EXHIBIT B: PROJECT OPERATION

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B1.0 OVERVIEW OF PROJECT OPERATIONS

B1.1 GENERAL DESCRIPTION OF OVERALL PROJECT OPERATIONS

Chelan PUD operates the Lake Chelan Hydroelectric Project (Lake Chelan Project or Project) to optimize use of the water resources to produce electric energy while meeting flood control needs, irrigation requirements, and environmental and recreational uses of Lake Chelan. Chelan PUD proposes to continue its historical operating policy for the Lake Chelan Project with changes resulting from consultation with interested parties during the relicensing process. The operation of the Project generally includes power operation near the full installed flow capacity of the power plant on a year-round basis. This policy will be modified to the extent that inflow and storage water is available, with full consideration of needs for flood control, irrigation, recreation, municipal and domestic water supplies, fish and wildlife conservation and other beneficial uses. The Project is and will continue to be operated in accordance with all applicable FERC license requirements and the laws of the State of Washington.

The Project utilizes the waters of the Lake Chelan drainage basin. The drainage basin encompasses approximately 924 square miles, of which approximately 50 percent is above 5,500 feet in elevation. The major portion of precipitation occurring within the watershed falls in the form of snow during the months of November through March. Flows into Lake Chelan are dominated by the springtime, snowmelt runoff, which generally occurs between April 15 and July 15. Historically, the annual peak runoff occurs in early June.

B1.1.1 Reservoir Operations

Chelan PUD operates, and proposes to continue to operate, the Project reservoir between a normal maximum water surface elevation of 1,100 feet and a minimum water surface elevation of 1,079 feet. The full pool water surface elevation is at 1,098 feet. This operation assures the fullest possible utilization of the reservoir for generation of electric energy at the Lake Chelan Project while enhancing other beneficial uses of Lake Chelan. The usable reservoir storage capacity within this range of reservoir elevations is 677,400 acre-feet. The amount of water reserved for irrigation, municipal and domestic water supplies is 65,000 acre-feet. Figure B-1 shows the area-capacity curve for the reservoir. Average annual inflow to Lake Chelan is approximately 1,496,000 acre-feet (1952-1995, USGS). When the lake approaches the normal maximum water surface elevation, inflow in excess of the hydraulic capacity of the Project generating plant is discharged through the dam spillway.

The discharge from Lake Chelan is regulated to assure, with a 95-percent probability, that the reservoir will refill to the full pool water surface elevation of 1,098 feet on or before June 30 of each year. To assure this refill, the inflow potential of the snowpack within the Chelan drainage basin is determined from snow measurements taken five times a year. Measurements are made by direct field or remote measurement methods from established snow courses. Runoff predictions are also based on probability curves defined by a relationship between the historical basin precipitation and the observed reservoir inflow.

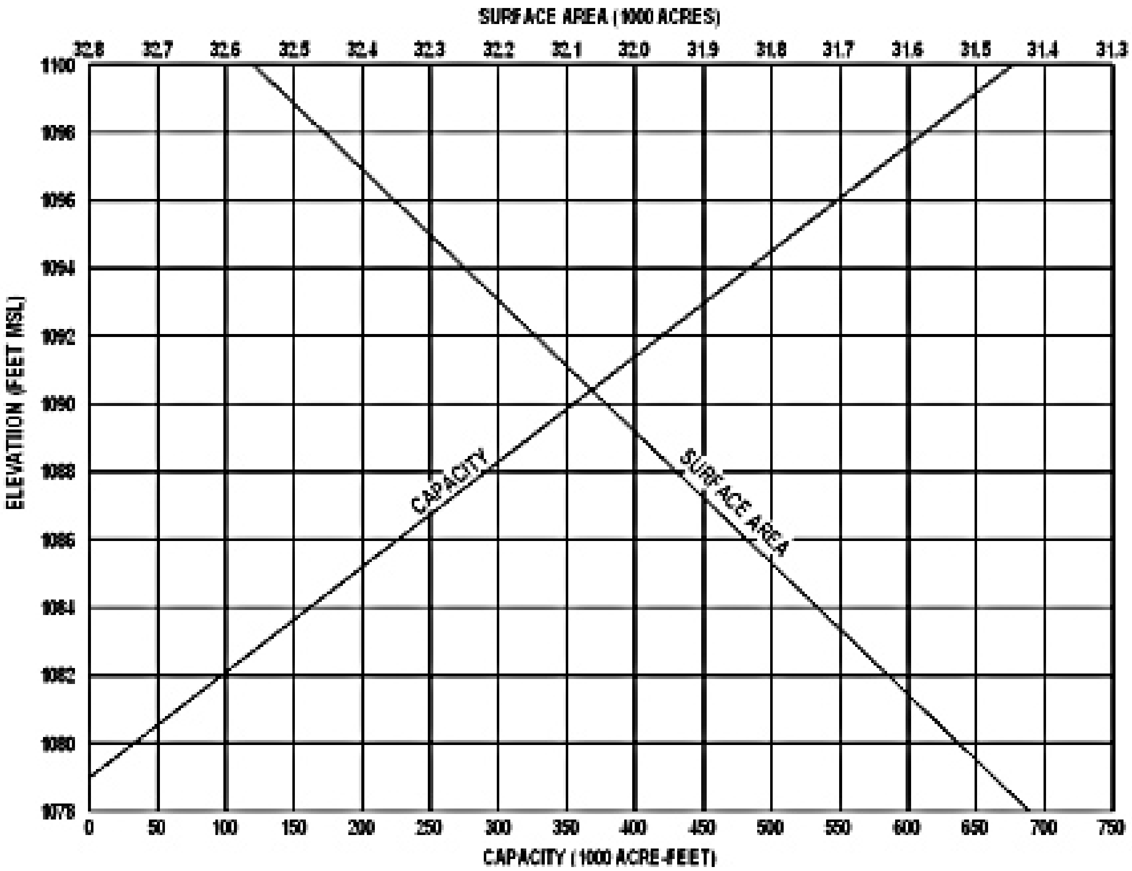

Figure B-1: Area Capacity Curve

The average minimum level of the reservoir over 43 years of operation (1952-1995) has been approximately 1,084.2 feet. Annual drawdown of the lake begins in early October as average streamflows into the lake decline from the warm summer season. From October through April, the water flow into the power tunnel at the dam typically exceeds inflows into the lake, and the reservoir elevation continues to decline. The lowest annual lake elevation normally occurs in April. From May through June, the lake refills as the spring runoff exceeds the hydraulic capacity of the power tunnel. Currently the reservoir is maintained at or above elevation 1,098 feet from June 30 through September 30 for the summer recreation season.

Table B-1 lists the historical and proposed average inflows, outflows and reservoir elevations. Changes to Project operation as a result of consultation with interested parties are described in the PDEA dated March 31, 2002, and in the Lake Level Management White Paper dated February 25, 2002. The period of 1982 to 2000 was selected for reservoir elevations because it depicts Project operation under the current FERC license. The actual daily average elevations are shown in Figure B-2.

Table B-1: Historical and Proposed Lake Levels and Flows

Month	Average Historical Inflow (cfs)	Average Outflow (cfs)		Average Lake Elevations (first of month*)	
		Historical	Proposed	Historical	Proposed
Jan	756	2,141	1,894	1,091.7	1,089.2
Feb	812	2,022	1,608	1,089.2	1,087.1
Mar	993	1,795	1,172	1,087.1	1,085.7
Apr	2,076	1,205	866	1,086.3	1,085.4
May	5,292	1,486	1,454	1,088.0	1,087.8
Jun	6,379	3,428	4,003	1,094.4	1,095.2
Jul	3,597	3,287	3,366	1,099.2	1,099.3
Aug	1,505	1,678	1,827	1,099.7	1,099.7
Sept*	759	1,587	1,637	1,099.5	1,098.9
Oct	673	1,935	2,341	1,098.3	1,097.4
Nov	1,002	2,050	2,344	1,095.8	1,094.3
Dec	882	2,104	2,144	1,094.2	1,091.8
Period of record: 1952-1995, for historical elevations, 1982-2000					

*September 1-7 (Labor Day)

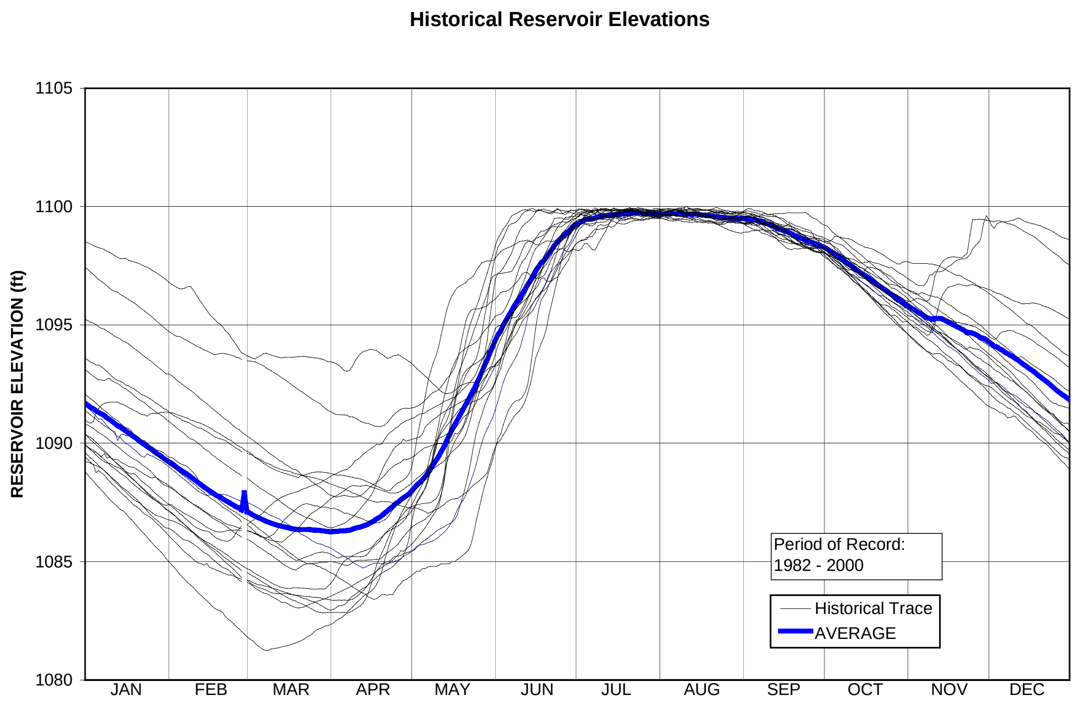

Figure B-2: Historical Reservoir Elevations (1982-2000)

Since the Project was originally licensed in 1926, the lake has never been drawn down to the minimum allowable elevation of 1,079 feet. The lowest draft of record was 1,079.68 feet in 1970. This occurred during drought conditions when the region received record low amounts of precipitation. Chelan PUD has not failed to refill the reservoir to the 1,098-foot level or above by June 30 during the current license term.

The 65,000 acre-feet of water reserved for irrigation and other purposes is removed either by pumping from the lake or through pipes from the powerhouse. There are several points at which water is pumped directly from the reservoir for irrigation, municipal water supply and other purposes. There are also two areas of orchard which are supplied irrigation water from the penstock by means of pipes joining the penstock at the powerhouse. The figure of 677,400 acre-feet is total storage between elevations 1,079 and 1,100 feet, including the amount reserved for other purposes. Most of the irrigation water is used during the months of May through September.

The use of irrigation water affects operation of the Project in two ways. The lake level is managed so that it reaches elevation 1,085 by May 15 each year so that pump intakes are able to draw water. Also, from June 30 through September 30, Chelan PUD is required to maintain the lake level at 1,098 feet or higher. During this time, whenever inflow is less than plant capacity plus irrigation needs and other uses, Chelan PUD must limit plant operations to maintain the required lake level. This typically results in some decrease in generation during the months of August and September. The amount of the decrease attributable to irrigation is unknown.

Operation of the reservoir also serves to protect shoreline property from flooding. Discharges from the reservoir through the powerplant and spillway at the Project are planned, and will continue to be planned by Chelan PUD, so that extremely high discharges through the spillway are minimized and so that the reservoir level will not exceed the normal maximum elevation of 1,100 feet except in the case of extreme flood events. Discharges in excess of approximately 12,000 to 15,000 cfs through the spillway result in erosion of the Chelan River bypassed reach (bypassed reach) below the dam. This erosion results in river channel and riverbank gravel being washed downstream by heavy flows and deposited in the area between the mouth of the bypassed reach and the confluence with the Columbia River. Chelan PUD operates the Project to limit high flows in the bypassed reach, thus limiting erosion damage in the bypassed reach.

B1.1.2 Flow control in the river

The Lake Chelan Project runs at near or full capacity almost year-round. Flows in excess of the hydraulic capacity of the powerhouse turbines of 2.3 kcfs are spilled at the dam. There currently are no minimum flow requirements at the Project.

B1.2 DESCRIPTION OF HOW PROJECT IS OPERATED IN ADVERSE, MEAN, AND HIGH WATER YEARS

Typically, snowpack determines the depth of drawdown at the Lake Chelan Project. In adverse years (low in flow), drawdown is curtailed to assure refill of the lake in time for the summer recreation season. On average in high water years, the powerhouse is operated at or near capacity during the spring refill season to minimize spills. Generally spill, if any, occurs in June or July.

B1.3 MINIMUM, AVERAGE AND MAXIMUM DAILY FLOWS FOR CHELAN RIVER

The minimum, average and maximum daily flows for the Chelan River are 0 cfs, 2,041 cfs and 18,400 cfs, respectively. These flows, calculated values provided by Chelan PUD since Project development, were recorded as USGS Gage No. 12452500, Chelan River at Chelan, Washington. The data includes powerhouse releases as well as spill from the dam.

B1.4 FLOW DURATION CURVE

Annual and monthly flow duration curves for the period 1952-1995 are shown on Figure B-3 through Figure B-15.

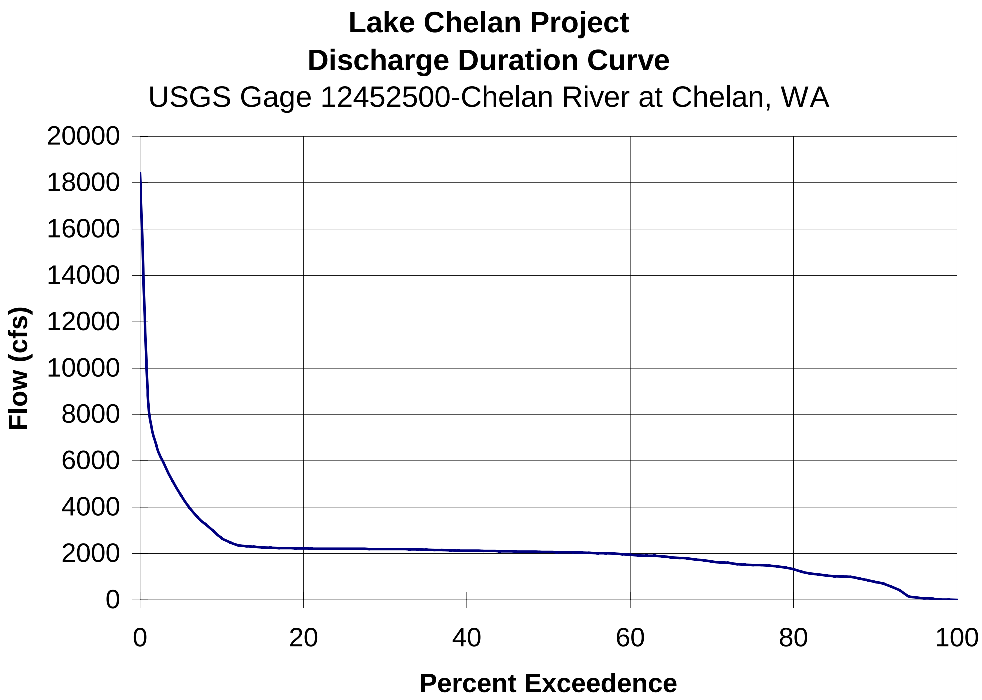

Figure B-3: Annual Flow Discharge Duration Curve

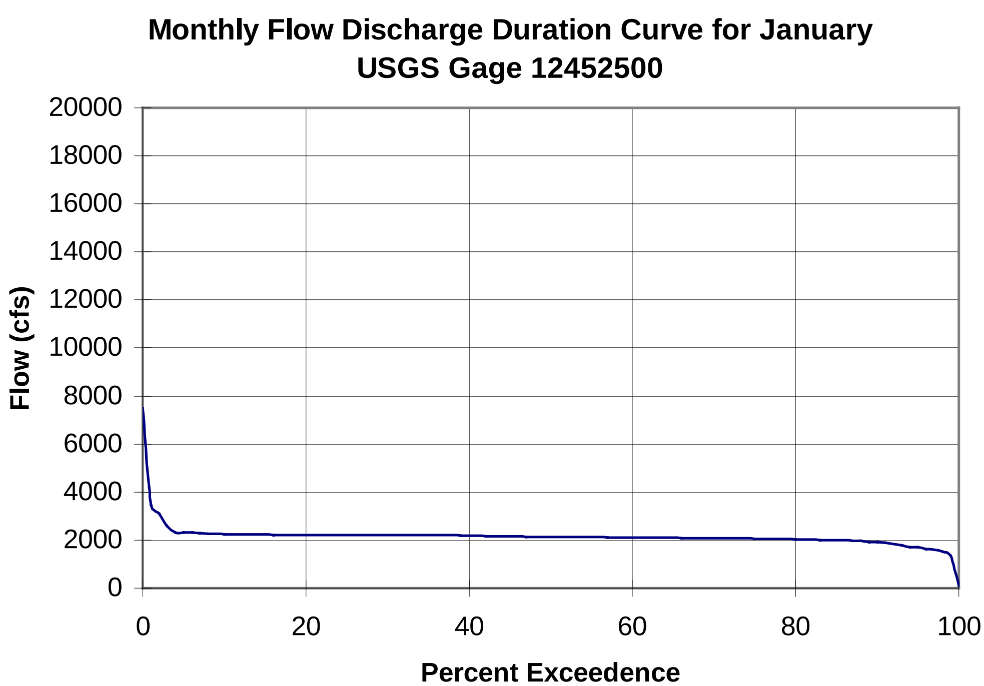

Figure B-4: Monthly Flow Discharge Duration Curve for January

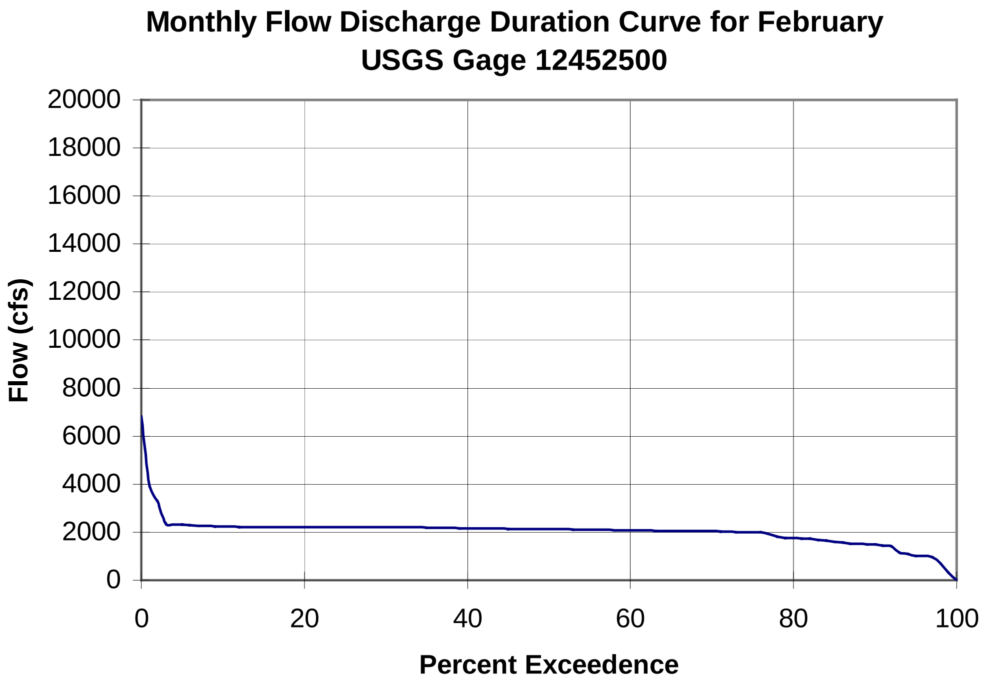

Figure B-5: Monthly Flow Discharge Duration Curve for February

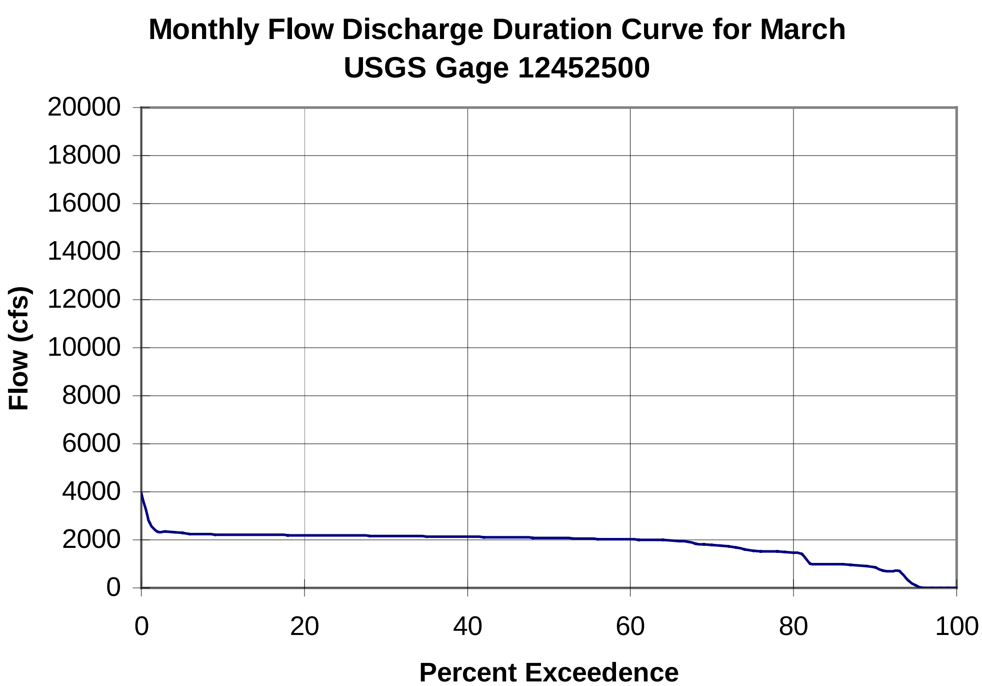

Figure B-6: Monthly Flow Discharge Duration Curve for March

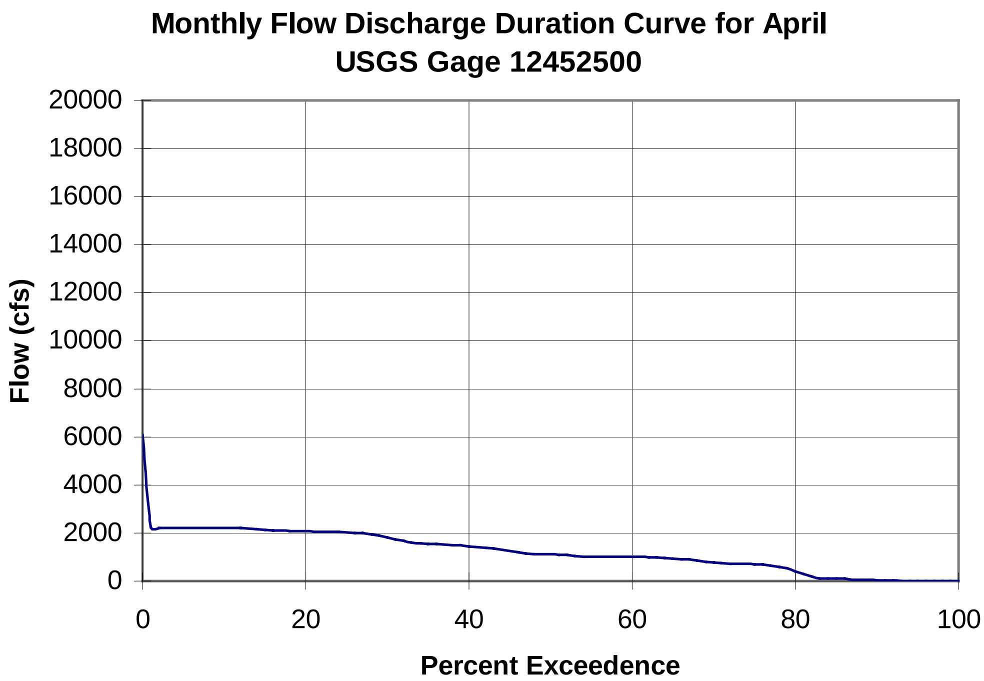

Figure B-7: Monthly Flow Discharge Duration Curve for April

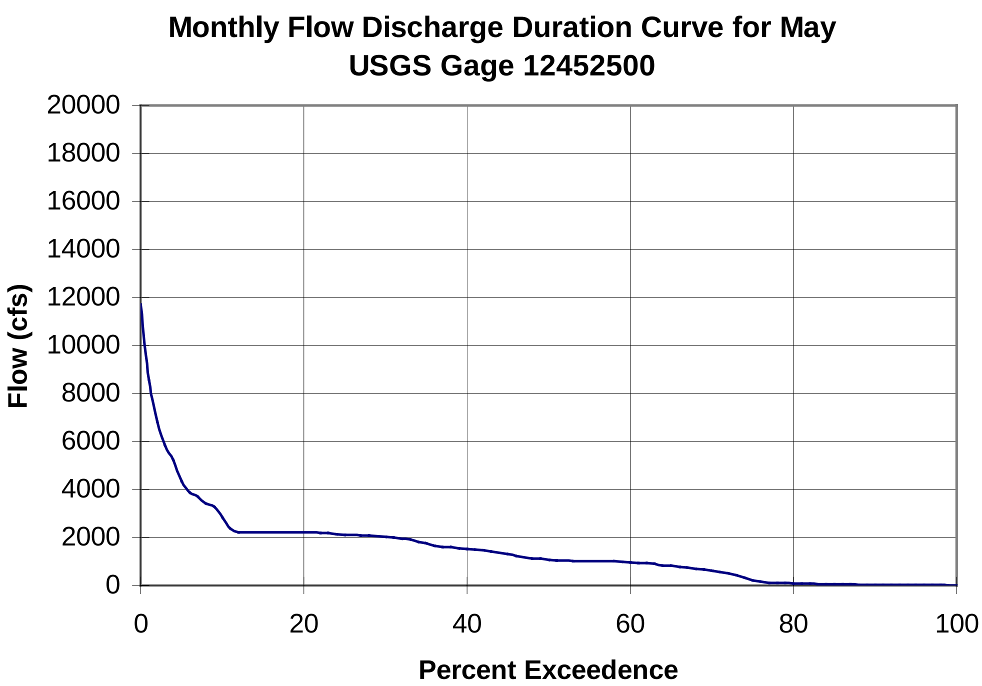

Figure B-8: Monthly Flow Discharge Duration Curve for May

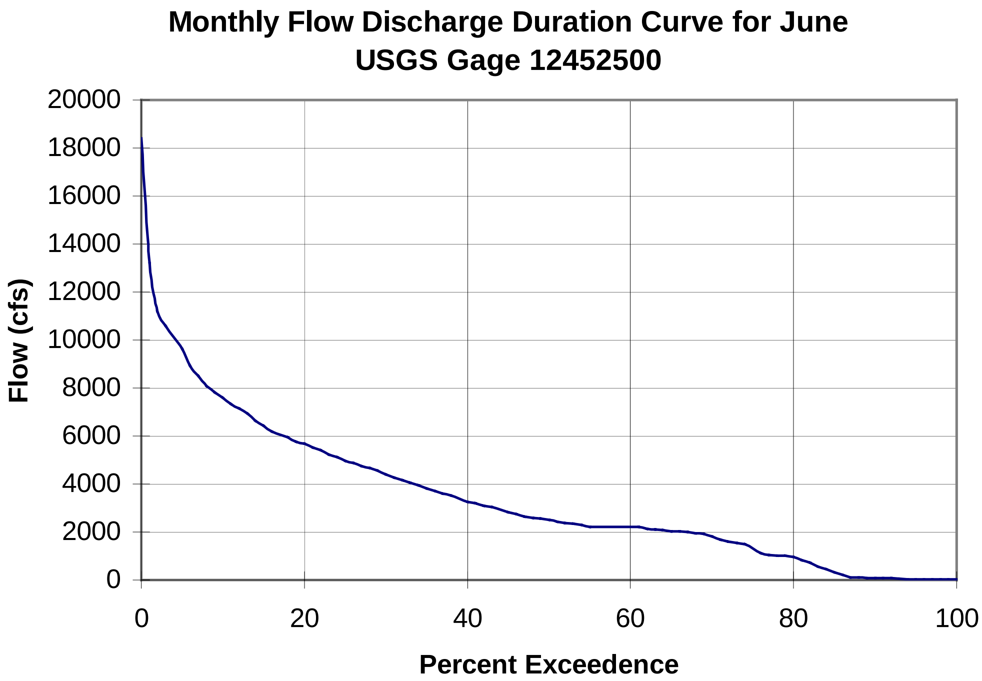

Figure B-9: Monthly Flow Discharge Duration Curve for June

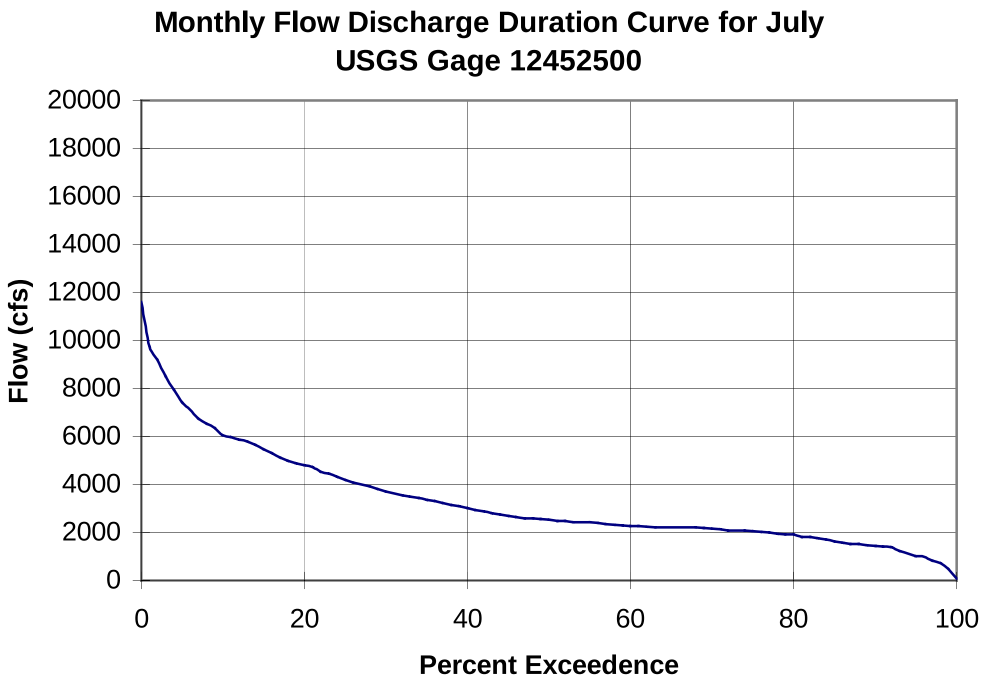

Figure B-10: Monthly Flow Discharge Duration Curve for July

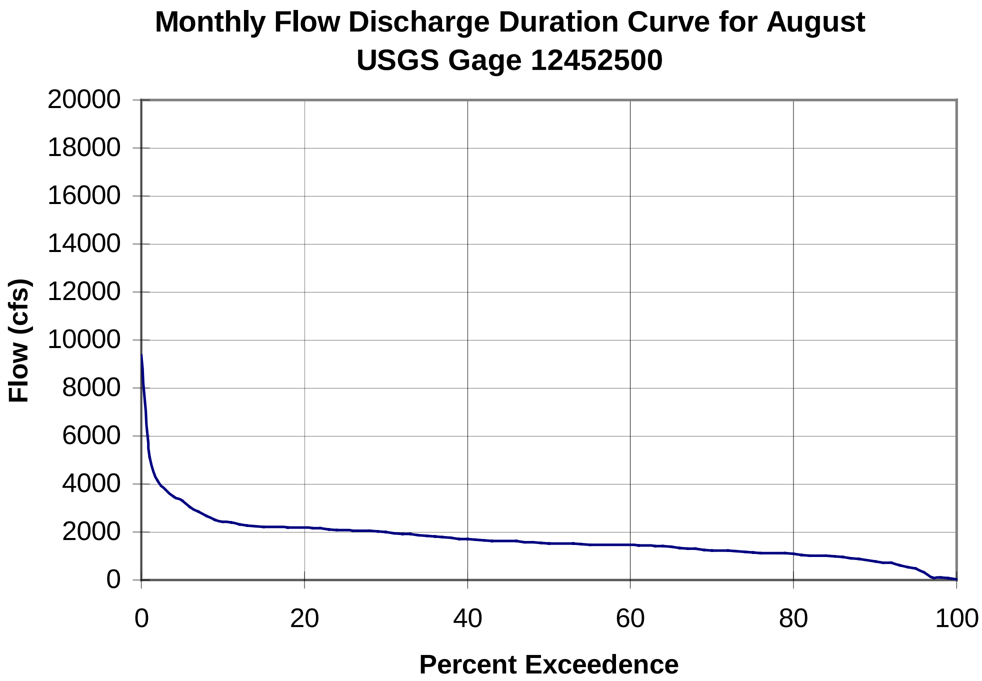

Figure B-11: Monthly Flow Discharge Duration Curve for August

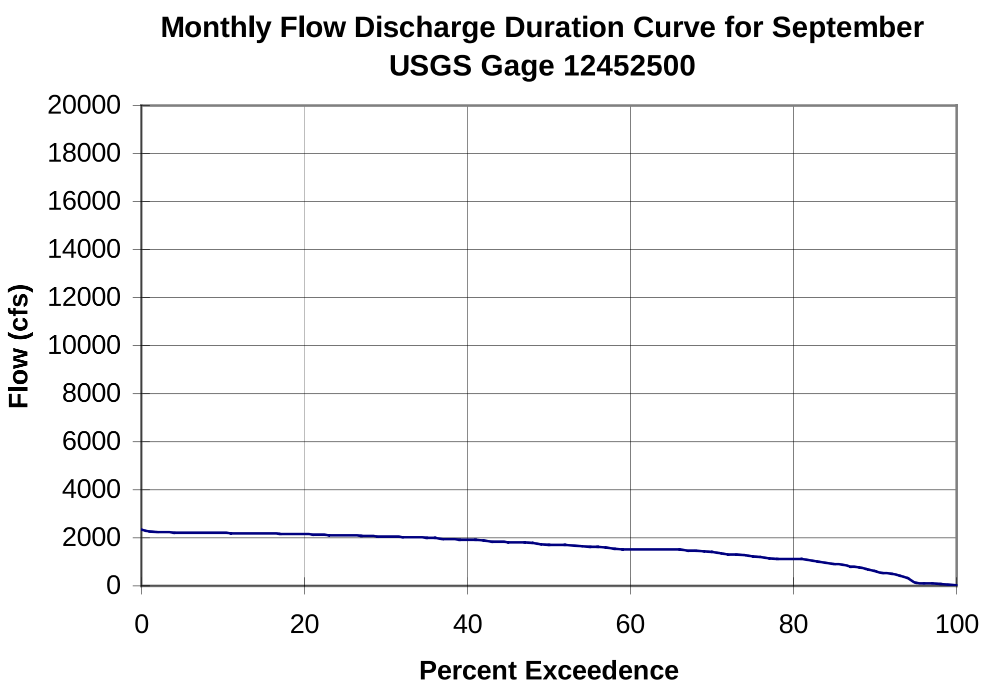

Figure B-12: Monthly Flow Discharge Duration Curve for September

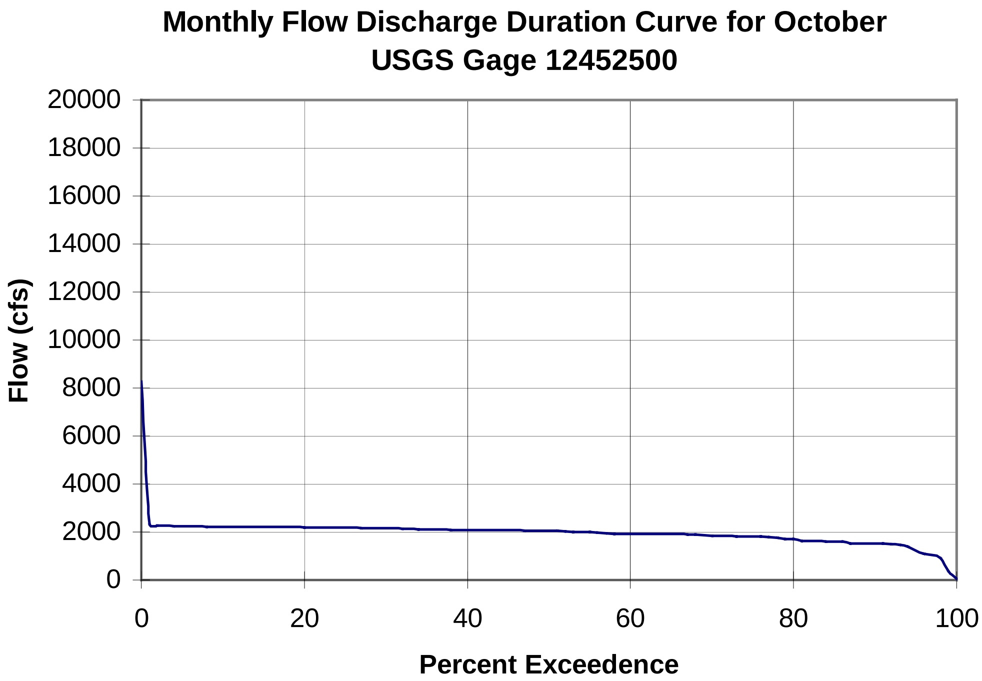

Figure B-13: Monthly Flow Discharge Duration Curve for October

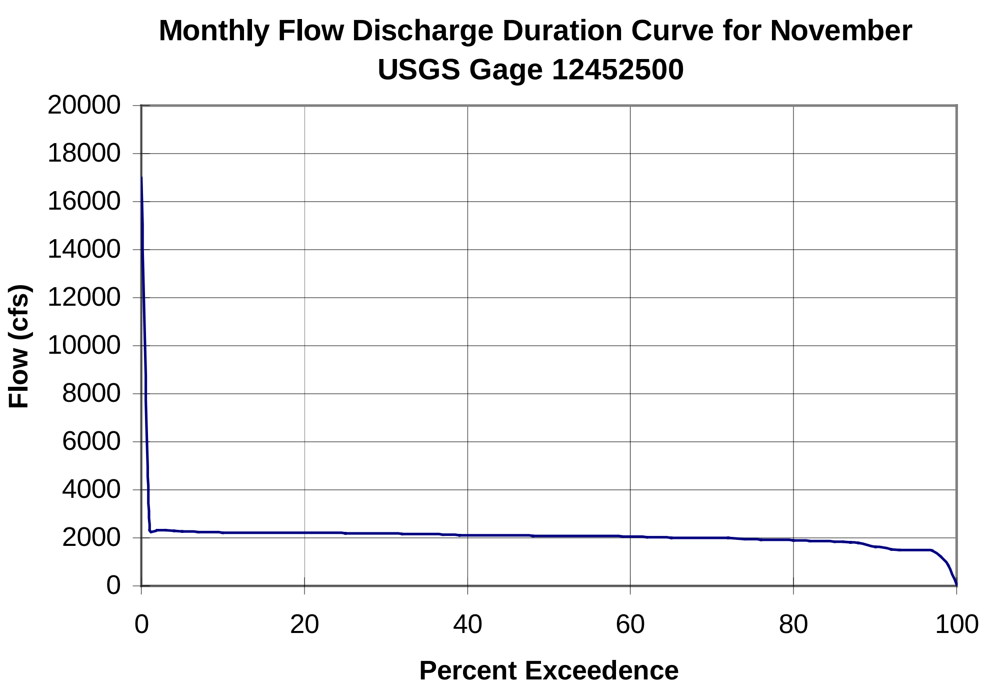

Figure B-14: Monthly Flow Discharge Duration Curve for November

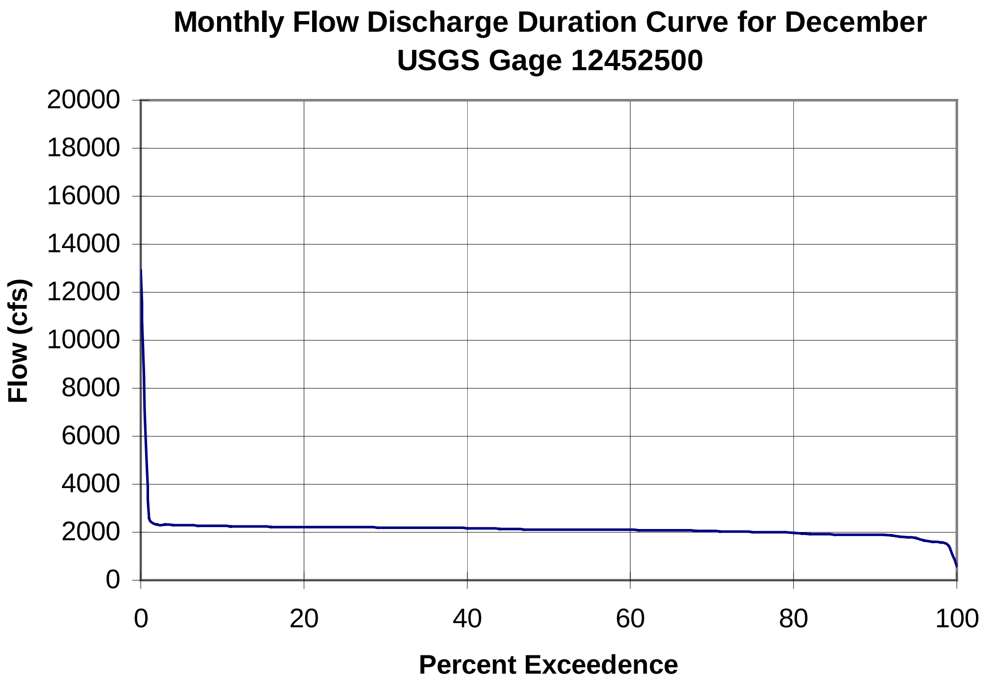

Figure B-15: Monthly Flow Discharge Duration Curve for December

B2.0 RESOURCE UTILIZATION

B2.1 DESCRIPTION OF PLANT CONTROL

As described in Exhibit A, the Lake Chelan Project can be operated by local manual control or remotely from Chelan PUD's Wenatchee dispatch center.

B2.2 ESTIMATE OF ANNUAL PLANT FACTOR

The annual plant factor for the Project is approximately 93 percent for the period 1988 to 1997.

B2.3 ESTIMATE OF DEPENDABLE CAPACITY

An estimate of dependable capacity for the Lake Chelan Project is 57.5 MW, based on the average lake elevation of 1,090 feet during the month of January, which is typically the period during which the peak loads occur.

B2.4 ESTIMATE OF ANNUAL ENERGY PRODUCTION

The average annual energy produced at the Project for 20 years (1980-1999) is 380,871 MWh. This equals an average generation of 43.45 MW. Table B-2 lists the annual generation from 1980 through 1999.

Table B-2: Historical Average Annual Generation

Year	Generation (MWh)	Year	Generation (MWh)
1980	369,245	1990	433,872
1981	381,794	1991	462,834
1982	414,522	1992	359,240
1983	411,777	1993	292,018
1984	407,271	1994	320,423
1985	310,144	1995	395,336
1986	313,555	1996	439,493
1987	376,380	1997	451,559
1988	343,209	1998	272,192[1]
1989	407,488	1999	455,072
20-Year Average 380,871 MWh			

[1] Units out of production during turbine valve replacement.

B2.5 ESTIMATED HYDRAULIC CAPACITY OF THE POWERHOUSE

The maximum hydraulic capacity of the powerhouse is 2.3 kcfs when both units are running at full gate.

B2.6 TAILWATER RATING CURVE

The tailwater elevation at the Lake Chelan Project is determined by the backwater from the Rocky Reach Hydroelectric Project dam (FERC No. 2145) and the Columbia River flow. The powerhouse tailrace channel combines with the Chelan River for a short distance before entering the Columbia River. The hydraulic loss due to maximum discharge through the powerhouse in the tailrace channel is insignificant. Therefore, rating curves of the Columbia River at the mouth of the Chelan River are utilized as the tailwater curves for the Lake Chelan Project. Backwater computations were made for various flows and forebay elevations of the Rocky Reach Hydroelectric Project to arrive at the rating curves of the Columbia River at the tailrace channel of the Lake Chelan Project. The tailwater rating curves are shown in Figure B-16.

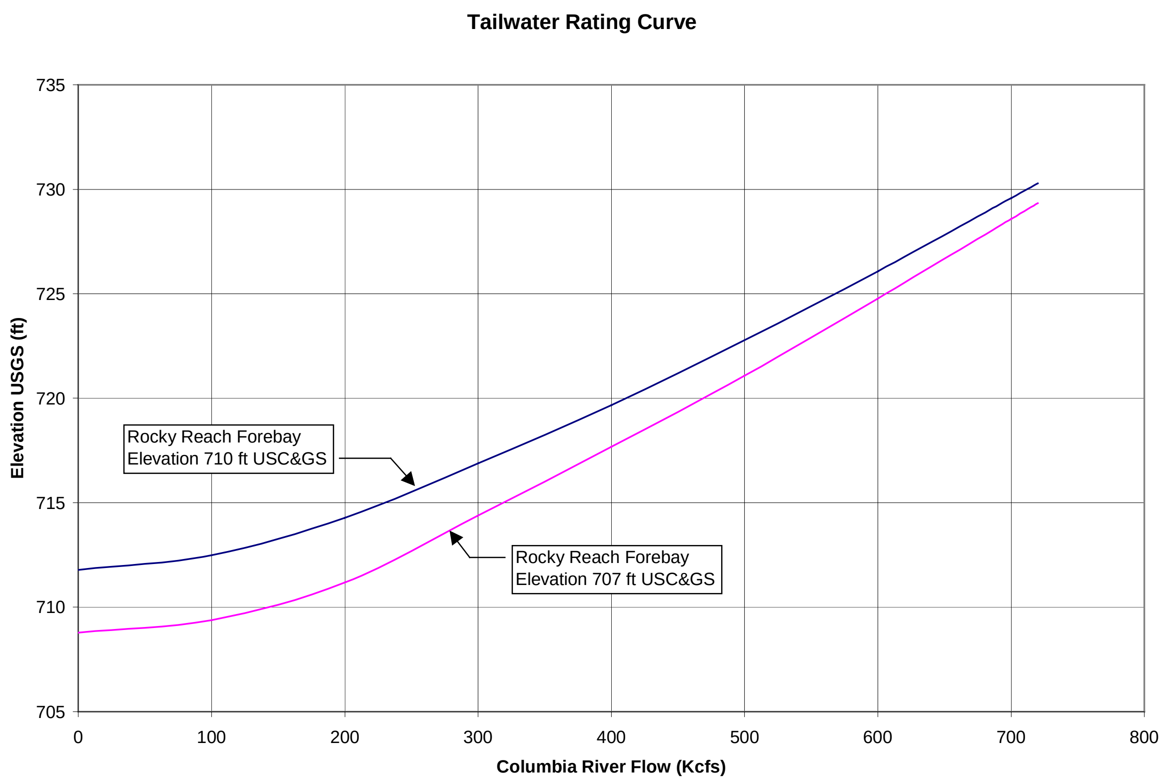

Figure B-16: Tailwater Rating Curve

B2.7 POWERPLANT MAXIMUM CAPABILITY CURVE

Figure B-17 shows the powerplant maximum capability versus gross head.

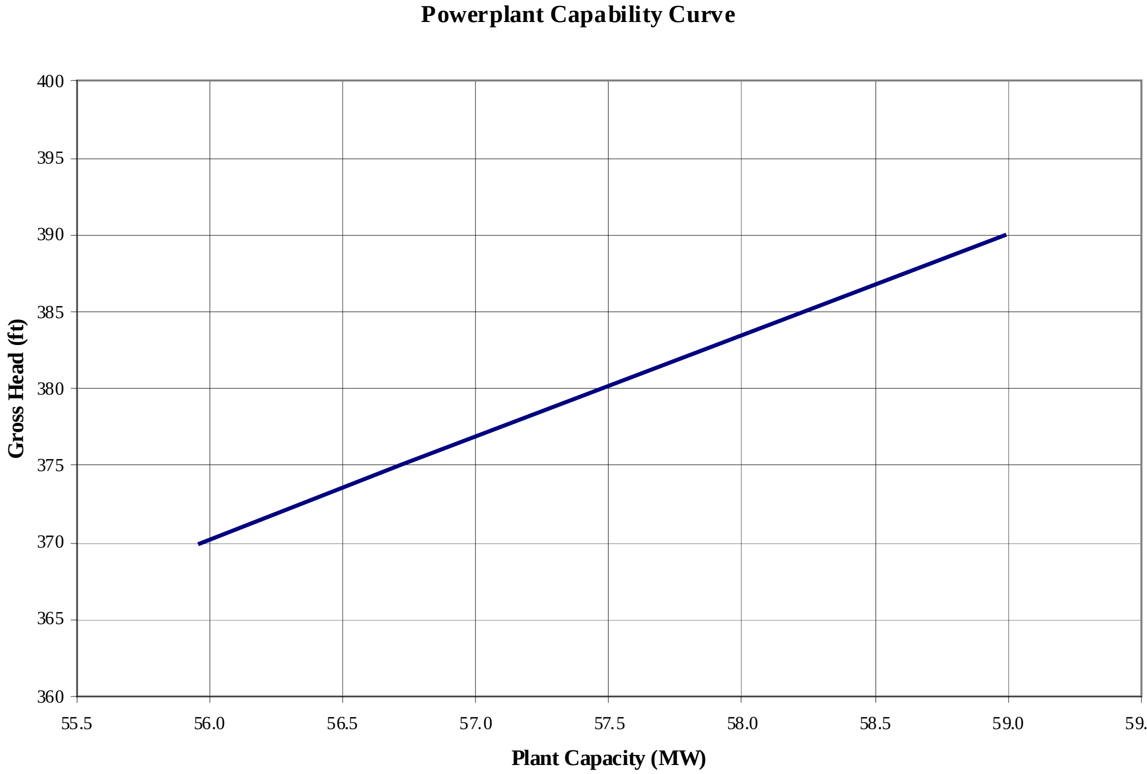

Figure B-17: Powerplant Capability Curve

B3.0 POWER UTILIZATION

The power generated at the Project is utilized by Chelan PUD in its own electric system within Chelan County. Transmission facilities deliver power from the Project to Chelan PUD's loads in Chelan County and interconnect the Project with Chelan PUD's two other FERC-licensed hydroelectric projects, Rocky Reach (FERC No. 2145) and Rock Island (FERC No. 943). Transmission lines also connect the Project with the interconnected northwest grid. Transmission lines are not considered a Project feature because power from the Project is comingled with power from other sources as soon as it leaves the substation.

B4.0 PROPOSED DEVELOPMENT

The dam and powerhouse were originally designed for the possible future expansion of two more units. Expansion of the Project has been studied four times (1960, 1970, 1975, 1994, 1998) but is currently still not economically feasible.