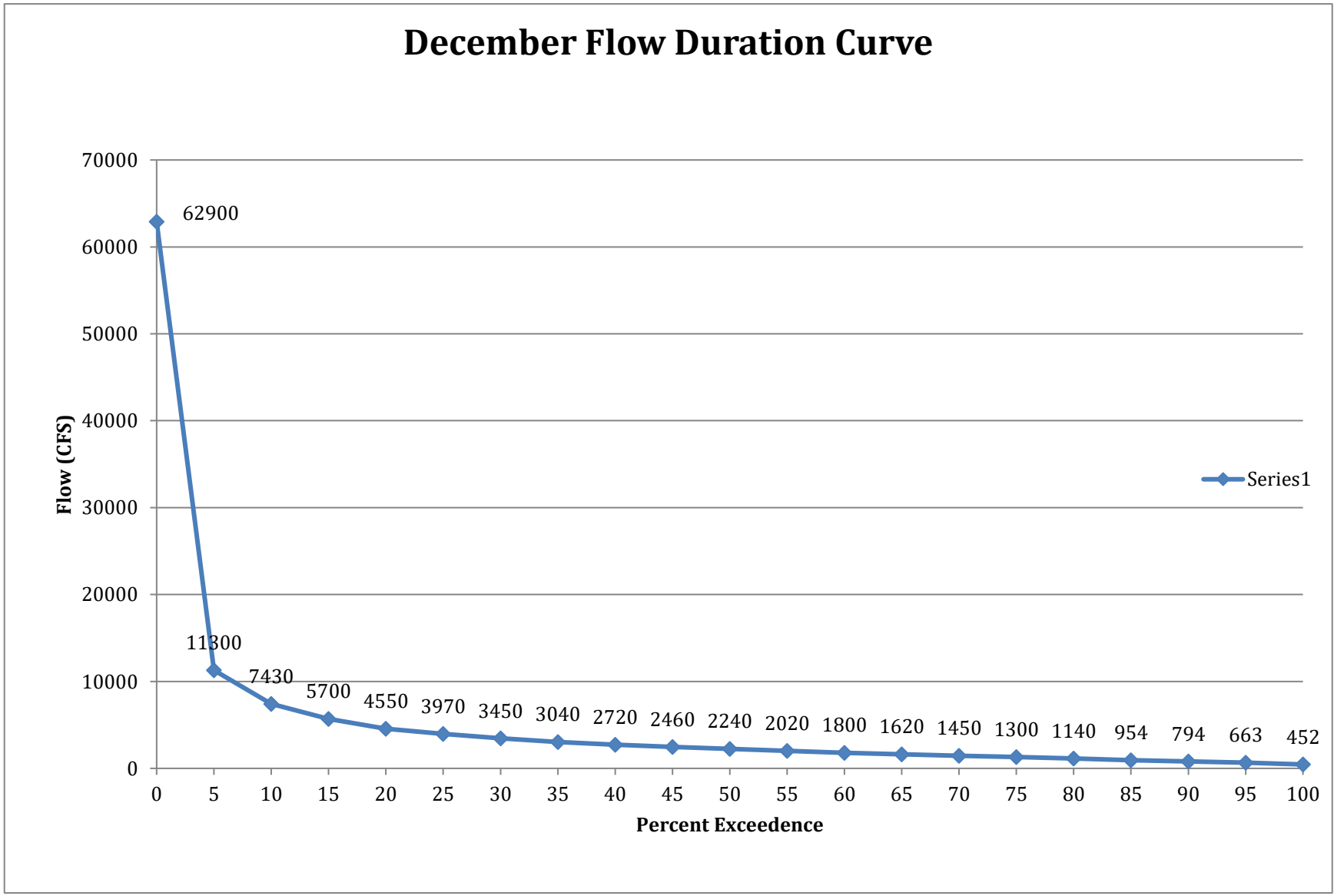

December Flow Duration Curve
Flow (CFS)
70000
60000
50000
40000
30000
20000
10000
0
62900
11300
7430
5700
4550
3970
3450
3040
2720
2460
2240
2020
1800
1620
1450
1300
1140
954
794
663
452
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Percent Exceedence
Series1

FIGURE A-20

FIGURE A-21 TAILWATER ELEVATION CURVE

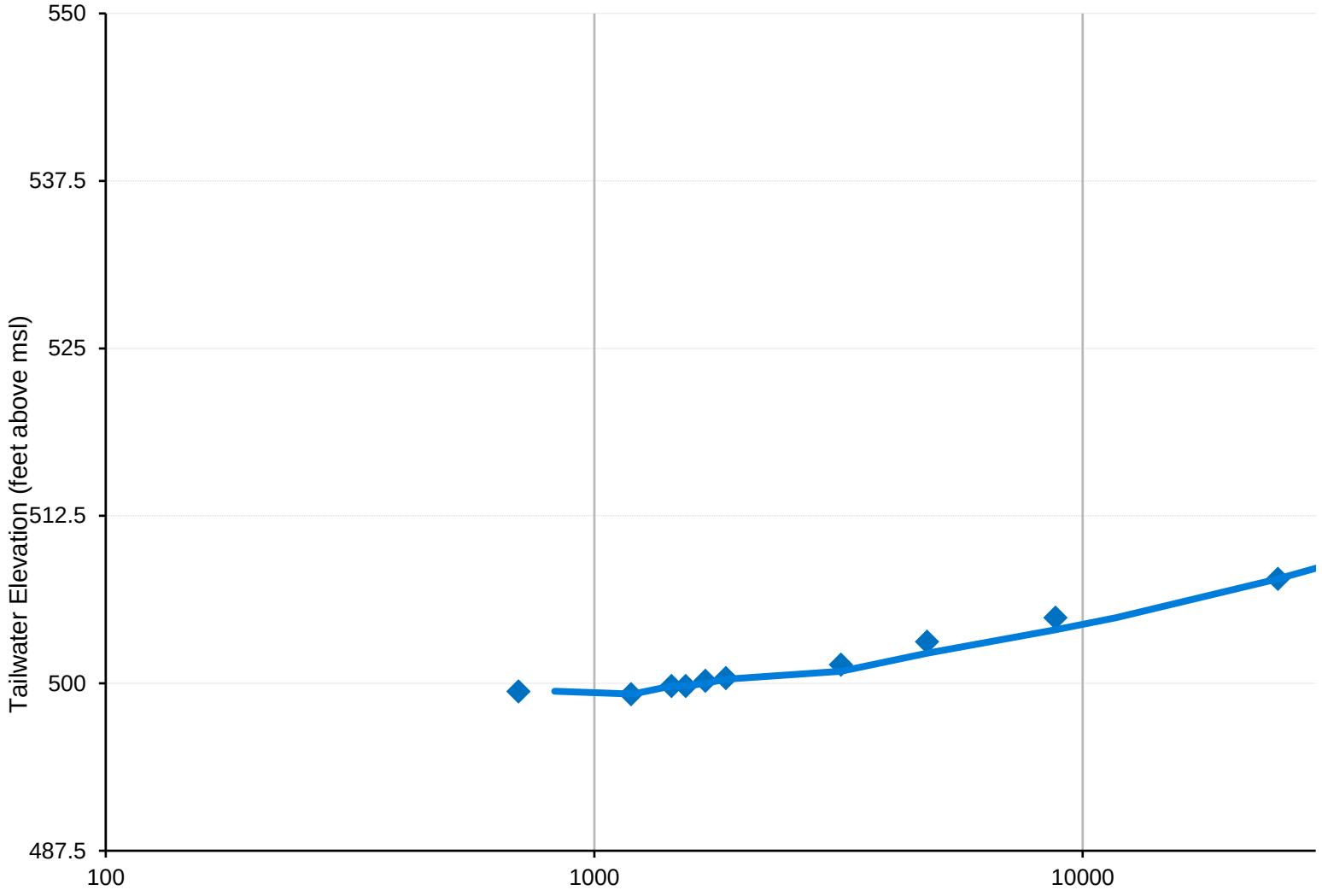


FIGURE A-22 HEADWATER ELEVATION CURVE

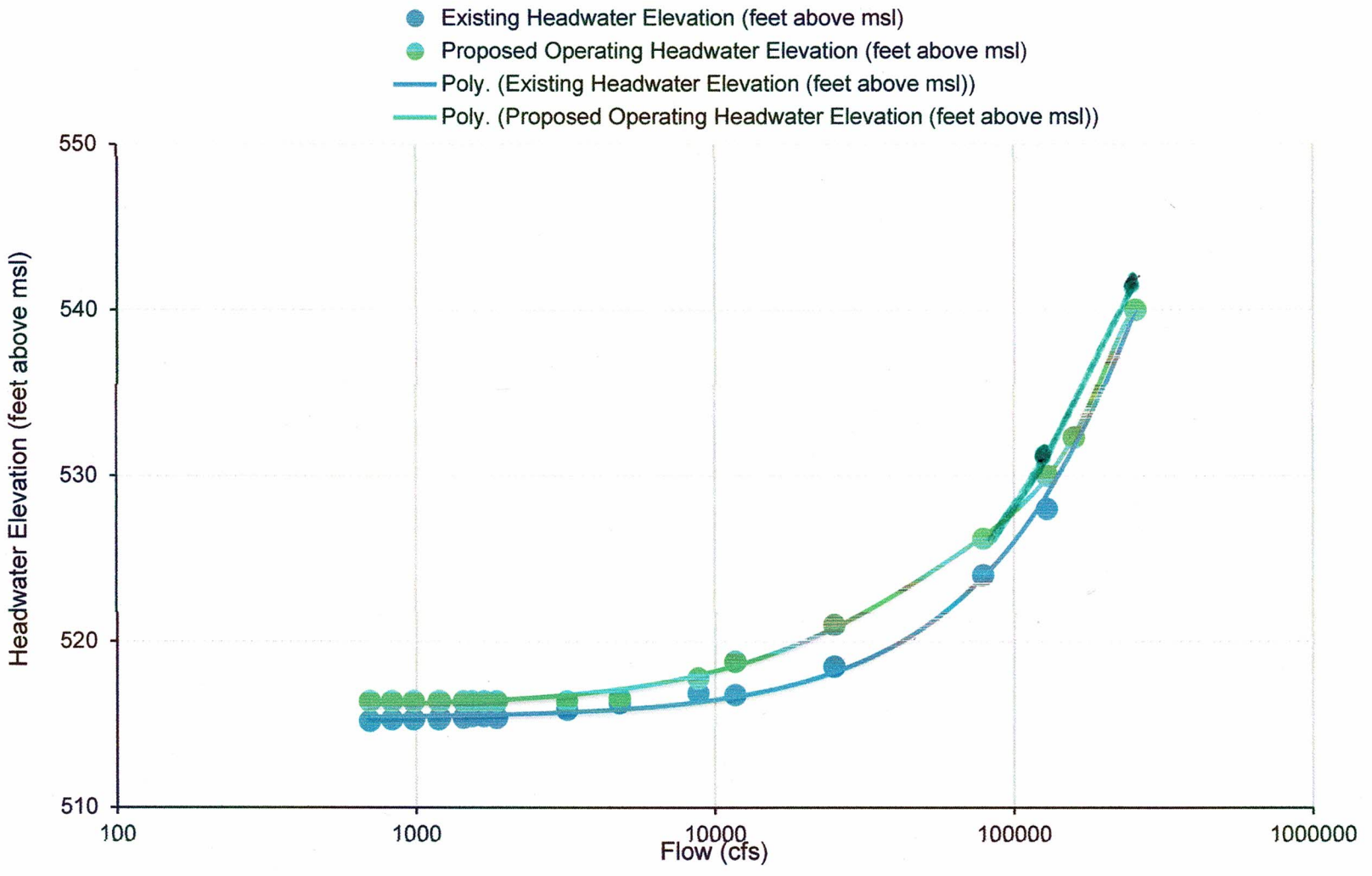


FIGURE A-23 ONE-LINE DIAGRAM

THE ONE LINE DIAGRAM IS EXCLUDED FROM THIS VERSION OF EXHIBIT A AS IT IS CONSIDERED CRITICAL ENERGY INFRASTRUCTURE INFORMATION.