CAPACITY-RELATED LICENSE AMENDMENT

HOLTWOOD HYDROELECTRIC PROJECT

FERC NO. 1881

EXHIBIT B

PROJECT OPERATION AND RESOURCE USE

December 2007

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PROJECT OPERATION AND RESOURCE USE

1.0 PROJECT OPERATIONS

1.1 EXISTING OPERATIONS

The Holtwood powerhouse is a manned station that is locally operated by PPL Holtwood, LLC (PPL). The plant operations are scheduled in coordination with the up-river Safe Harbor plant in response to available river flow. The Project is used primarily to meet the peak power demands within the Pennsylvania-New Jersey-Maryland (PJM) Interconnection, with limitations on peaking generation set by both natural inflows of the Susquehanna River, operations of the Safe Harbor Project, and available storage, as governed by seasonal recreational demands. Project operations are coordinated through the PJM Interconnection with the operation of PPL's other power generating resources and those of other generators within the PJM grid. Project lake levels are scheduled seasonally in accordance with the existing operating license and power and non-power operations as discussed below.

In accordance with the current operating license, the Project is generally operated on a daily peaking basis using its limited lake storage to collect inflows from the upstream Safe Harbor Project and smaller tributaries to the Project lake and to release this water during the peak electrical demand periods during the day. During low flow periods the Project may operate on a weekly cycle in response to market demands for power, using available storage to capture weekend flows for use during weekday peak demand

periods. During high water periods the Project will operate on a 24-hour basis using all available water up to its hydraulic capacity. PPL has maintained hourly plant discharge data since the Project went into operation in 1910. Monthly and annual river flow data is provided in Section 2.1 of this exhibit. Based on long-term flow records, the river flow exceeds current station capacity (31,500 cfs) approximately 38% of the time. Flows in excess of plant capacity are spilled over the dam.

PPL's generation dispatchers track Susquehanna River flows, meteorological conditions, and power demands on a daily basis. This data is used to establish a generation schedule on a day-ahead basis. The dispatchers will schedule overall daily generation as a function of available water and power demands and will determine the overall hours of operation of the Holtwood station.

In response to market opportunities PPL also operates the existing Holtwood generating units for ancillary generation services, including Area Regulation (AR), condensing, and Spinning Reserve. Market demands drive these services and they are important functions within the PJM Interconnection with regard to system reliability, and allow the electrical delivery system to precisely match customer demands at the proper electrical frequency and voltage.

Under AR operations, line loads and power demands drive the generation production of the Holtwood station within predetermined or scheduled limits which are set by PPL and PJM based on the capability of individual generating units to provide this service. Table 1.1-1 summarizes the existing plant AR discharge range (cfs) by unit that may occur during operation. On a given day AR discharge variability may be significantly less than that illustrated in the table.

Table 1.1-1. AR operating range by unit.

Unit #	Unit Discharge Range with AR (cfs)
1	2,568 to 3,210
2	2,568 to 3,210
3	1,250 to 2,750
4	2,240 to 2,800
5	2,044 to 3,212
6	1,250 to 2,750
7	1,995 to 2,850
8	1,210 to 2,662
9	1,420 to 3,156
10	1,560 to 3,468
Total	**18,566 to 29,756**

The Project has also historically provided, and continues to provide, spinning reserve and condensing services within the PJM Interconnection. Generating Units 8, 9 and 10 can operate under condensing mode. When the units are operating in this mode they are used primarily for local voltage control on the transmission system. These units are also capable of providing energy very quickly – this is known as "spinning reserve".

Spinning reserve capability is an important ancillary generation service within the PJM Interconnection. Spinning reserve operations are needed within PJM to respond to sudden changes in supply or demand caused by system disturbances. If these periods coincide with times when the Project units are not generating, but have been scheduled to operate in a condensing mode, these units may provide spinning reserve service to the PJM. When spinning reserve is called for at Holtwood, it typically results in an unscheduled release, or supplemental release, that may last up to 15 to 20 minutes in order to respond to the short-duration system disturbance. In 2001, a formal market for condensing and spinning reserve services developed within the PJM Interconnection.

Within this market, larger thermal stations are normally called on first to provide this service.

The existing Holtwood units also provide black-start capability within the PJM grid. Black-start capability allows generating units to restart without the need for any external power source. As a result, generating units such as those at Holtwood are critically important with regard to system recovery after electrical system outages, and provide the excitation necessary to restart other larger generating stations connected to the electrical grid.

1.2 PROPOSED OPERATIONAL CHANGES

Table 1.2-1 summarizes the operational capability of each proposed new unit, and illustrates the potential range of generation (MW) and discharge (cfs) that may occur with each unit.

Table 1.2-1. Full operating range by proposed units.

Unit #	Unit Discharge Range (cfs)
11	125 - 300
13	125 - 300
18	3,000 - 15,000
19	3,000 - 15,000

PPL expects to continue to use available lake storage to operate all available units (existing and new) in a peaking mode in response to available river flow. Expected operations under the redeveloped Project would also include continued coordination of operations with the upstream Safe Harbor Project, Area Regulation, condensing, Spinning Reserve and black-start operations. These ancillary services are essential components of an economic redevelopment plan.

Cumulatively, under the redevelopment proposal, available Holtwood units would be dispatched in response to river flow, hourly market pricing, and market needs for ancillary generation services. Schedules will continue to be developed on a day-ahead basis. Due to their expected higher efficiency, the new units would be expected to be dispatched first when water availability is limited, to the extent that such operation is consistent with minimum stream flow and fish passage commitments made to resource agencies. Lake storage will continue to be used to permit the concentration of plant releases into peak demand periods during the week, in response to market conditions. During full AR operations at Holtwood, total plant discharge during hours of peaking operation would be expected to average approximately 43,000 cfs, with variability ranging from approximately 20,000 to 62,000 cfs. On days when AR services are not being provided and river flow is low, the Project can be expected to operate at or near its best gate position and release approximately 47,000 cfs during the peak demand hours of the day. At higher river flows the Project will release water up to its peak rate of 62,000 cfs during the peak demand hours of the day.

All Project operations will continue to be bound by recreational limitations except during periods of drought in the Susquehanna River basin, as discussed below. PPL will also continue to consult and cooperate with the involved resource agencies in order to accommodate minimum stream flow and migratory fish passage. All Project operations will be undertaken consistent with the requirements and procedures set forth in the Consent Order and Agreement ("COA") between Licensee and PADEP which is attached as Appendix A to the Initial Statement and incorporated by reference as if fully set forth.

During periods of drought, as determined by the Susquehanna River Basin Commission, PPL is proposing to operate Holtwood to provide make-up water to compensate for the consumption of water by separate PPL affiliate-owned generating stations in the Susquehanna basin. A description of the proposed drought operations is provided in Section 1.4.2. Prior to January 31, 2008, PPL will submit the proposed

drought operations plan to the SRBC for approval and will implement the drought operations plan consistent with the SRBC's approval.

1.3 ANNUAL PLANT FACTOR

The average annual plant factor (or capacity factor) is determined using the following equation:

$$\frac{\text{Average Annual Output}}{\text{Licensed Capacity x 8,760 hrs/yr}} = \text{Avg. Annual Capacity Factor}$$

The existing Project has an average annual energy production of approximately 594,849 MWh per year, and an annual capacity factor of approximately 63.3% based on its current licensed capacity of 107.2 MW. With the addition of the four new units, annual average energy production is expected to increase by 360,834 MWh per year. Also as part of the proposed redevelopment, Units 1, 2, 4, and 7 are planned to have runner and shaft replacements that will likely affect the licensed capacity of the existing plant. PPL is proposing to increase the authorized installed capacity of the existing Project by an amount to be determined after turbine manufacturer performance data is provided on the upgraded units. The completed Project is expected to have an overall capacity factor of approximately 57.4% based on a total proposed Project licensed capacity of 190.2 MW[1].

1.4 OPERATIONS DURING ADVERSE, MEAN, AND HIGH WATER YEARS

1.4.1 Existing Operations

Under the requirements of the existing FERC operating license, between May 15 and September 15 of each year the operating level of the lake is restricted to a minimum of Elevation 167.5 ft to accommodate summer recreational uses. During the balance of

[1] The value of 190.2 MW does not include the planned future upgrades to Units 1, 2, 4, and 7, as the necessary manufacturer technical data is not yet available.

the year the minimum lake level is Elevation 163.5 ft. Lake storage above these minimums is used to permit the Holtwood plant to operate on a peaking basis by concentrating lake inflow into releases during the peak electrical demand hours of the day or week.

During extreme low inflow periods, the Project may generate power for as little as three to five hours in order to maintain seasonal lake levels, as required by the existing license. Historically, during low flow periods, PPL has typically operated the plant on a weekly cycling basis, whereby its limited lake storage is used to capture weekend inflow for release during weekday demand periods, and generation during the weekend may be limited. During periods of no unit generation, PPL estimates that approximately 210 cfs of flow is released into the tailrace through unit wicket gate leakage. As river flows increase, plant operating hours increase; and the Holtwood plant is typically operated on a daily cycling basis. When river flows exceed approximately 25,000 cfs, the plant normally generates on a 24-hour basis with AR, or may operate for slightly fewer hours at either a best gate position or full hydraulic capacity.

When river flows exceed 31,500 cfs, the approximate hydraulic capacity of the existing generating station, the lake level will rise above El. 169.75 ft and water will spill over the dam. When total river flow conditions reach 78,000 cfs and create a lake water level of El. 173.0 ft, PPL will begin to deflate the existing rubber dams sections to avoid failure of the wooden flashboards. Controlled spills through the rubber dam sections are effective in controlling lake levels until the total river flow reaches 150,000 cfs. At this point, the rubber dam sections will be entirely deflated, the lake level will reach or exceed El 173.0 ft, and PPL has no control over the water level in the lake. A further increase in river flow will increase lake level and cause failure of the existing flashboards. PPL can continue to operate the plant up to river flows as high as 1,000,000 cfs, when plant shutdown is required due to flooding and high water. PPL makes every effort to repair damaged flashboards when river flows have declined to

levels that allow safe access for maintenance personnel, and spill is not occurring at the Project. Flashboards are needed to achieve summer minimum lake elevations.

1.4.2 Proposed Operations Under Adverse, Mean and High Water Years

Under the proposed redevelopment the hydraulic capacity of the Holtwood Project will be increased from 31,500 to approximately 62,100 cfs. River flows less than the proposed capacity, except for a small amount of leakage through the existing flashboards and a 10-inch diameter pipe in the main dam, would be discharged through the new and existing generating stations consistent with the fish passage and minimum stream flow obligations in the COA. Flows in excess of this amount would be spilled. Table 1.4-1 provides a monthly comparison of average spill frequency under existing and proposed operations.

Table 1.4-1. Monthly and annual comparison of average Project spill frequency.

Month	% of Time Flow Exceeded Existing Capacity (31,500 cfs)	% of Time Flow Exceeded Proposed Capacity (62,100 cfs)	Difference
January	42.7%	18.5%	- 24.2%
February	47.2%	20.7%	- 26.5%
March	86.6%	51.6%	- 35.0%
April	91.3%	53.3%	- 38.0%
May	65.3%	26.9%	- 38.4%
June	29.2%	9.7%	- 19.5%
July	15.1%	6.3%	- 8.8%
August	8.1%	6.1%	- 2.0%
September	11.0%	6.4%	- 4.6%
October	17.5%	9.2%	- 8.3%
November	36.1%	14.1%	- 22.0%
December	47.6%	20.6%	- 27.0%
Annual	38.2%	17.2%	-21.0%

= Upstream Fish Passage Season

Note: Data based on flows measured at Holtwood for the Period of Record 1917-1996.

In comparison to existing conditions, spill frequency under the redeveloped Project would occur approximately 17.2 percent of the time instead of the historic 38.2 percent of the time on an average annual basis. Additionally, the Project will spill approximately 30 percent of the time instead of the current 62 percent of the time during the upstream migratory fish passage season. This will help to minimize the occurrence of competing attraction flows that appear to be contributing to "poor" upstream migratory fish passage effectiveness at the Project. The minimum hydraulic capacity of the proposed Project would be reduced to approximately 125 cfs, which is the approximate minimum hydraulic capacity of one of the proposed new exciter replacement units.

Under the terms of the COA, PPL would implement the following operational changes:

1. Upon commercial operation of the Amended Project, PPL is proposing (pursuant to commitments with the resource agencies) to implement a continuous conservation flow to the Piney Channel and the tailrace as determined in January 2008 to be necessary by the resource agencies to maintain and protect existing and designated uses and water quality standards in Piney Channel and the tailrace. These commitments are explained in detail in the COA in Appendix A to the Initial Statement. For purposes of this application, a conservation release of 200 cfs to the Piney Channel has been analyzed.

2. PPL is proposing (pursuant to commitments with the resource agencies) to make releases to the spillway area below the dam in quantities determined by the resource agencies to be necessary to maintain the existing and designated uses and water quality standards in the spillway area. The commitments are explained in detail in the COA in Appendix A to the Initial Statement. For purposes of this application, PPL has assumed that this can be accomplished by sustaining existing levels of continuous release

to the spillway area below the dam. The exact method for this release will be determined when the crest control configuration is finalized.

3. Upon commercial operation of the Amended Project, PPL is proposing to operate facilities for migratory fish passage pursuant to a commitment to the resource agencies to develop and obtain approval of a Fishway Operating Procedures manual as more fully explained in detail in the COA in Appendix A to the Initial Statement.

4. Upon approval of this License Amendment Application by the FERC, PPL will implement a daily volumetric minimum flow release equal to the lesser of net daily inflow (daily inflow from Safe Harbor plus intermediate tributaries, less lake evaporation) into Lake Aldred, or 98.7 percent of the minimum flow required by FERC (QFERC[2])to be released at the Conowingo hydroelectric facility (FERC Project No 405).

5. If separate approval is obtained from the SRBC, PPL would release water from storage in Lake Aldred during drought conditions, as dictated by the SRBC, to make up for future expected consumptive use at other locations on the Susquehanna River. A drought condition would occur when flows in the Susquehanna fall below a level ("trigger flow"), such as the Q7-10, QFERC**,** 95% exceedance low flow, or other flow to be determined by the SRBC. On any drought condition day, Holtwood would operate on a daily AR or peaking basis and would release all water entering Lake Aldred from Safe Harbor and intermediate tributaries, less existing lake evaporation, plus up to the equivalent of 44 acre-feet of water from storage on a daily

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[2] "QFERC" is the target minimum release from Conowingo, as stated in the Conowingo license. The schedule for QFERC is: March 1 - March 31: 3,500 cfs; April 1 - April 30: 10,000 cfs; May 1 - May 31: 7,500 cfs; June 1 - September 14: 5,000 cfs; September 15 - November 30: 3,500 cfs; December 1 - February 28/29: 3,500 cfs, but intermittent flows and shutdowns are allowed during this period.

basis). The water from storage would compensate for water consumed upstream at other generating facilities owned by PPL affiliates, which would otherwise be lost from the river system. This plan will only be implemented upon the separate approval by the SRBC.

Maintenance of the daily volumetric flow release would be expected to have no impacts on storage use or recreational lake levels. The maintenance of a continuous minimum flow into Piney Channel is expected to create summer drawdown conditions in Lake Aldred during extreme drought events when net inflow is less than approximately 500 cfs. Table 1.4-2 illustrates the expected frequency of summer drawdown to below Elevation 167.5 (according to the OASIS modeling results) due to implementation of the minimum flow to Piney Channel, and due to the inability to recover lake level as a result of the daily volumetric release requirement.

Table 1.4-2. Expected frequency of lake drawdown to below elevation 167.5 due to the minimum flow proposal.

Continuous Min Flow to Piney Channel = 200 cfs					
Month	**Minimum Elevation (ft) (all years)**	**Percent time below Elevation 167.50 ft (all years)**	**End-of-period Elevation (ft) Dry Years**		
			1930	**1964**	**1966**
June	167.55	0	169.33	168.75	168.75
July	167.61	0	168.75	168.75	168.72
August	166.76	1	166.79	168.01	168.12
Sept 1 - 15	166.57	3	166.75	167.23	168.75

In addition to the drawdown levels above, should the proposed drought operations be approved and should drought occur during the summer recreation season PPL would operate the Project to incrementally lower Lake Aldred by up to approximately 44 acre-ft (approximately 0.02 ft) each day the river flow is below the trigger flow. If the river flow returns above the daily minimum or trigger flow, PPL could restore the pond to normal

levels. Operating this way, assuming a QFERC trigger, the lake level during the recreation season due to a combination of minimum flow requirements and drought operations would fall below Elevation 167.50 ft as shown in Table 1.4-3 (according to the OASIS modeling results).

Table 1.4-3. Expected frequency of lake drawdown to below elevation 167.5 due to the combined effects of the drought plan and minimum flow proposal.

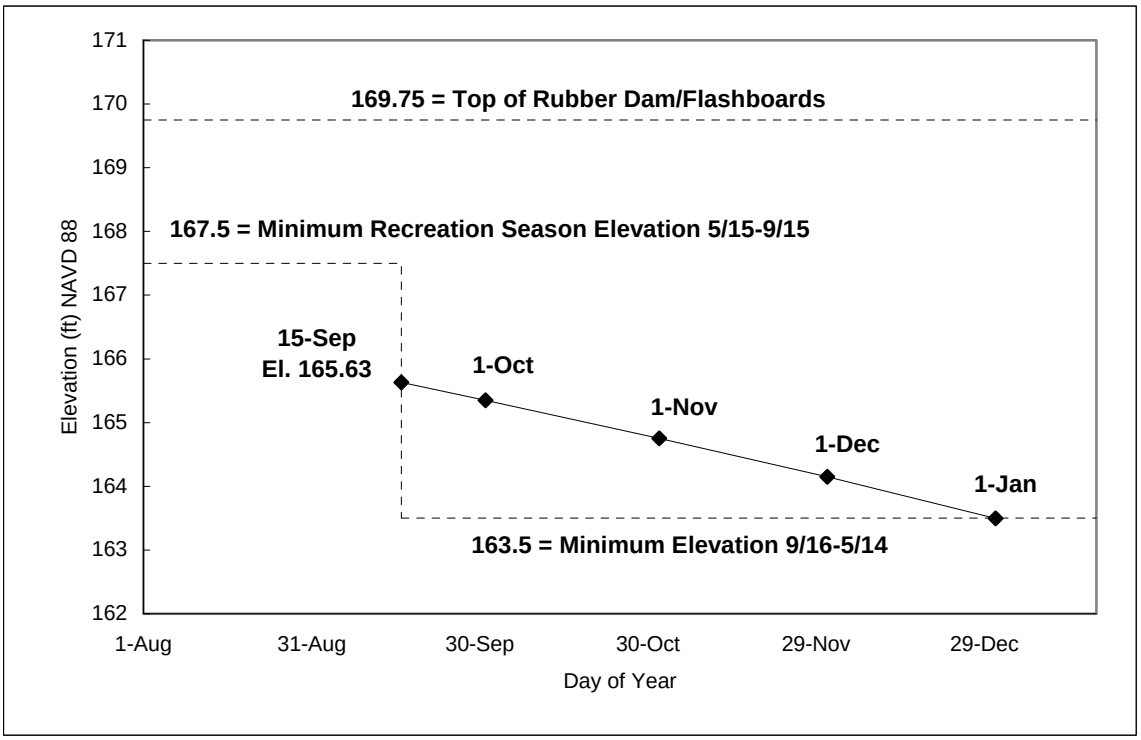
Continuous Min Flow to Piney Channel = 200 cfs; Drought Operations					
Month	Minimum Elevation (ft) (all years)	Percent time below Elevation 167.50 ft (all years)	End-of-period Elevation (ft) Dry Years		
			1930	1964	1966
June	167.56	0	169.33	168.75	168.75
July	167.61	0	168.75	168.73	168.44
August	166.28	2	166.28	167.80	167.94
Sept 1-15	165.97	5	165.98	166.74	168.75

The OASIS modeling indicates that 1930 would have been the most critical year for recreation season drawdown due to the proposed minimum flow and drought operations.

From September 16 through December 31, PPL would operate the Project to maintain minimum daily lake levels not lower than a rule curve that would ensure capability for makeup for the consumptive use without drawing down below Elevation 163.5 ft. This rule curve is shown in Figure 1.4-1; it very conservatively anticipates a sub-trigger river flow each day and the need to makeup 44 acre-feet consumptive use.

Additional information on expected flow releases and lake level effects is provided in Exhibit E.

Figure 1.4-1. Proposed post-recreation season drought operations rule curve for 44 acre-feet makeup.



2.0 DEPENDABLE CAPACITY, AVERAGE ANNUAL ENERGY PRODUCTION, AND HYDRAULIC CONDITIONS AND CAPABILITY

2.1 PROJECT HYDROLOGY

The drainage area above the Project encompasses an area of approximately 26,800 square miles. PPL has maintained hourly plant discharge and river flow data since the Project went into operation in 1910. Monthly median flows from site data are summarized in Table 2.1-1. Monthly flow duration curves of daily average net Project inflow as developed from daily OASIS flow modeling of current upstream storage regulation for the period from 1930 to 2002 are shown in Attachment A. This data accounts for storage operations at the up-river Safe Harbor Project, intermediate run-off and estimated lake evaporation.

The maximum average daily flow recorded at the site was 941,900 cfs (during hurricane Agnes in June of 1972), and the minimum expected average daily net inflow is approximately 150 cfs based on the results of the OASIS modeling.

Table 2.1-1. Monthly river flow data based on flow duration curves from between 1917-1996 at Holtwood.

Month	Median Flow (cfs)
January	38,300
February	44,400
March	77,900
April	78,200
May	49,200
June	28,500
July	17,200
August	12,600
September	12,800
October	18,400
November	29,900
December	38,700
Annual	**37,100**

2.2 DEPENDABLE CAPACITY AND ANNUAL ENERGY PRODUCTION

Based on current PJM system parameters the dependable capacity of the existing plant is 110 MW assuming a full pond elevation of 169.75 ft. Assuming negligible inflow, this output can only be sustained for 2.24 hours until the pond elevation reaches 167.5 ft, the minimum lake level during the recreation season (May 15 - September 15). With the proposed redevelopment of the Project, the dependable capacity is expected to be 230.9 MW. Assuming negligible inflow, the Project would be able to sustain that load for approximately 1.14 hours.

Table 2.2-1 summarizes average historical monthly plant generation as well as the incremental monthly generation expected with the new redevelopment in place.

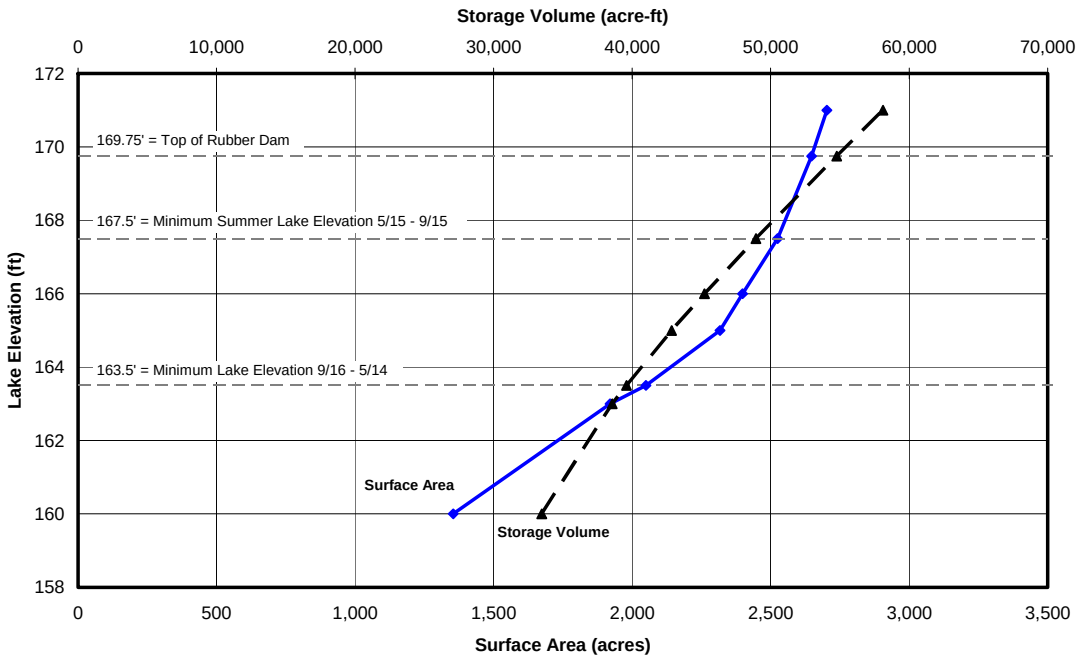
Table 2.2-1. Monthly average generation.

Month	Average Historical Generation (MWh)	Expected New Incremental Generation (MWh)
January	55,055	30,988
February	54,377	32,644
March	71,655	63,610
April	71,045	64,300
May	65,993	44,493
June	49,015	20,226
July	36,955	13,628
August	29,045	8,558
September	26,234	8,915
October	32,536	14,451
November	46,816	24,910
December	56,124	34,111
Annual	**594,849**	**360,834**

2.3 AREA CAPACITY CURVE

The lake's current maximum useable storage capacity is 15,224 acre-ft between the top of dam flashboards (El. 169.75 ft) and El. 163.5 ft (minimum lake level September 16 - May 14). This is equivalent to 184,210 cfs-hours of stored water that is only enough to support approximately six hours of operation of the existing generating station. Figure 2.3-1 provides the area-capacity curves of the Project. Under the proposed redevelopment, the area-capacity of the Project will not change.

Figure 2.3-1. Lake Aldred area-capacity curve (PPL, unpublished data).



2.4 ESTIMATED HYDRAULIC CAPACITY

The existing hydraulic capacity of the Project is theoretically 31,500 cfs, but the units typically operate at a lower rate of release. The minimum operating discharge of each unit varies from approximately 1,200 to 2,500 cfs.

The proposed redevelopment would provide approximately 15,000 cfs per unit for each of the two units in the new power station. An additional 300 cfs would be provided by each of the two new units to be installed in the existing powerhouse. This would increase the total hydraulic capacity of the Project to 62,100 cfs.

2.5 TAILWATER RATING CURVES

The normal operating water level in the tailrace during periods of non-generation varies between 104.5 and 108.5 ft, due to backwater from the Conowingo pond. During

generating periods, however the water level can increase by up to ten feet. This rise in the water surface elevation occurs due to constrictions in the tailrace channel that create areas of high velocity, hydraulic losses, and additional backwater on the generating units.

The proposed redevelopment includes plans for tailrace excavation to alleviate some of the aforementioned hydraulic constrictions. Figure 2.5-1 illustrates the calculated tailwater rating curves for Units 2-10 and the new units for both the existing and proposed Project with an assumed Conowingo Pond elevation of 108.5 feet. The calculated tailwater rating curve for Unit 1 is shown in Figure 2.5-2.

Figure 2.5-1. Preliminary calculated tailwater rating curves for existing and proposed Project.

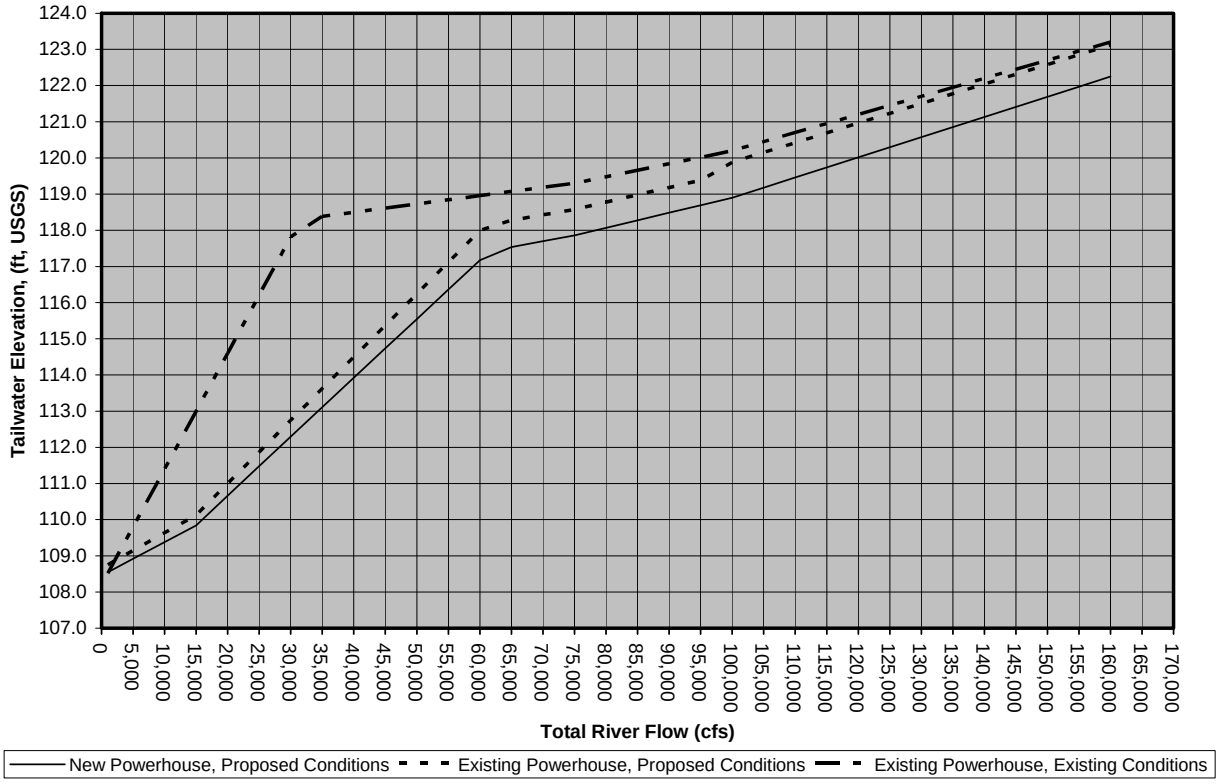
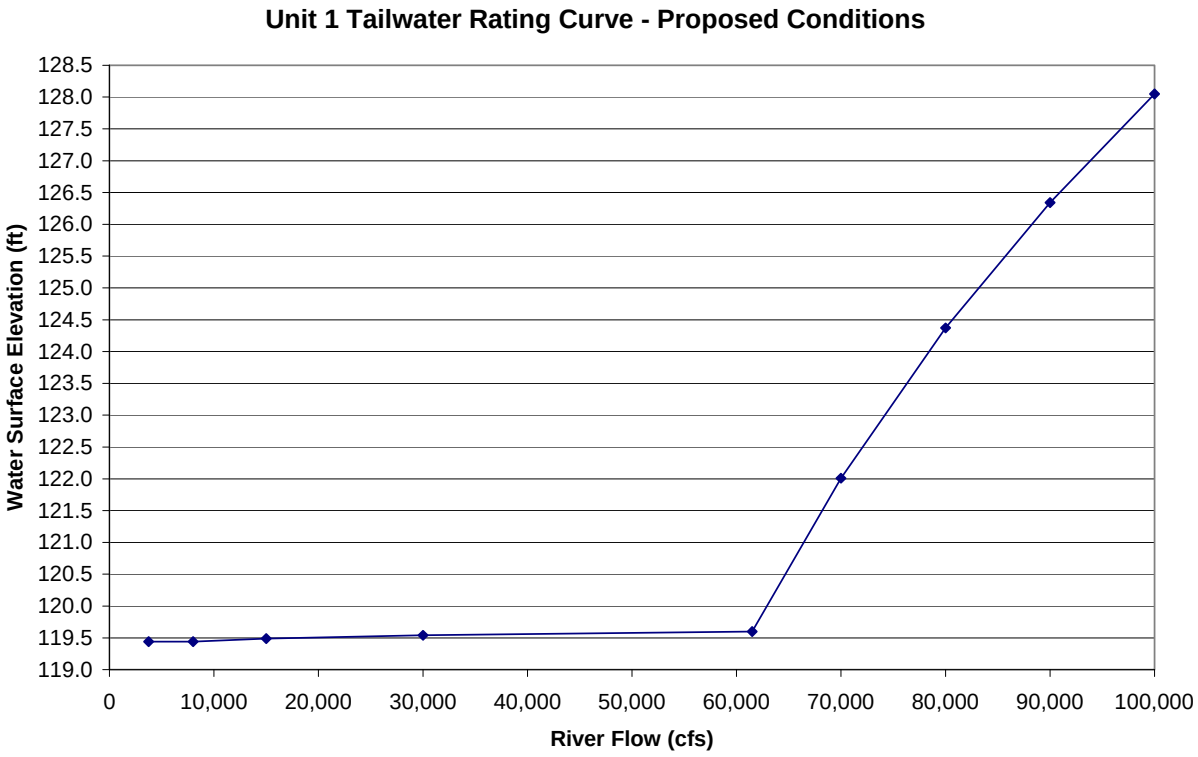


Figure 2.5-2. Preliminary calculated tailwater rating curve for Unit 1 after rerouting.



2.6 POWER PLANT CAPACITY VS. HEAD

At a net head of 50.75 feet (all existing units operating and tailwater elevations at maximum) the existing Project has a total generating capacity of approximately 110 MW. Under the redevelopment the net head is expected to remain at 50.75 feet with all existing and new units operating and with Conowingo at normal full pool. Total Project capacity with the new and upgraded existing units at that net head will be determined after turbine manufacturer performance data is received. The addition of the four new units is expected to raise the installed capacity by 83 MW, to a value of approximately 190.2 MW, however the performance data for the upgrades to Units 1, 2, 4, and 7 in the existing powerhouse is not known at this time.

Figure 2.6-1 depicts generation capability versus head for the existing powerhouse. Figures 2.6-2 and 2.6-3 depicts the generation capability for the proposed new power station, and exciter replacement units respectively.

Figure 2.6-1. Total existing station output capability (Units 1-10).

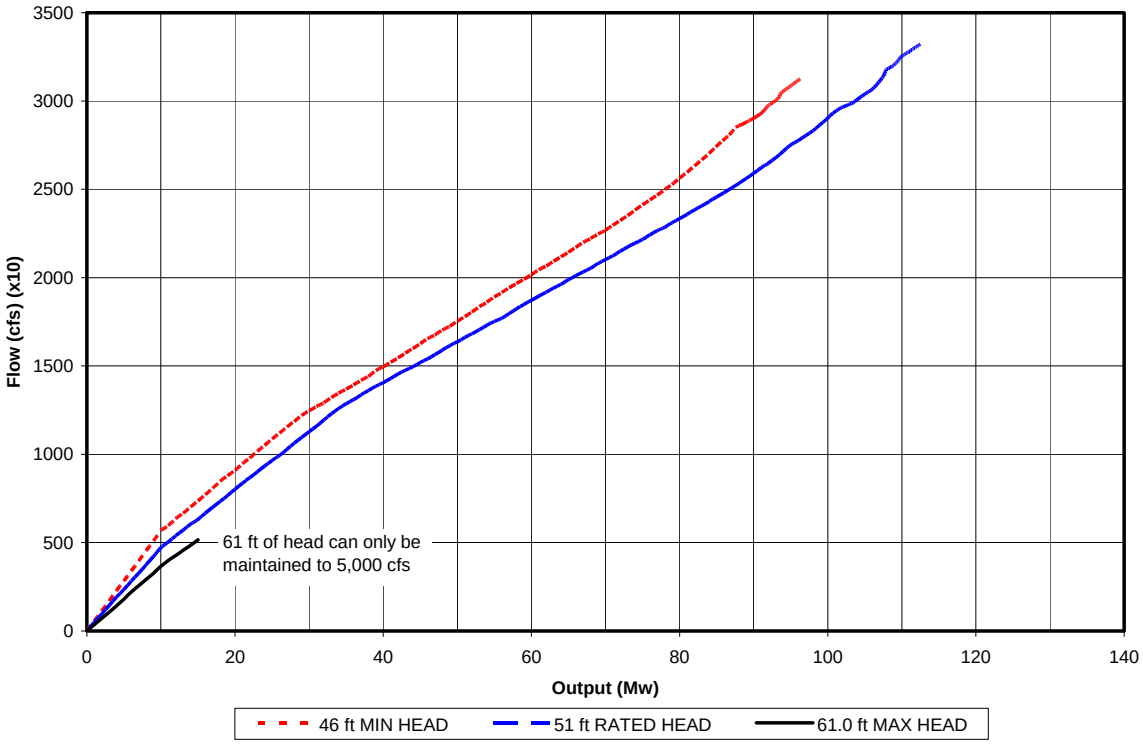


Figure 2.6-2. Total proposed new power station output capability (Units 18 and 19).

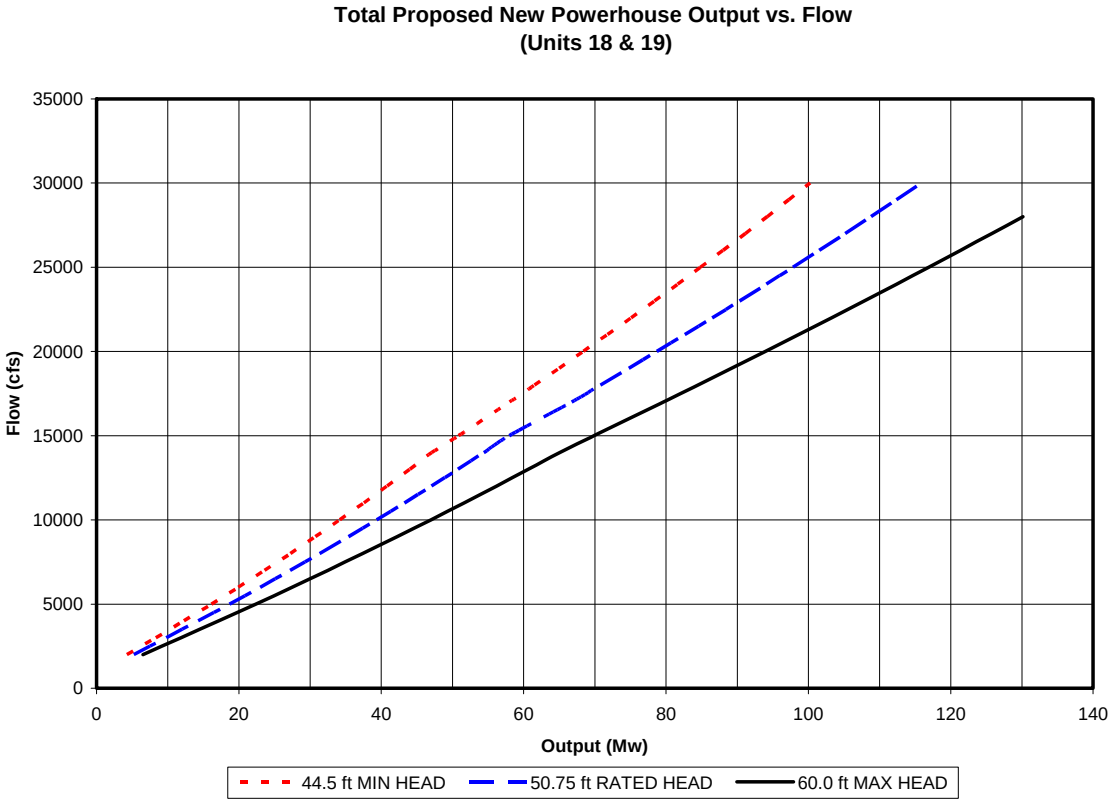
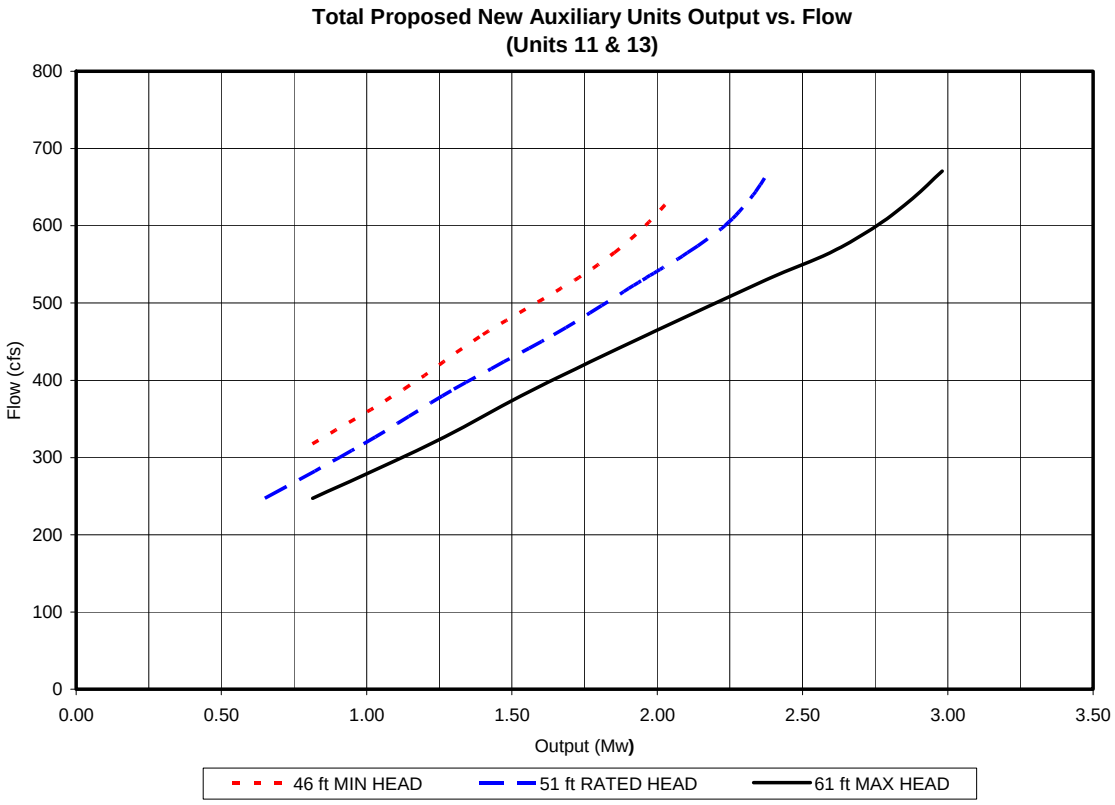


Figure 2.6-3. Total proposed new auxiliary units output capability (Units 11 and 13).



3.0 USE OF PROJECT POWER

On average, 0.9% of the Project's annual electric production is consumed by the station itself. The remainder of the electricity generated is currently sold to and marketed on a wholesale basis by the Applicant's affiliated marketer, PPL EnergyPlus, LLC. The amount of power sold varies yearly in proportion to available water.

The energy generated at the Project helps to meet the peak power needs of retail and wholesale customers within the PJM system. These needs are at a maximum during the warm summer months, and typically peak by late afternoon on weekdays. During these summer periods the Project uses its limited storage and available inflow to help

meet these seasonal peak demands. Project generation schedules are developed to bracket the peak power demand periods while making use of available water and meeting Project non-power obligations.

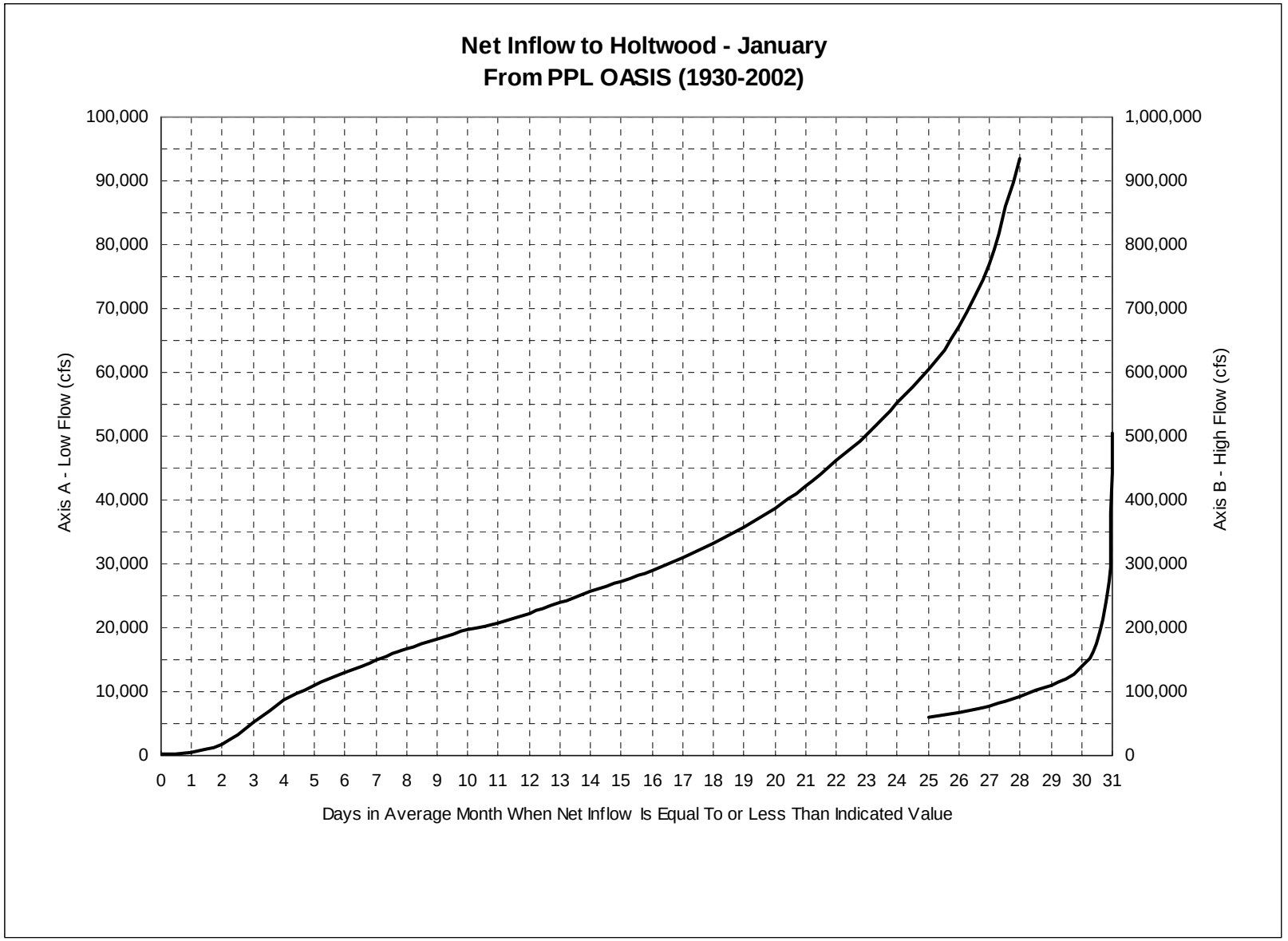
The area regulation operations of the Project provide a valuable ancillary service to the PJM grid by helping to ensure that power is available on an instantaneous basis and supplied to customers at the proper frequency and voltage. The Project has the ability to respond to small changes in electrical demand by automatically increasing or decreasing output in response to a control signal from PJM, thereby assisting to balance supply and demand. The Project's condenser operations assist in providing local voltage regulation, and spinning reserve operations provide the grid with the ability to respond to sudden changes in either supply or demand caused by system disturbances, and help to avoid regional power outages. The Project can go from complete shutdown to full load operation in about 10 minutes. Only hydroelectric stations can provide such a rapid response to system conditions. The Project's black start capabilities can provide the power needed to start other larger thermal stations and electrical grid operation after a power failure. Only hydroelectric stations, diesel generating stations, and some small combustion turbines have this capability.

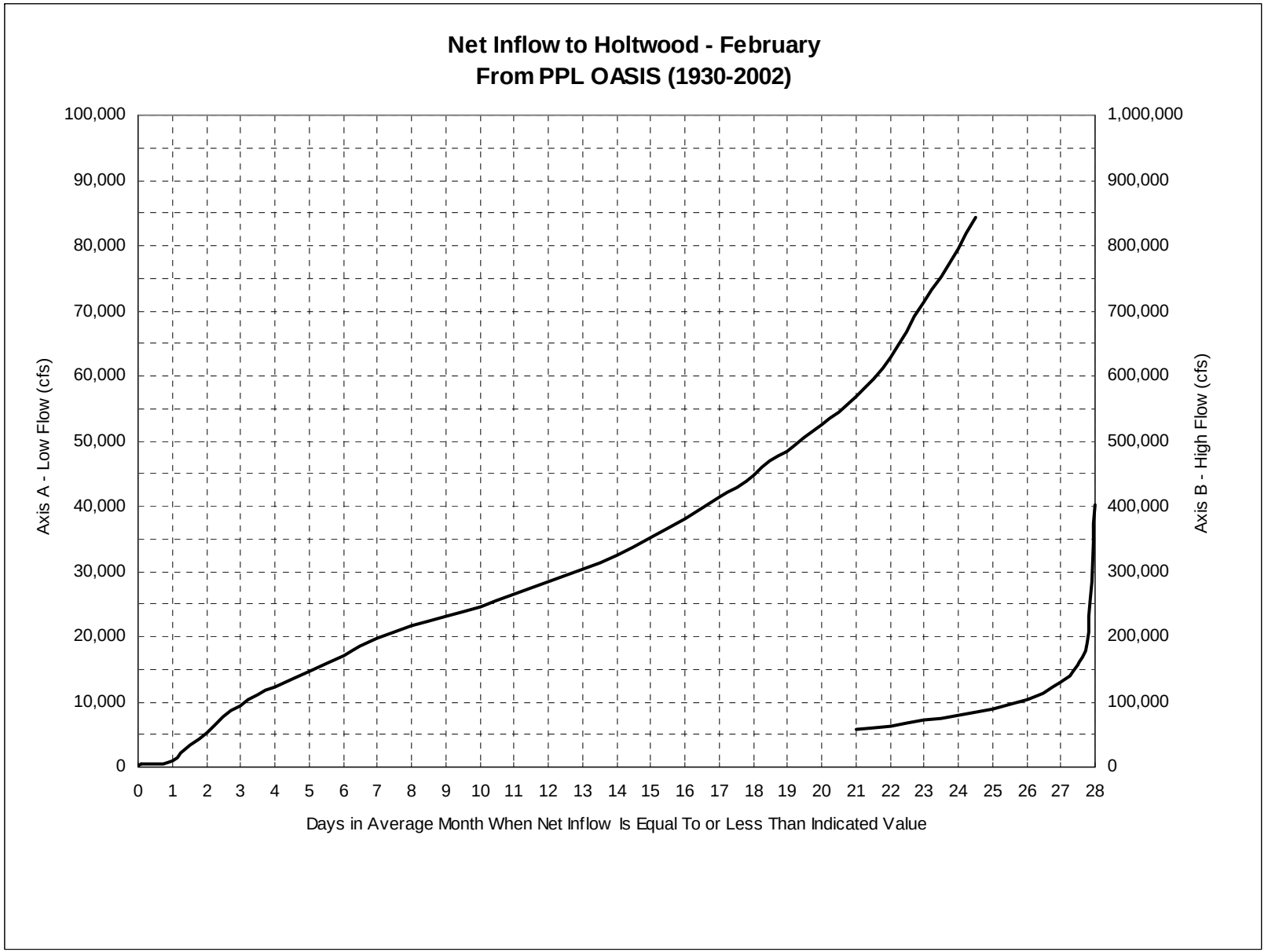
4.0 PLANS FOR FUTURE DEVELOPMENT

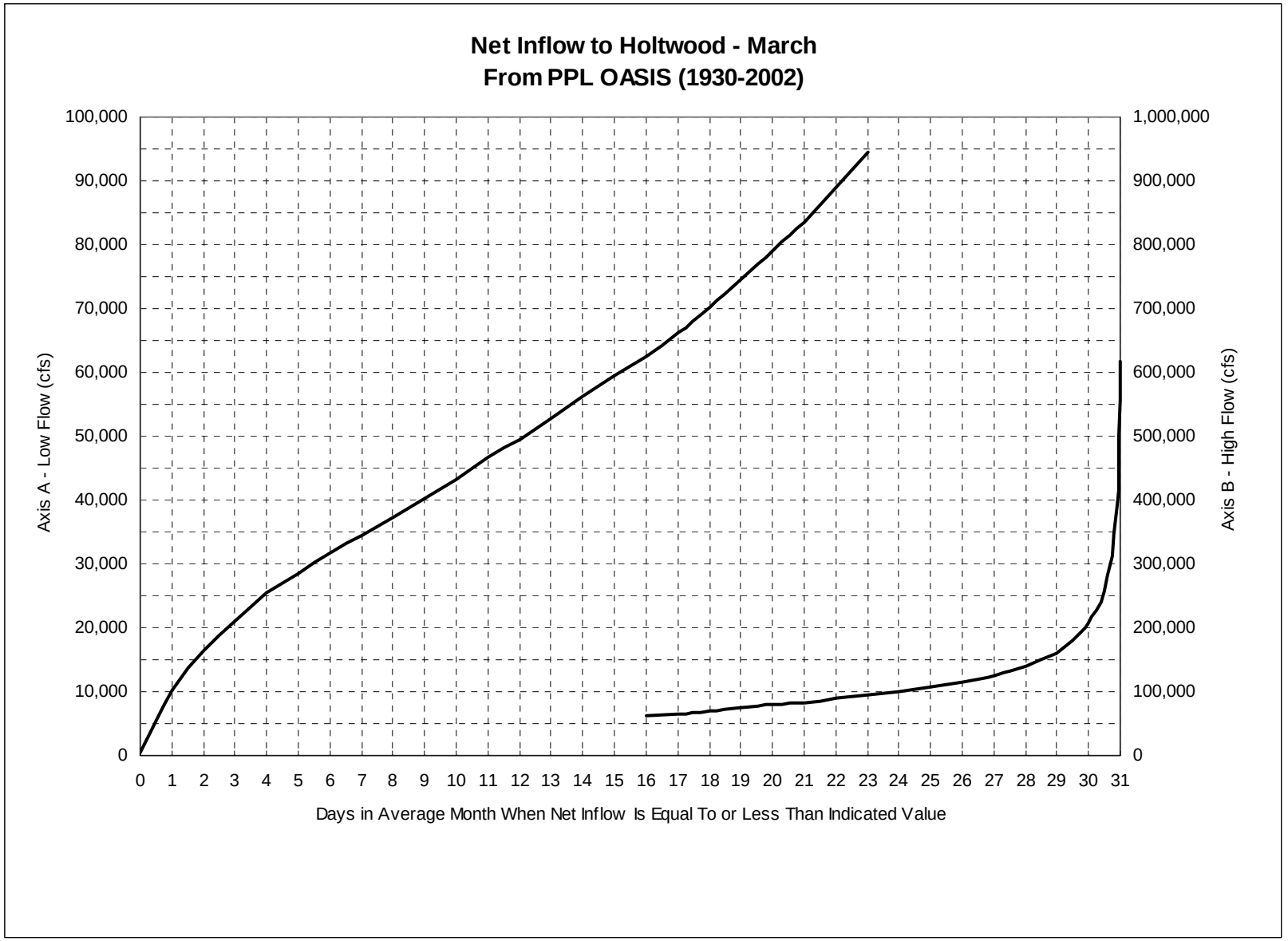
Aside from the proposed modifications associated with this application for amendment of license, PPL does not currently have any plans for future additional development at this site.

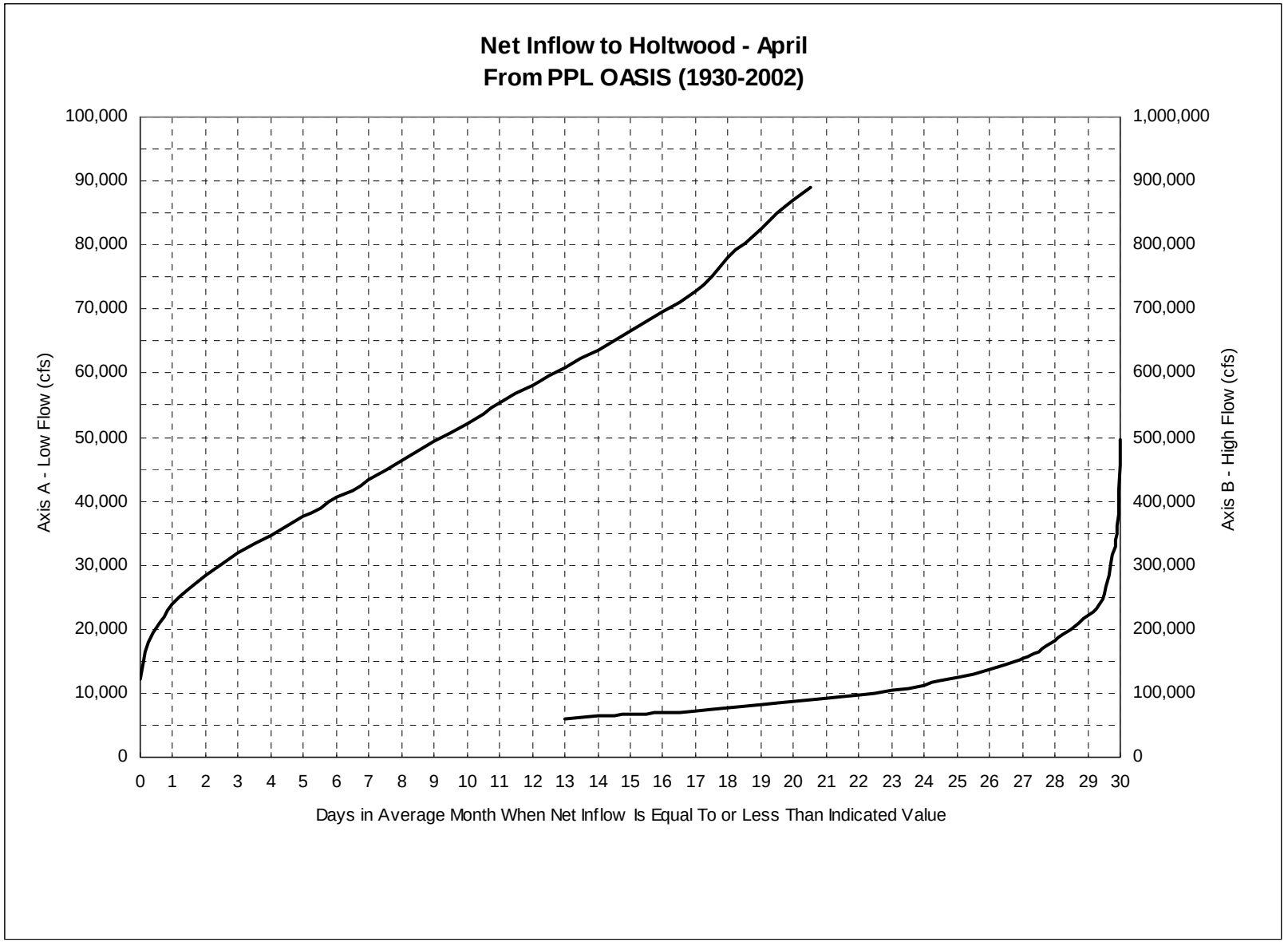
APPENDIX A

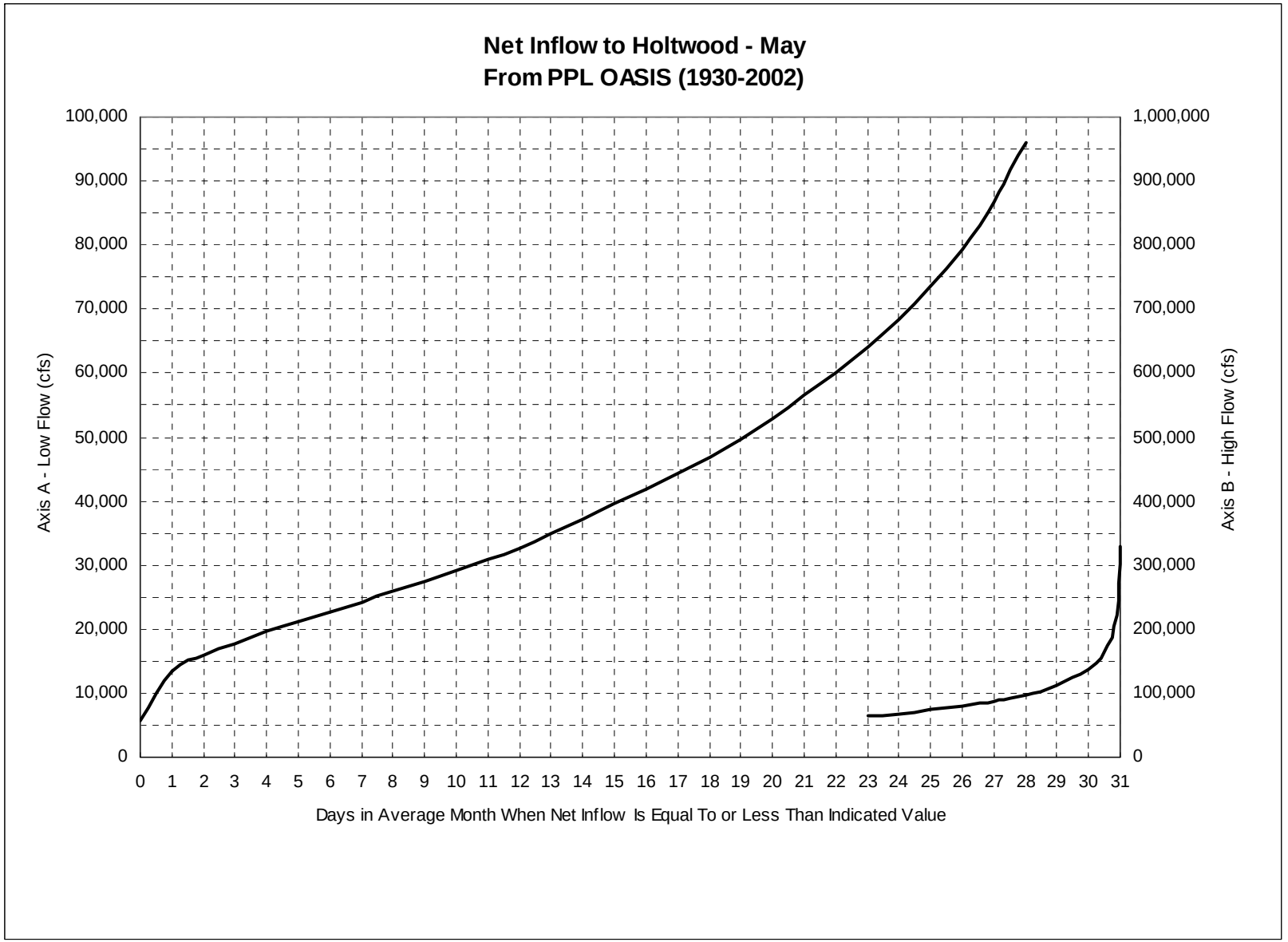
MONTHLY FLOW DURATION CURVES

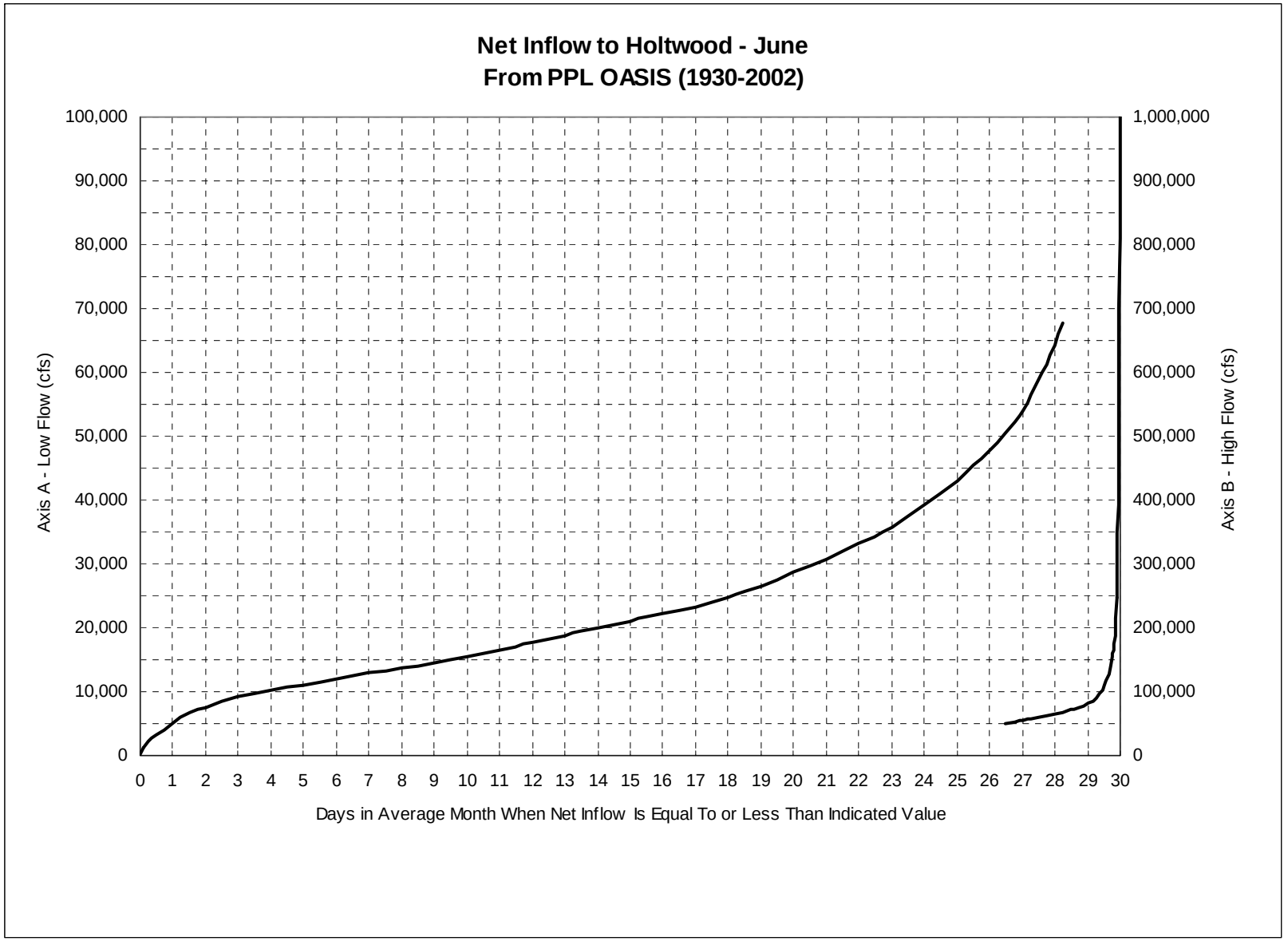

Net Inflow to Holtwood - January
From PPL OASIS (1930-2002)
Axis A - Low Flow (cfs)
Axis B - High Flow (cfs)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Days in Average Month When Net Inflow Is Equal To or Less Than Indicated Value

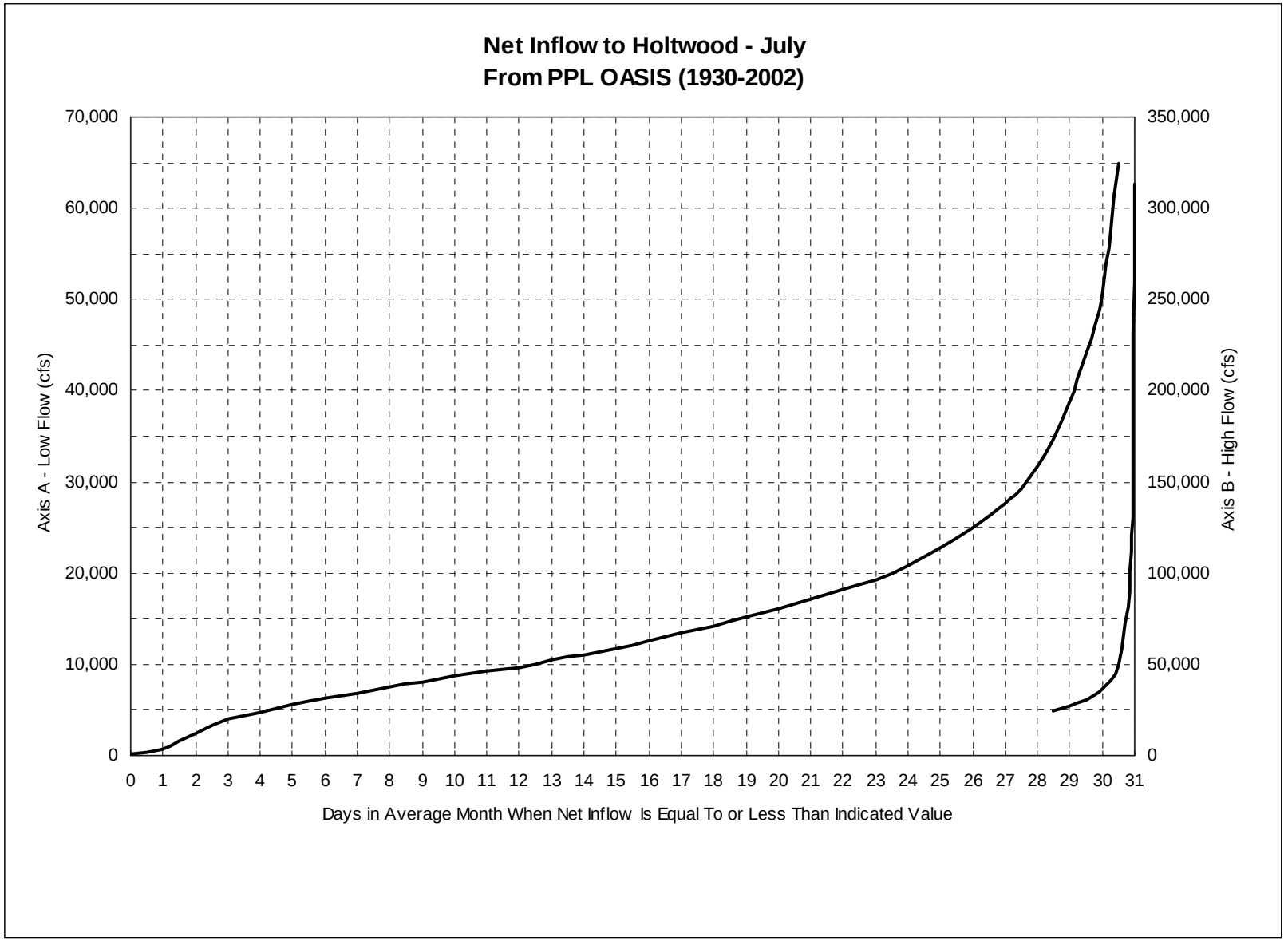

Net Inflow to Holtwood - February
From PPL OASIS (1930-2002)
Axis A - Low Flow (cfs)
Axis B - High Flow (cfs)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
Days in Average Month When Net Inflow Is Equal To or Less Than Indicated Value

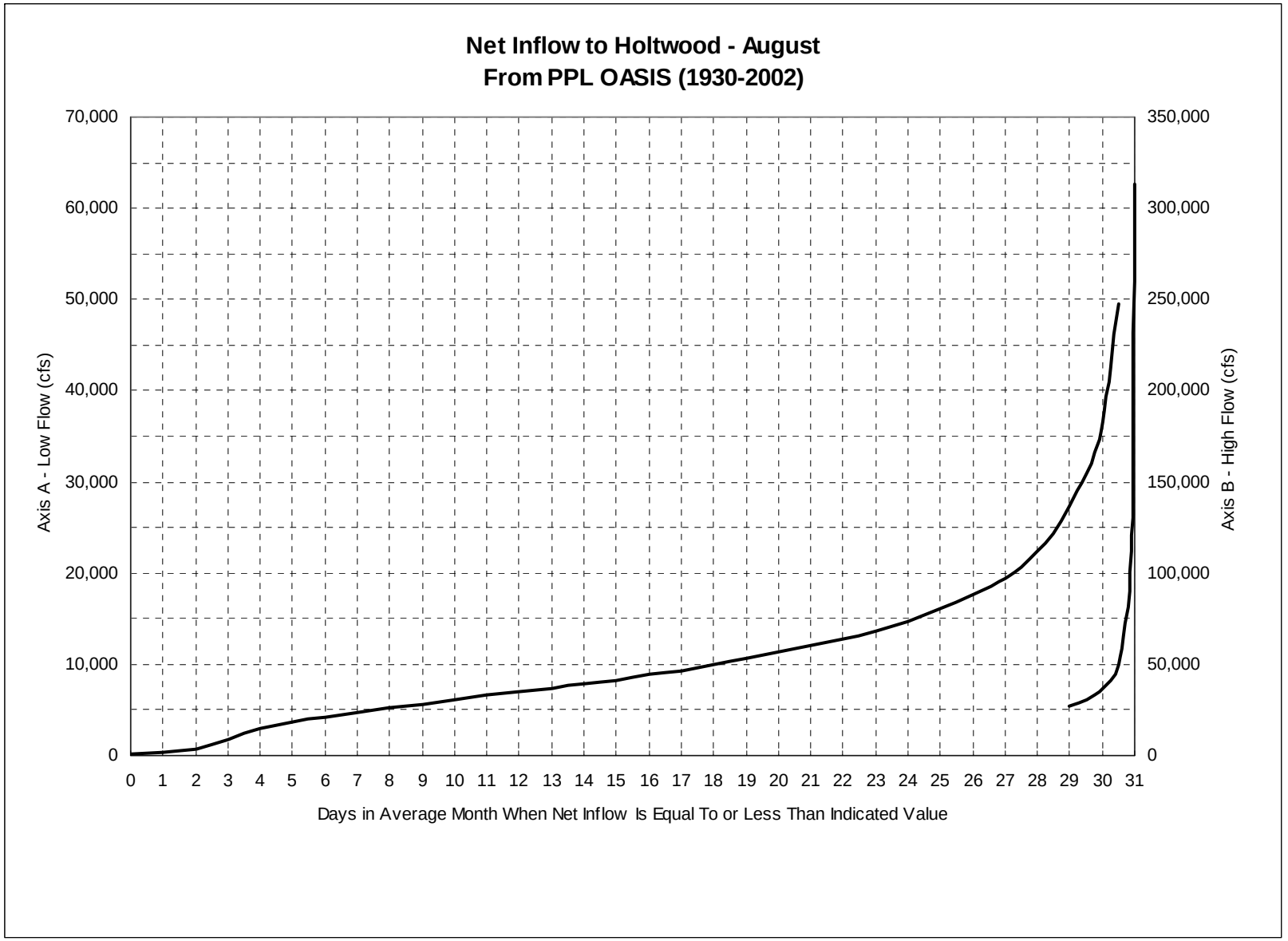

Net Inflow to Holtwood - March
From PPL OASIS (1930-2002)
Axis A - Low Flow (cfs)
Axis B - High Flow (cfs)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Days in Average Month When Net Inflow Is Equal To or Less Than Indicated Value

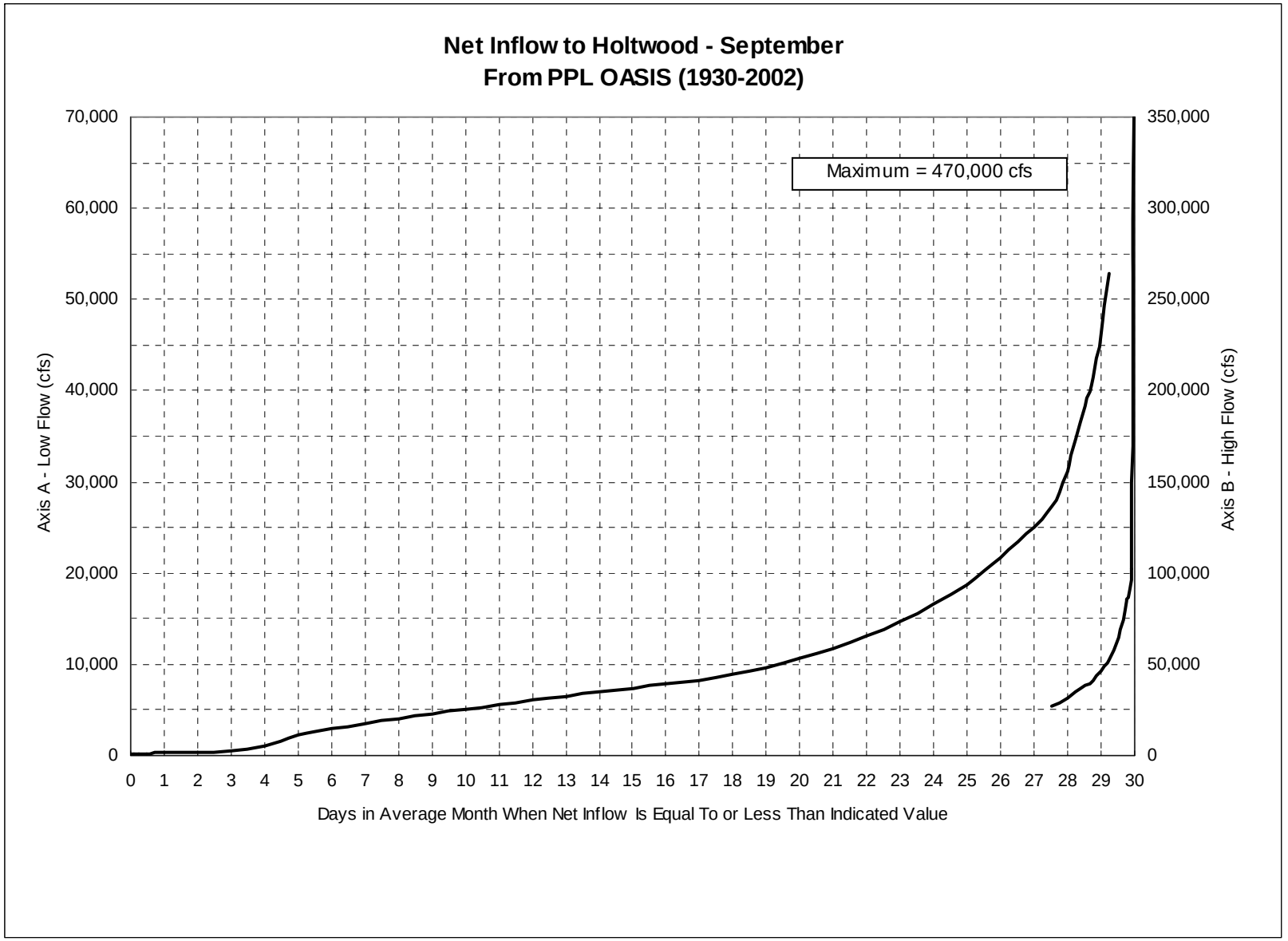

Net Inflow to Holtwood - April
From PPL OASIS (1930-2002)
Axis A - Low Flow (cfs)
Axis B - High Flow (cfs)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Days in Average Month When Net Inflow Is Equal To or Less Than Indicated Value

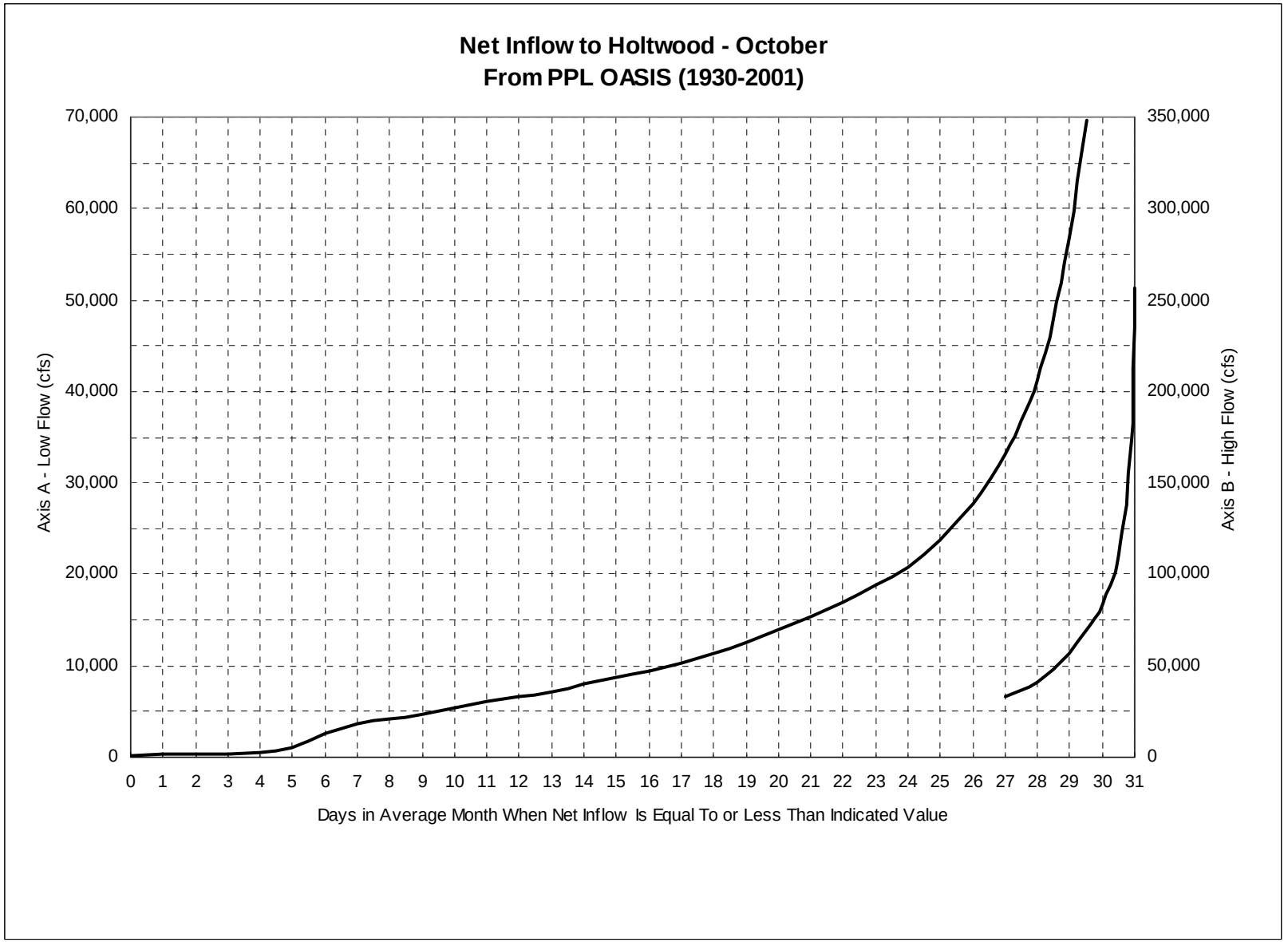

Net Inflow to Holtwood - May
From PPL OASIS (1930-2002)
Axis A - Low Flow (cfs)
Axis B - High Flow (cfs)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Days in Average Month When Net Inflow Is Equal To or Less Than Indicated Value

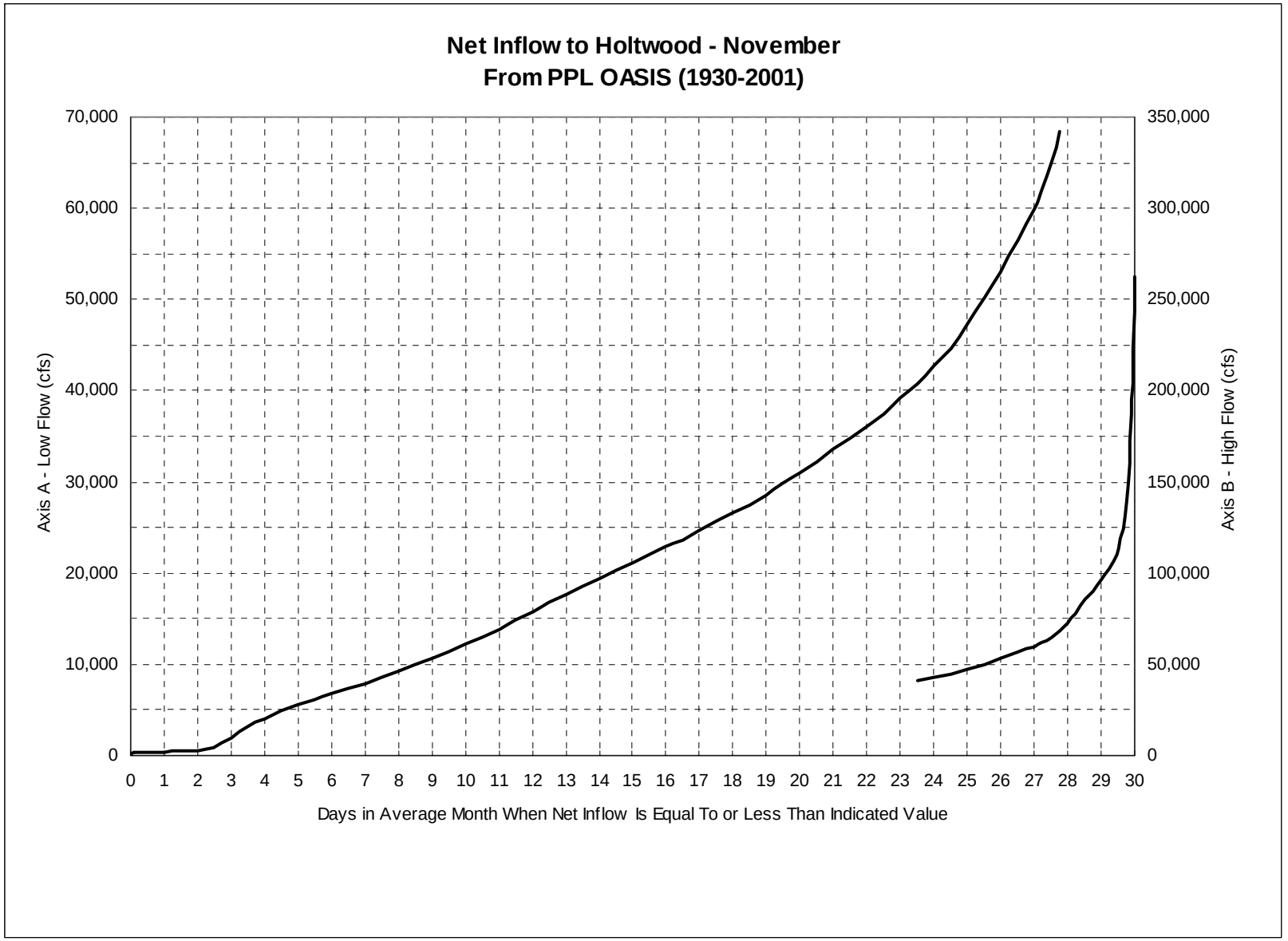

Net Inflow to Holtwood - June
From PPL OASIS (1930-2002)
Axis A - Low Flow (cfs)
Axis B - High Flow (cfs)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Days in Average Month When Net Inflow Is Equal To or Less Than Indicated Value

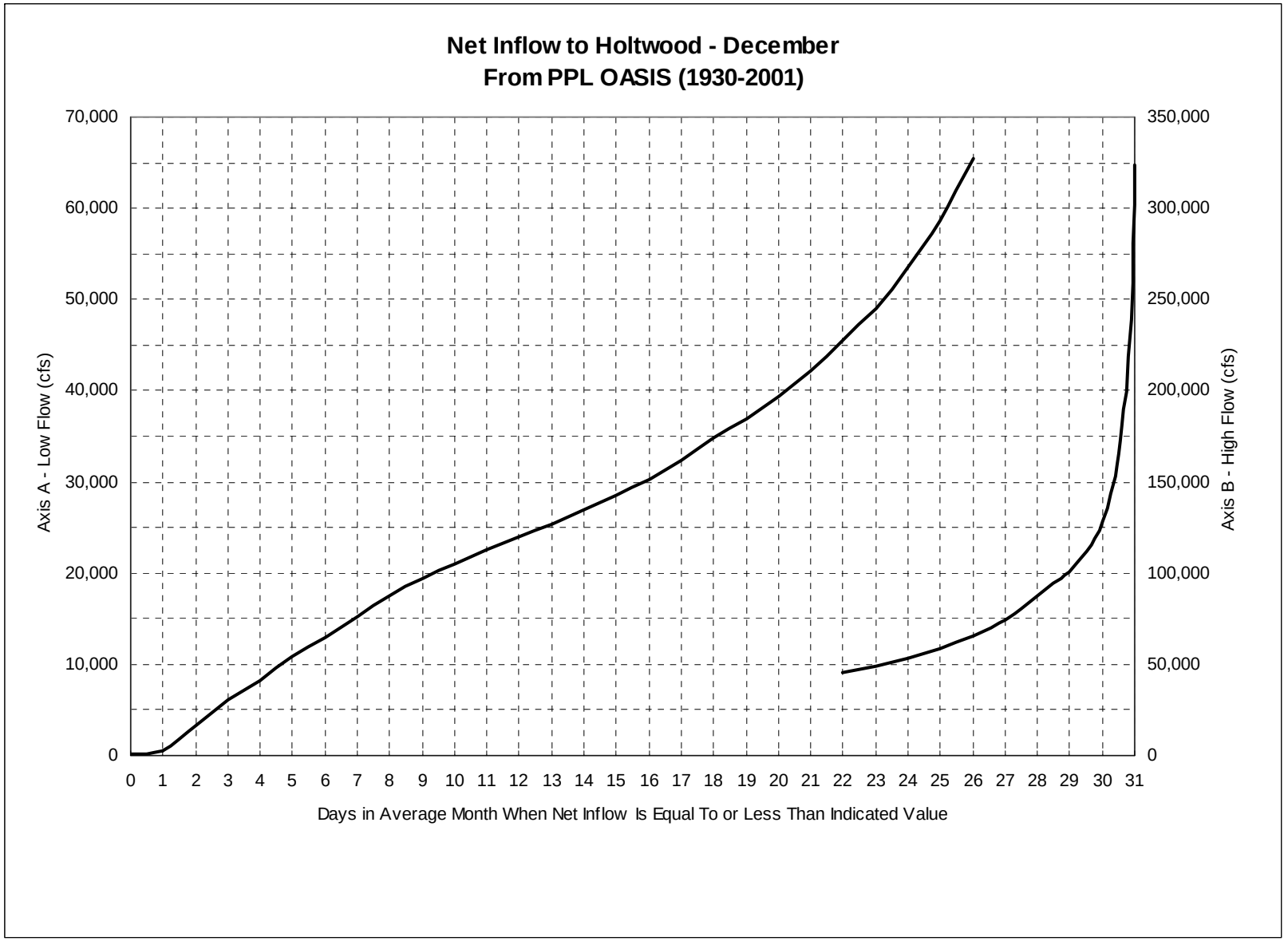

Net Inflow to Holtwood - July
From PPL OASIS (1930-2002)
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Axis A - Low Flow (cfs)
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
Axis B - High Flow (cfs)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Days in Average Month When Net Inflow Is Equal To or Less Than Indicated Value

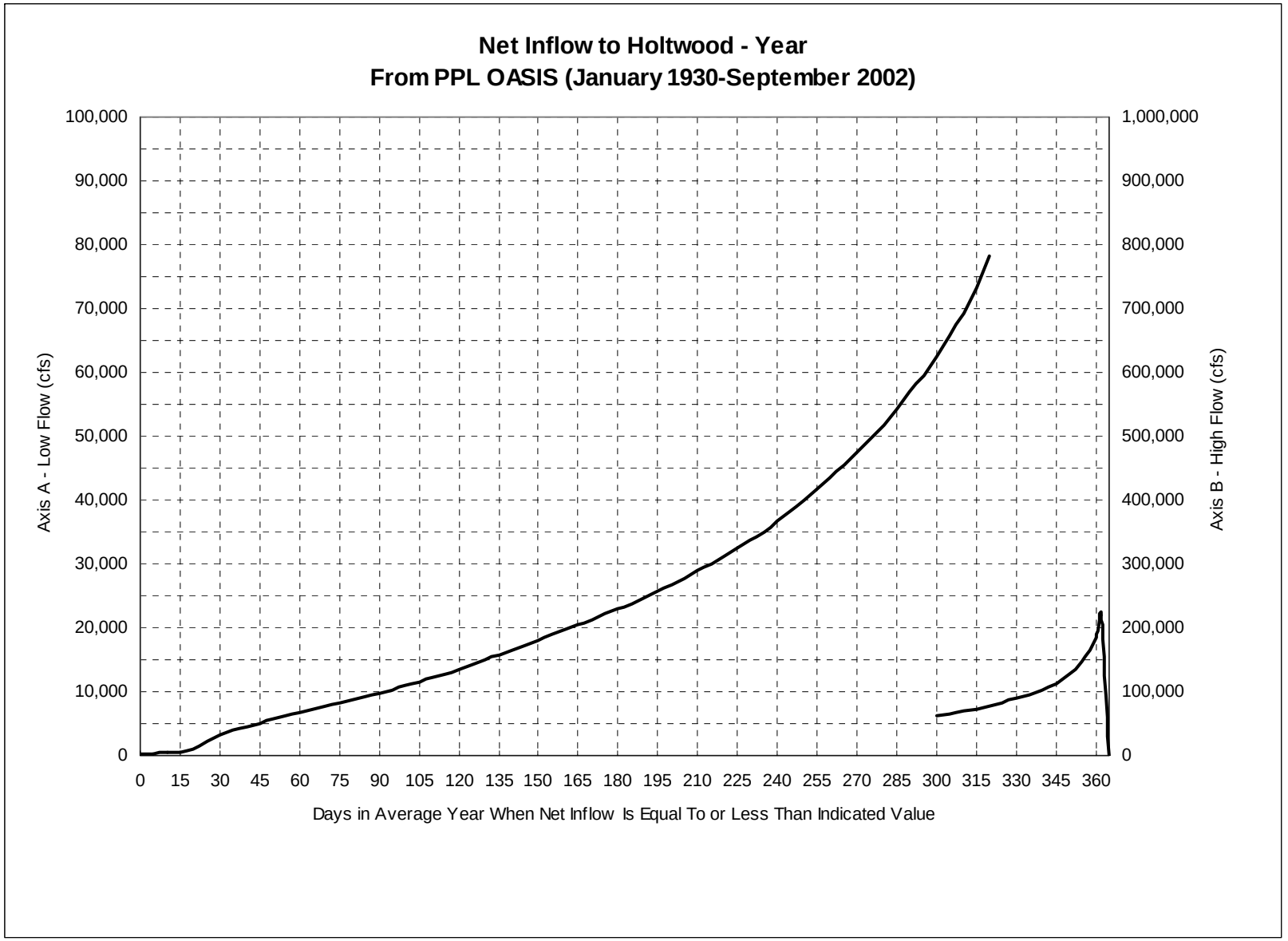

Net Inflow to Holtwood - August
From PPL OASIS (1930-2002)
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
Axis A - Low Flow (cfs)
Axis B - High Flow (cfs)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Days in Average Month When Net Inflow Is Equal To or Less Than Indicated Value


Net Inflow to Holtwood - September
From PPL OASIS (1930-2002)
Maximum = 470,000 cfs
Axis A - Low Flow (cfs)
Axis B - High Flow (cfs)
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Days in Average Month When Net Inflow Is Equal To or Less Than Indicated Value


Net Inflow to Holtwood - October
From PPL OASIS (1930-2001)
Axis A - Low Flow (cfs)
Axis B - High Flow (cfs)
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Days in Average Month When Net Inflow Is Equal To or Less Than Indicated Value


Net Inflow to Holtwood - November
From PPL OASIS (1930-2001)
Axis A - Low Flow (cfs)
Axis B - High Flow (cfs)
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Days in Average Month When Net Inflow Is Equal To or Less Than Indicated Value


Net Inflow to Holtwood - December
From PPL OASIS (1930-2001)
Axis A - Low Flow (cfs)
Axis B - High Flow (cfs)
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Days in Average Month When Net Inflow Is Equal To or Less Than Indicated Value


Net Inflow to Holtwood - Year
From PPL OASIS (January 1930-September 2002)
Axis A - Low Flow (cfs)
Axis B - High Flow (cfs)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
0 15 30 45 60 75 90 105 120 135 150 165 180 195 210 225 240 255 270 285 300 315 330 345 360
Days in Average Year When Net Inflow Is Equal To or Less Than Indicated Value