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Attorney for the City of Pocatello

**IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT  
OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS**

|                |   |                                               |
|----------------|---|-----------------------------------------------|
| In Re SRBA     | ) | Consolidated Subcase No. 00-92023             |
|                | ) | (Basin-Wide Issue 92-23)                      |
|                | ) |                                               |
| Case No. 39576 | ) | <b>AFFIDAVIT OF GREGORY K. SULLIVAN, P.E.</b> |
|                | ) | <b>IN SUPPORT OF THE CITY OF POCA TELLO'S</b> |
|                | ) | <b>RESPONSE TO THE STATE OF IDAHO AND</b>     |
|                | ) | <b>IDAHO POWER COMPANY'S JOINT</b>            |
|                | ) | <b>MOTIONS DATED JUNE 25, 2009</b>            |

I, Gregory K. Sullivan, being duly sworn upon oath, depose and state as follows:

1. I am a senior water resources engineer and principal of Spronk Water Engineers, Inc. located in Denver, Colorado. I have a Bachelor of Science Degree in Civil Engineering from Colorado State University, and a Master of Science Degree from the University of Colorado. I am a licensed professional engineer in Idaho, Colorado, and Nevada.
2. I have 24 years experience as an engineer working in areas of water supply planning, water resources engineering, and water rights engineering. I have worked in Idaho for 15 years on various matters including the following:
  - a. Assisted in the development of water right claims in the Snake River Basin Adjudication ("SRBA").
  - b. Reviewed and assisted in filing objections to various water right claims in the SRBA.
  - c. Provided peer review of the development and application of the Eastern Snake Plain Aquifer Model ("ESPAM") as a member of the Eastern Snake Hydrologic Modeling Committee.
  - d. Assisted legal counsel in developing and reviewing the Idaho Conjunctive Management Rules.

- e. Assisted the City of Pocatello ("Pocatello") in responding to surface water delivery call by the members of the Surface Water Coalition. This included providing expert testimony in an IDWR administrative hearing in January 2006.
  - f. Provided expert testimony in February and March 2007 on behalf of the City of Pocatello before the SRBA Court in support of the City's water right claims
  - g. Assisted the City of Pocatello in responding to a ground water delivery call by the A&B Irrigation District. This included providing expert testimony in an IDWR administrative hearing in December 2008.
3. My experience includes extensive work on matters related to administration of surface water rights and ground water rights, including the following:
    - a. Development and operation of the Hydrologic-Institutional Model of the Arkansas River Basin in Colorado. The model was developed to support the State of Kansas' claims against the State of Colorado relating to post-compact well development in violation of the Arkansas River Compact. The model has been adopted by the States and the U.S. Supreme Court as the tool for determining Arkansas River Compact compliance.
    - b. Review and analysis of Idaho's Water District 01 accounting procedures and accounting records, including direct flow water uses and reservoir storage operations.
    - c. Review and analysis of water use, water accounting and reservoir operation records in various river basins in Colorado.
  4. I have been retained by Pocatello to provide expert analysis and opinion in the fields of water resources, water rights engineering, and related subjects concerning the SRBA claims of the Idaho Power Company ("Idaho Power"), and the administration of the Swan Falls Agreement.
  5. I have reviewed the June 25, 2009 Joint Motions and the August 27, 2009 Joint Memorandum of the State and Idaho Power regarding entry of partial decrees for hydropower water rights that are affected by the terms of the Swan Falls Agreement.
  6. The State and Idaho Power have agreed on proposed language to be included in the "Other Provisions" section of the partial decrees of Idaho Power's hydropower water rights regarding the subordination of these hydropower water rights under the terms of the Swan Falls Agreement. The proposed language reads as follows:

1. Water right nos. 02-00100, 02-02032A, 02-04000A, and 02-04001A collectively entitle Idaho Power Company to an unsubordinated water right, except as provided in paragraph nos. 3 and 4 below, to average daily flows of 3900 CFS from April 1 to October 31 and 5600 CFS from November 1 to March 31 as measured at the "Murphy Gaging station" described below in paragraph no. 2. These flows are not subject to depletion, except for depletions caused by the lawful exercise of those water rights identified in paragraph nos. 3 and 4 below, and except for depletions resulting from any diversions or uses of the waters identified in paragraph 5 below. Water right nos. 02-00100, 02-02032A, 02-04000A, and 02-04001A are satisfied when the average daily flows set forth herein are met or exceeded. Average daily flow, as used herein, shall be based upon actual flow conditions; thus, any fluctuations resulting from the operation of Idaho Power Company facilities shall not be considered in the calculation of such flows. Flows of water purchased, leased, owned or otherwise acquired by Idaho Power Company from sources upstream of its power plants, including above Milner Dam, and conveyed to and past its plants below Milner Dam shall be considered fluctuations resulting from the operation of Idaho Power Company facilities.

7. The "Other Provisions" language in the proposed partial decrees for Idaho Power's hydropower water rights does not provide sufficient guidance on how the adjustments to the "actual" flow at the Murphy gage will be made to remove "fluctuations resulting from the operation of Company facilities."
8. There are many factors that would need to be considered in adjusting the Murphy gage flows to account for the "fluctuations resulting from the operation of the Company facilities," including the following:
  - a. Measured flow at the Murphy gage.
  - b. Idaho Power releases of stored water and rentals of water that are present at the Murphy gage.
  - c. Fluctuations in the flow at the Murphy gage caused by the operations of the reservoirs of Idaho Power located between Milner Dam and the Murphy gage.
9. Data needed in order to properly and accurately adjust the Murphy gage flows include the following:
  - a. Daily Snake River flows at the Murphy gage, the Milner gage and at other gages.
  - b. Releases from the Idaho Power storage account, and releases of water rented by Idaho Power.
  - c. The amounts of the Idaho Power storage releases and rentals that are present in the Snake River at Milner gage flows.

- d. Data that could be used to determine the time delay, attenuation of flows, and transit loss that would affect the delivery of Idaho Power storage releases and rentals from Milner Dam to the Murphy gage.
  - e. Data to determine the measured inflows, outflows, change in storage, and losses from Idaho Power's reservoirs between Milner and the Murphy gage.
10. IDWR compiled data relevant to the administration of the minimum flows in the Swan Falls Agreement for the period from 1981 through 2008. This included the following:
- a. Daily streamflow records for the Snake River near Murphy (Gage No. 13172500), and the Snake River at Milner (Gage No. 13088000).
  - b. The actual or estimated portion of the flow in the Snake River at Milner that is comprised of (a) water released from Idaho Power's reservoir storage account, (b) release of water rented by Idaho Power from others, (c) flood control releases by the Bureau of Reclamation ("BOR"), and (d) flow augmentation releases by the BOR. These are the only factors for which IDWR provided data, although the flow in the Snake River at Milner could also be comprised of other flows, including natural flow and other rentals.

The foregoing data was presented at a May 14, 2009 IDWR workshop on Swan Falls Flow Measurement, and was made available on the IDWR website.

11. The procedure used by IDWR to adjust the Murphy gage flows is rudimentary and does not consider the following:
- a. The time delay, attenuation of flows, and transit loss that would affect the delivery of Idaho Power storage releases and rentals from Milner Dam to the Murphy gage.
  - b. The effect of the operation of Idaho Power's reservoirs between Milner and the Murphy gage, including reservoir inflows and outflows, changes in reservoir storage, and reservoir evaporation.

Had a more sophisticated procedure been utilized to determine the effect of the Idaho Power operations on the Murphy Gage flows, it is possible that a violation of the Swan Falls minimum flow could have been determined during the historical period between 1981 and 2008.

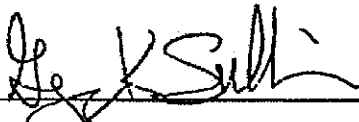
12. I have reviewed and summarized the Snake River flow data compiled by IDWR as shown in the charts attached hereto as **Attachment A**. Included in **Attachment A** are charts showing the reported average daily flow at the Snake River near Murphy gage, the reported average daily flow at the Murphy gage adjusted to remove the estimated portion of the flow represented by the factors

listed in paragraph 10.b above. The adjustment to the Murphy gage flows was made by subtracting the referenced flows at the Milner gage, lagged by two days. This is the same time lag that was used by IDWR in their adjustment of the Murphy gage flows.

13. Using the IDWR data, the Murphy gage flow, adjusted for all of the factors listed in paragraph 10.b, fell below the minimum flows in the Swan Falls agreements on one day in 1988, two days in 2007 and three days in 2008. Using the IDWR data and limiting the Murphy gage adjustments to only the Idaho Power storage releases and rentals, there is only one day during the 1981 – 2008 period that the adjusted Murphy gage flow fell below the Swan Falls minimum flows. This occurred in December 1997 (water year 1998) and appears to be a one-day dip in the flow likely caused by an Idaho Power operational fluctuation. Assuming this is the case, then the occurrence in December 1997 would not represent a violation of the Swan Falls minimum flows.
14. While the IDWR data show no violations of the Swan Falls minimum flows during the historical period from 1981 – 2008, the adjusted flows approached the minimum flows on several occasions. These approaches to the minimum flows coupled with the absence of transparent, comprehensive, and accurate data and procedures create problems for consistent administration of the Idaho Power water rights and Swan Falls minimum flows.
  - a. Had there been more comprehensive and accurate data through 2008 it is possible the Swan Falls minimum flows could have been violated in the past.
  - b. The use of comprehensive and accurate data going forward could result in violations of the Swan Falls minimum flows in the future for flow conditions that resulted in no violations through 2008.
  - c. In addition to these data regarding determination of “actual flow conditions,” it is possible the Swan Falls minimum flows could be violated in the future based on (a) the occurrence of more severe drought conditions, or (b) continued changes in water use practices across the Eastern Snake Plain.
15. Because of the potential for violations of the Swan Falls minimum flows in the future, it is important that an accurate and transparent procedure be developed to administer the Swan Falls minimum flows so that future disagreements regarding the administration are minimized.

I hereby certify that the facts set forth above are true and correct to the best of my information and belief.

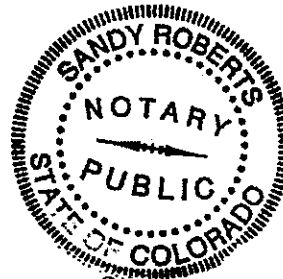
Dated this fifth day of October, 2009.

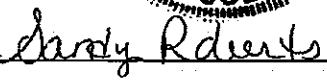
  
\_\_\_\_\_  
Gregory K. Sullivan, P.E.

Subscribed and sworn to before me this fifth day of October 2009, by Gregory K. Sullivan, P.E.

Witness my hand and official seal.

My commission expires: 3.10.2011

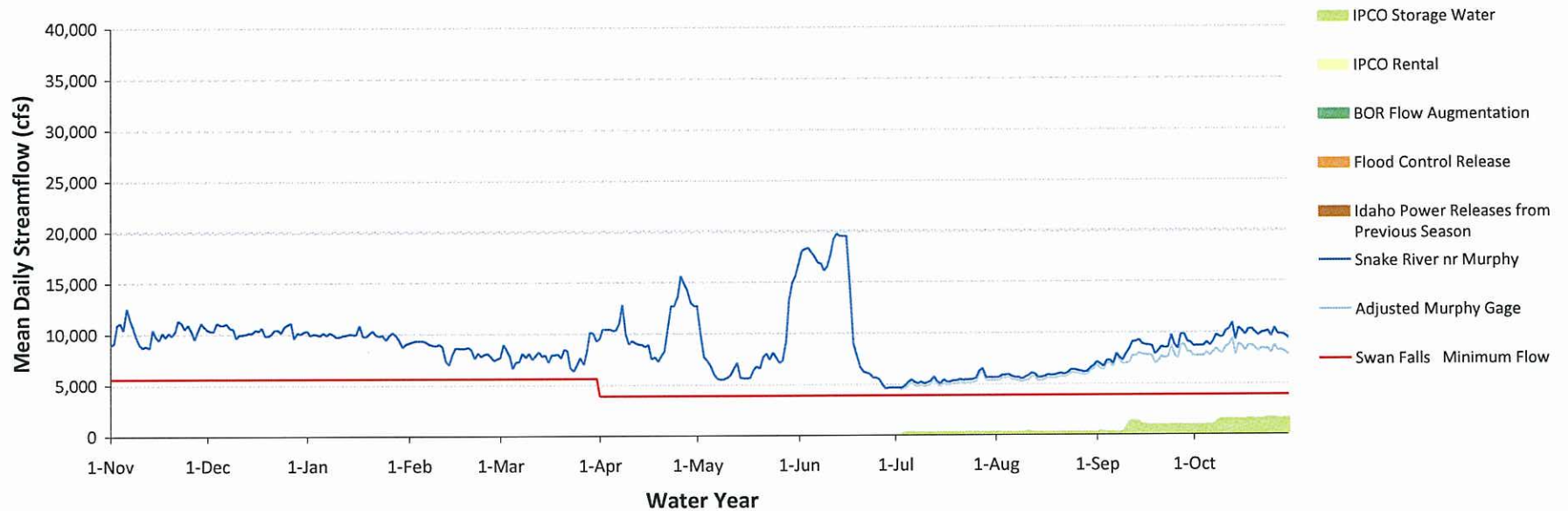


  
\_\_\_\_\_  
Notary Public

# **Attachment A**

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**1981**



Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Darr
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 43,832, Idaho Power Rental = 125,000
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

# Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

1982



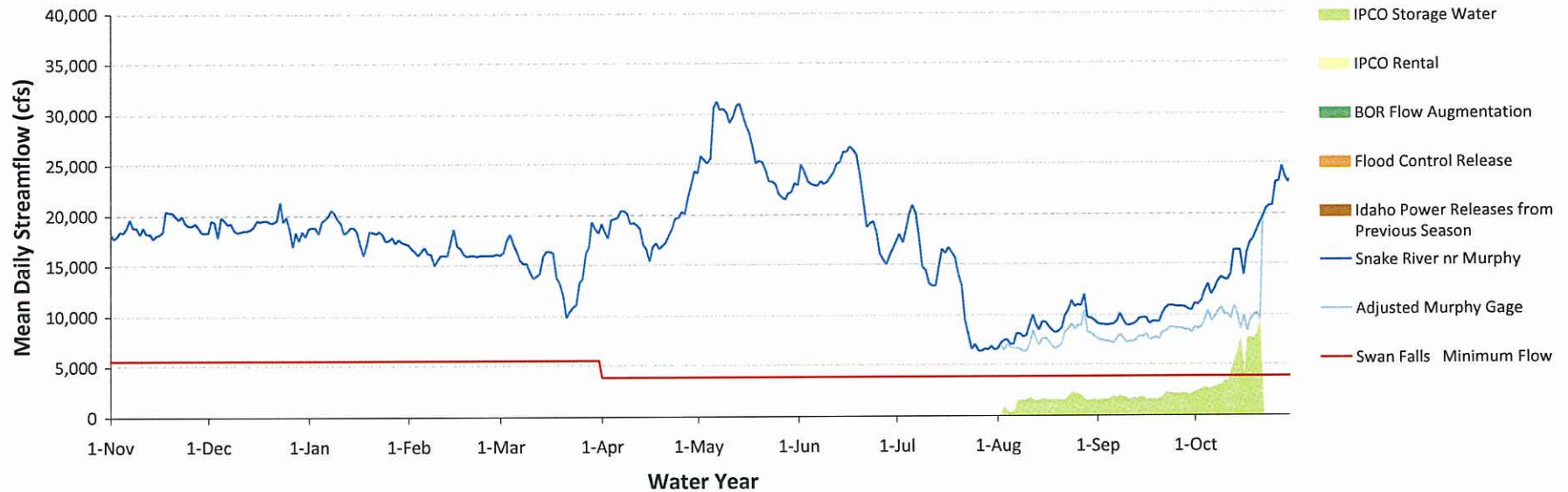
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

## Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 44,059, Idaho Power Rental = 200,000
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**1983**



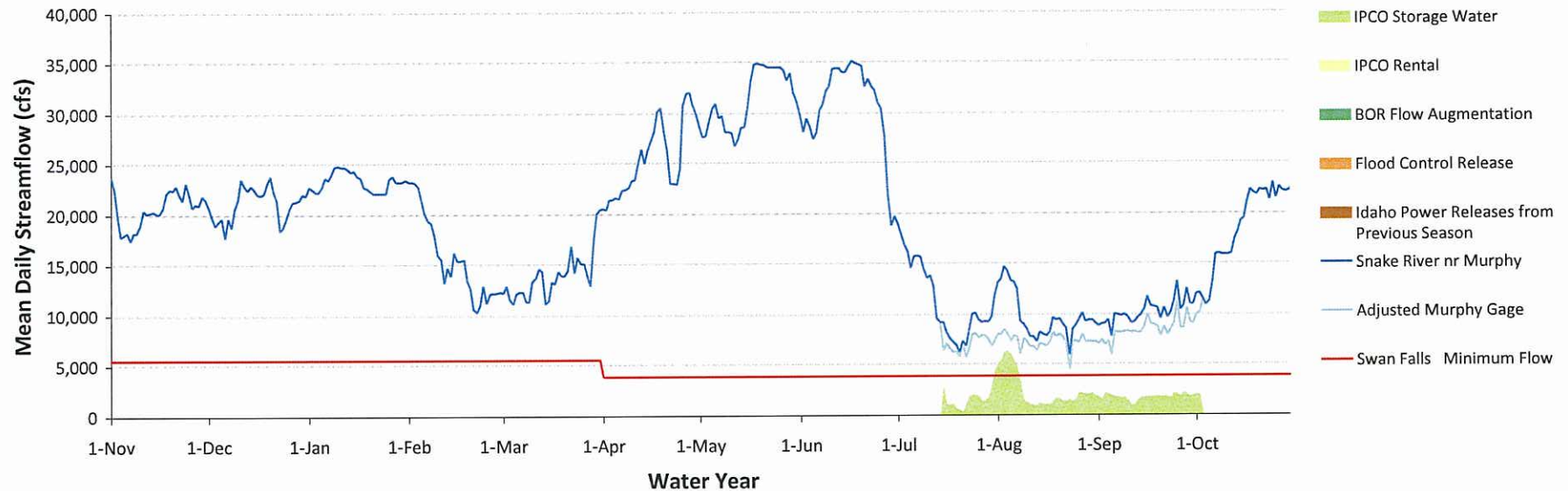
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 44,044, Idaho Power Rental = 350,000
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**1984**



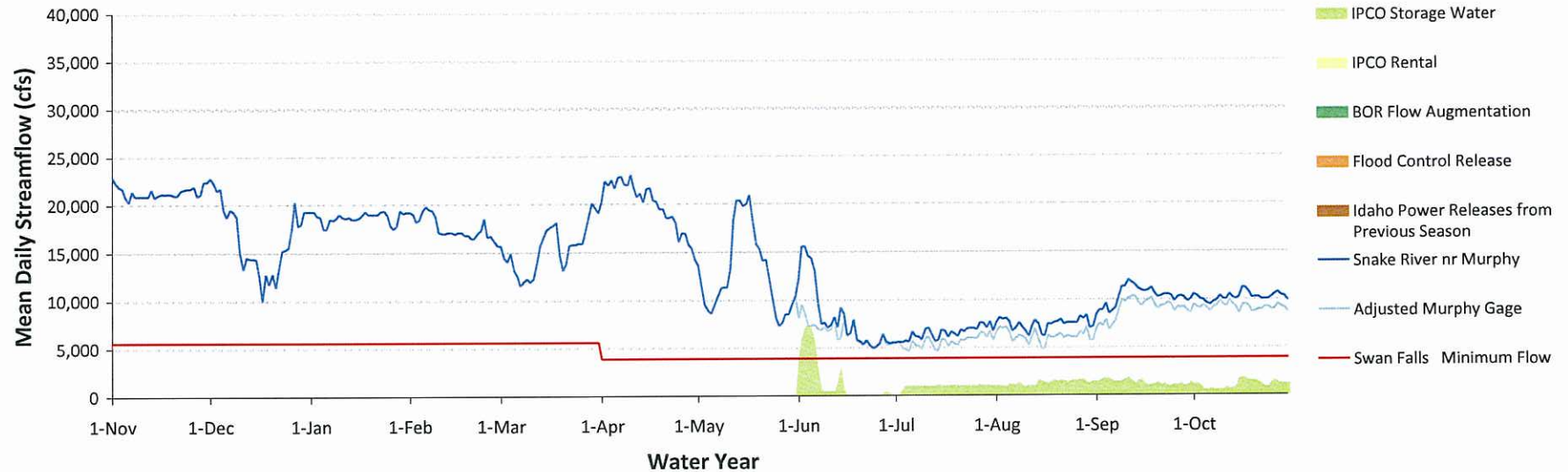
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 44,030, Idaho Power Rental = 275,000
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted<sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**1985**



Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

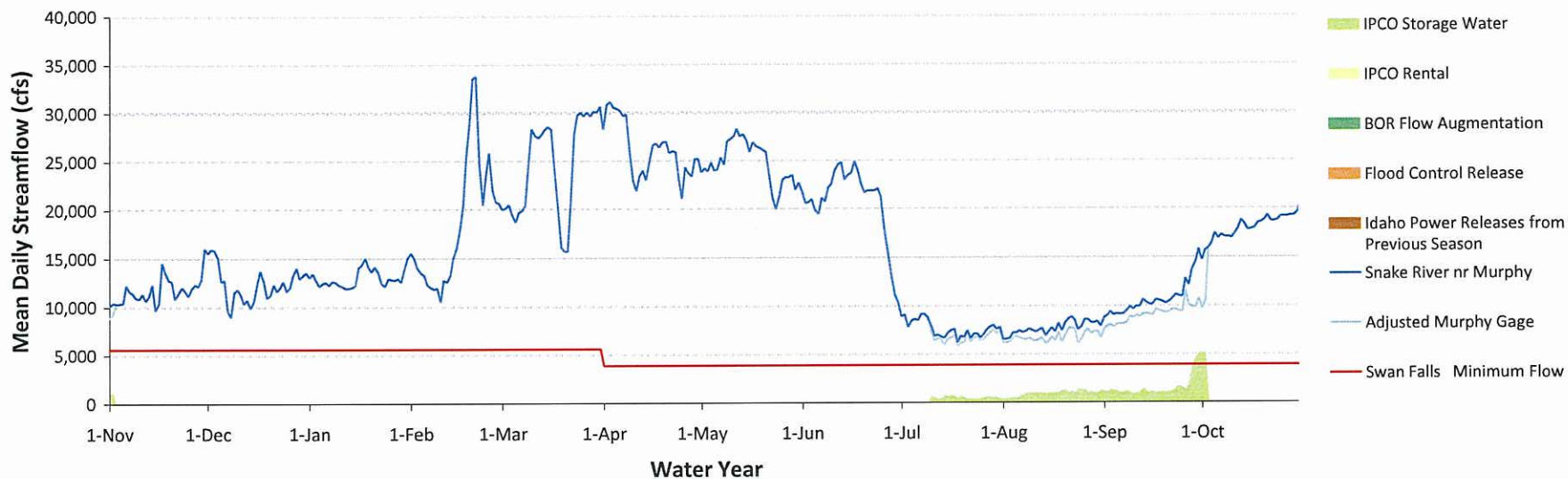
### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 43,881, Idaho Power Rental = 350,000
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

Data Discrepancy (per IDWR): There is 112,825 acre-ft of IPCO's 393,881 acre-ft unaccounted for in the daily record

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

1986



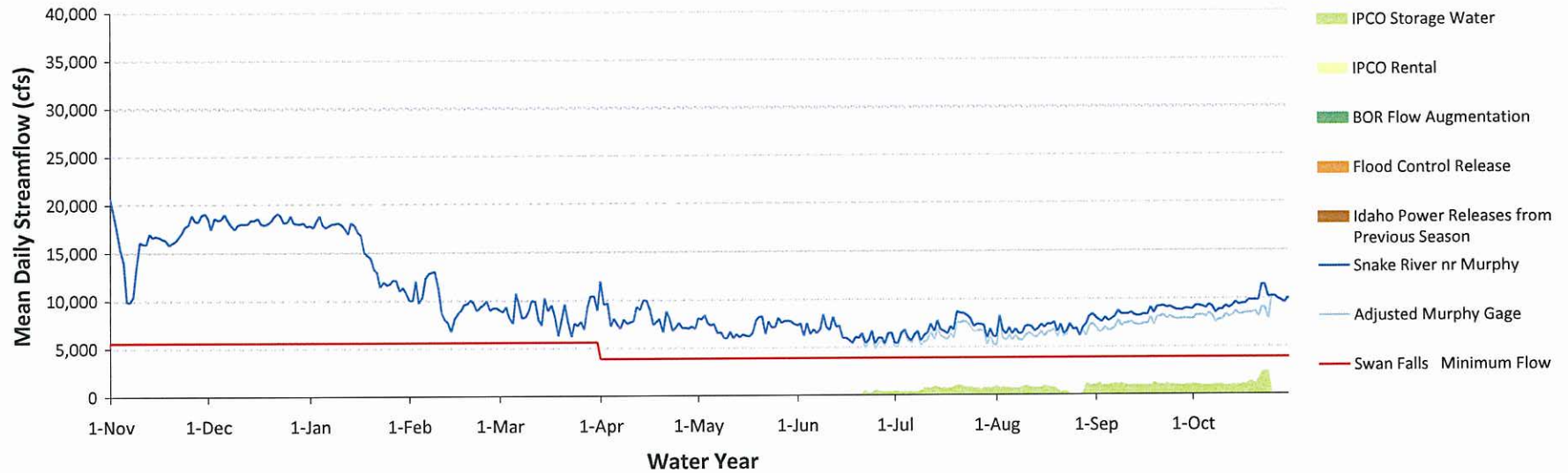
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Allocation = 44,031, Idaho Power Rental = 150,000
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**1987**



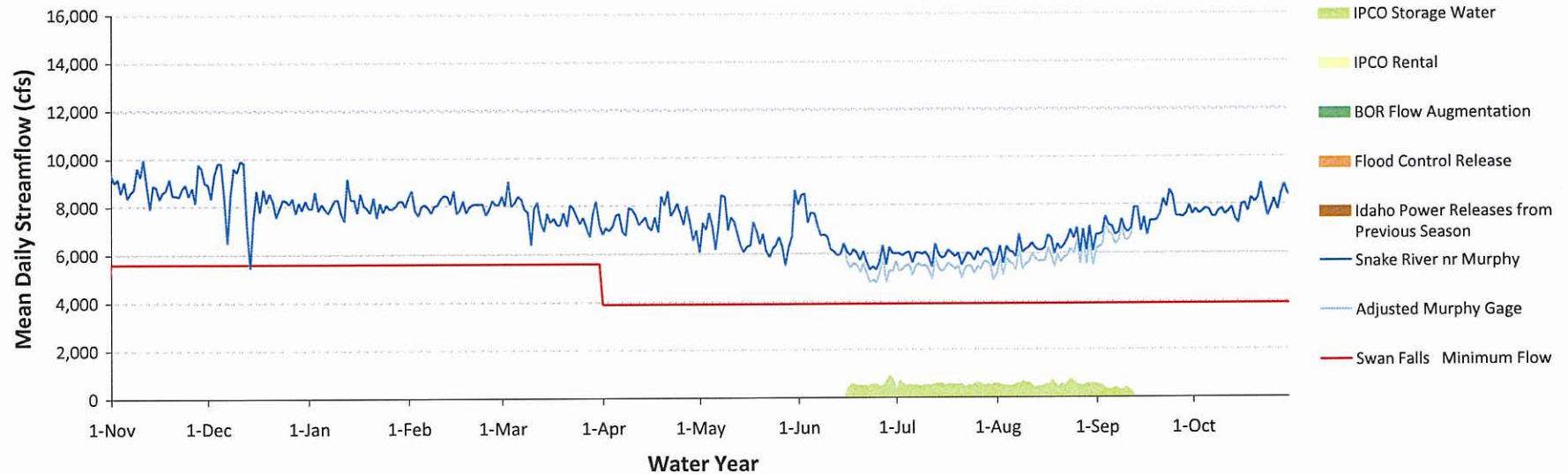
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Allocation = 43,491, Idaho Power Rental = 162,302
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**1988**



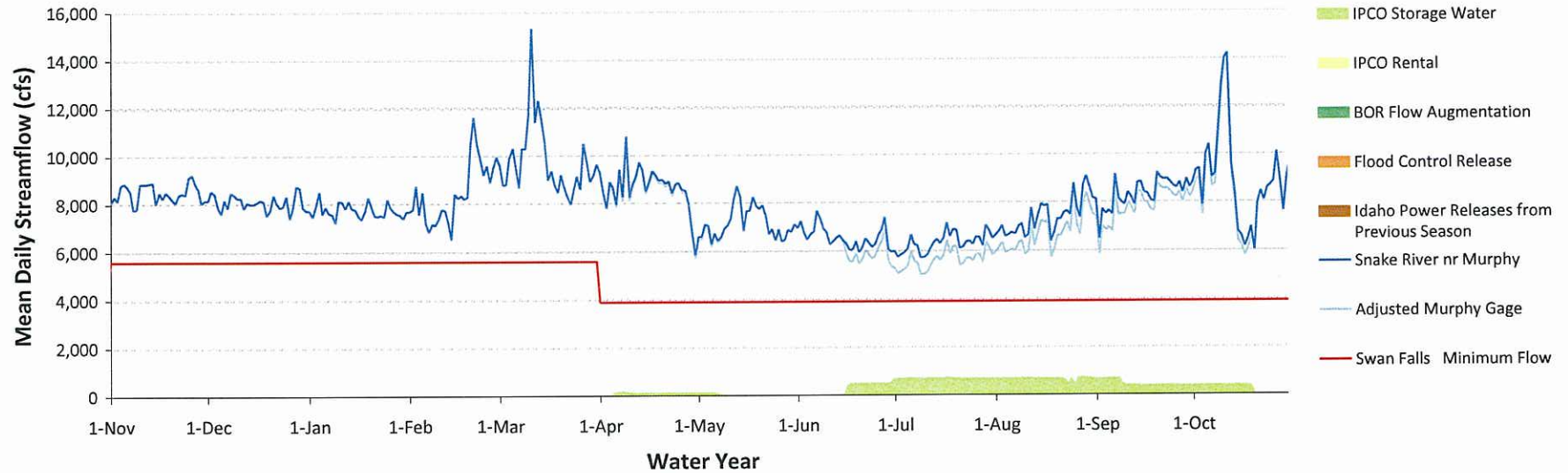
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Allocation = 43,608, Idaho Power Rental = 51,849
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

1989



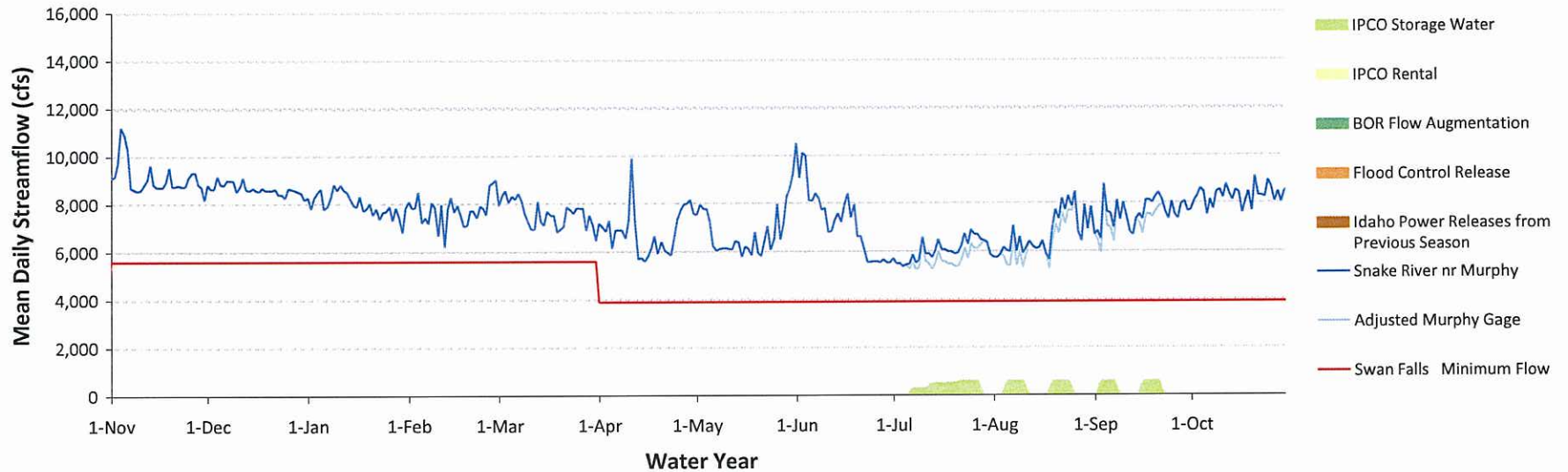
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Allocation = 43,609, Idaho Power Rental = 100,000
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

1990



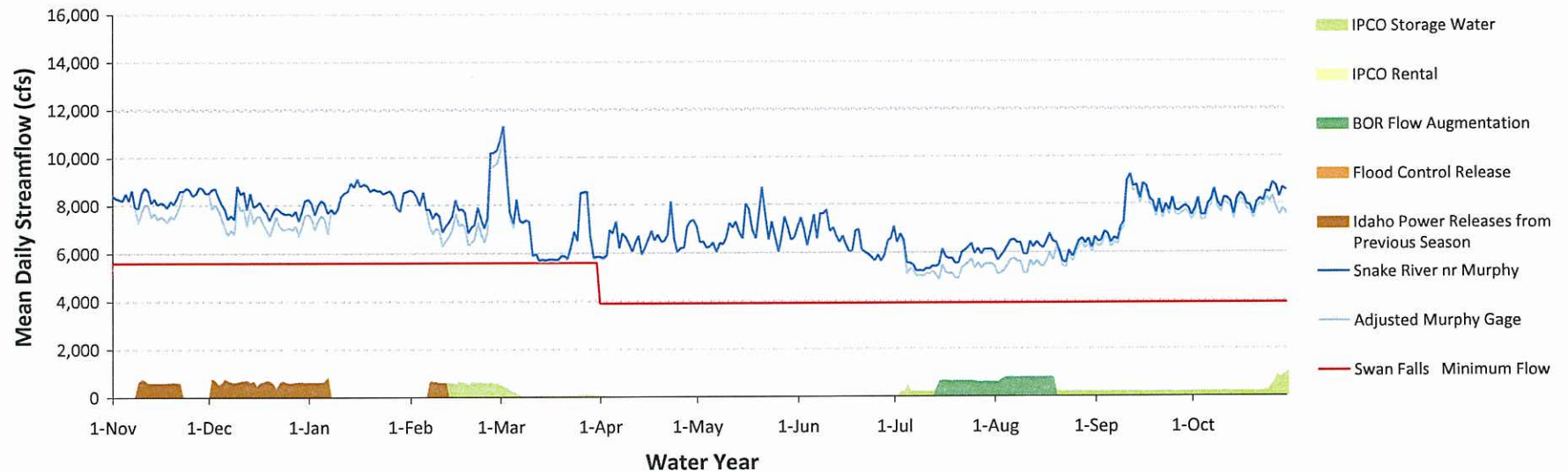
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 43,690, Idaho Power Rental = 63,000
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**1991**



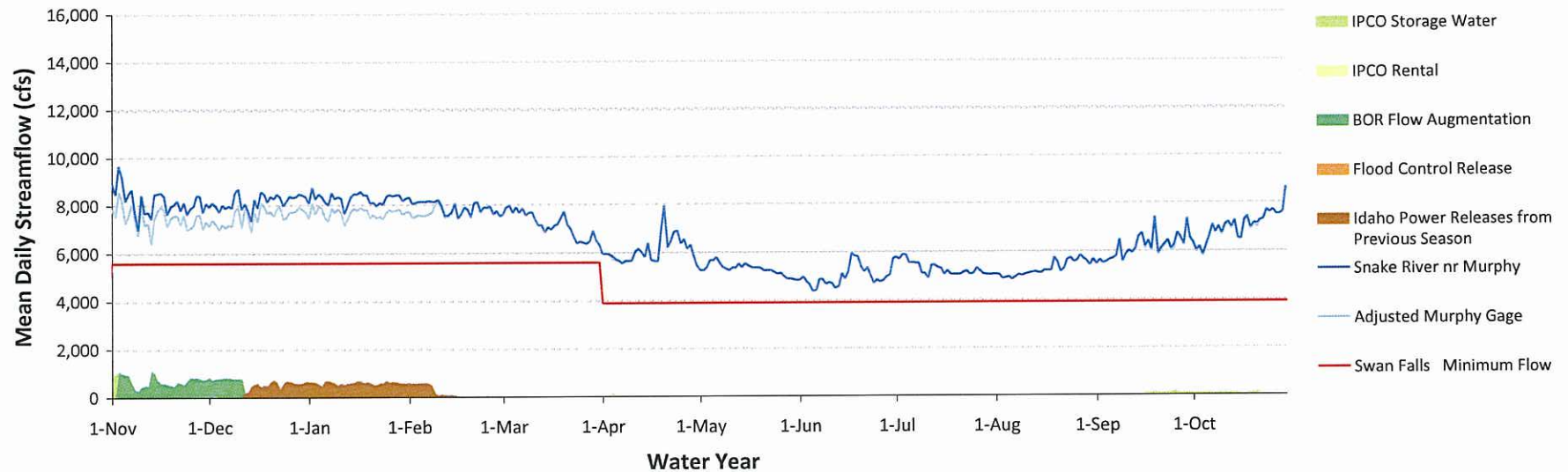
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Darr
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 43,672, Idaho Power Rental = 99,000
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**1992**



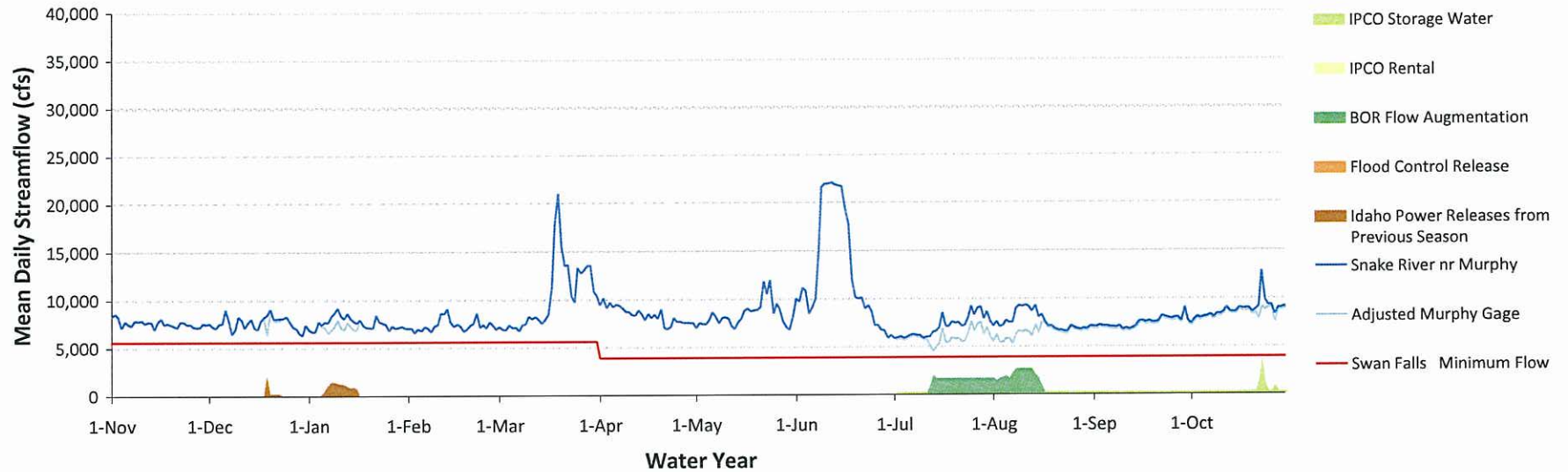
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Allocation = 40,959, Idaho Power Rental = C
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**1993**



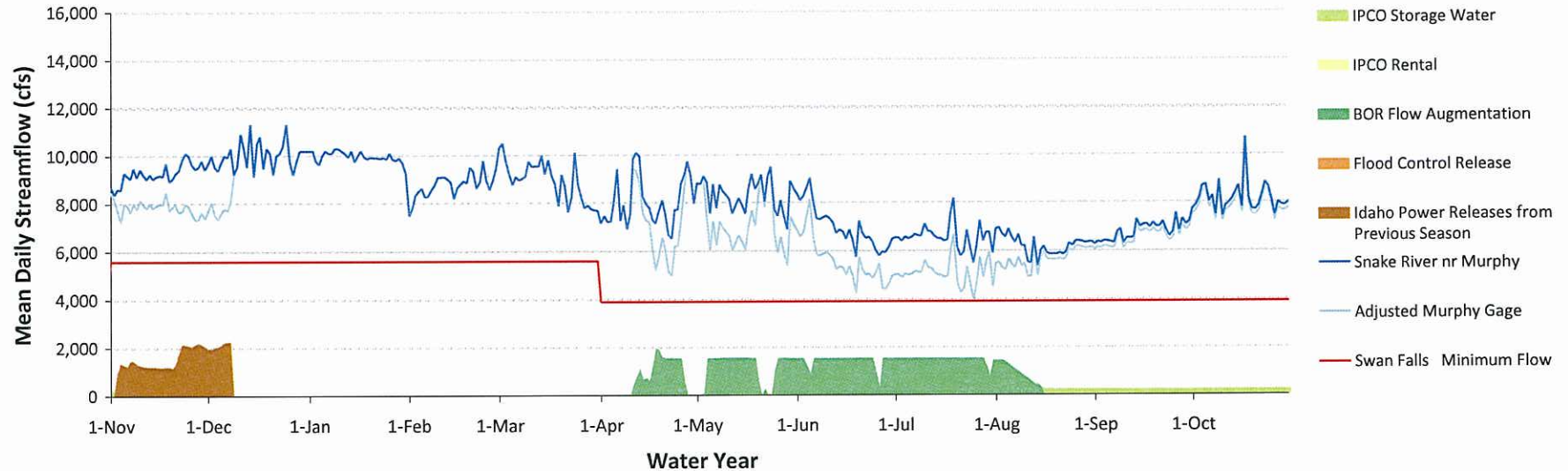
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 44,060, Idaho Power Rental = 65,000
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted<sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

1994



Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

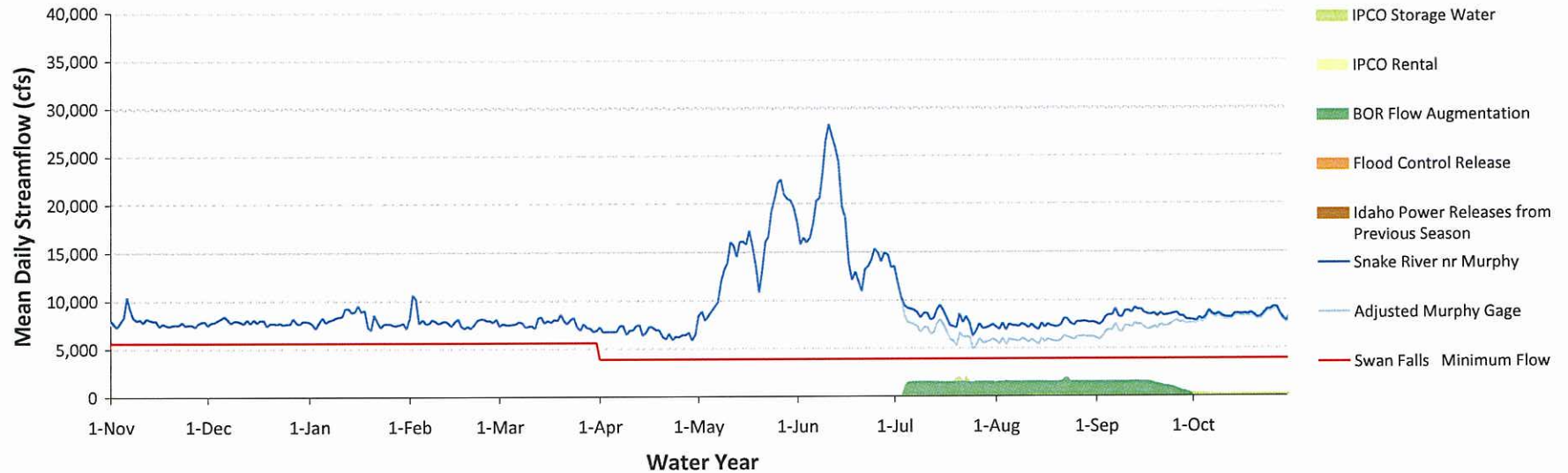
### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 43,782, Idaho Power Rental = C
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

Data Discrepancy (per IDWR): There is 13,850 acre-ft of BOR flow augmentation unaccounted for in the daily record

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**1995**



Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

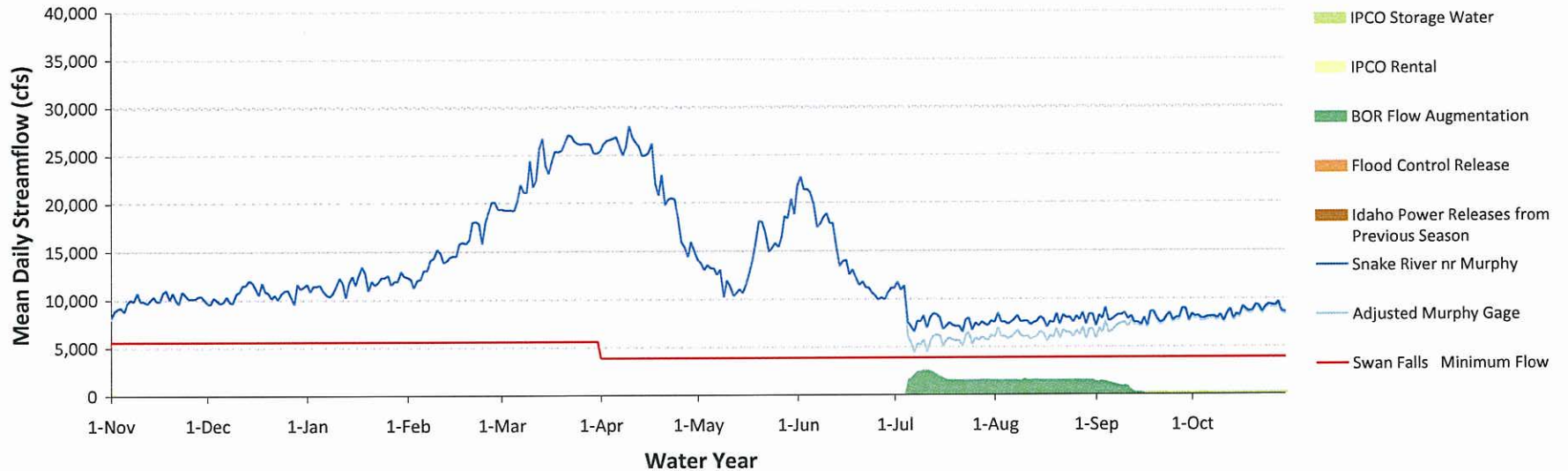
### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 43,885, Idaho Power Rental = C
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

Data Discrepancy (per IDWR): 43,885 acre-ft of IPCO Storage Water was released but it is not known when 26,049 acre-ft of it was released

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

1996



Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

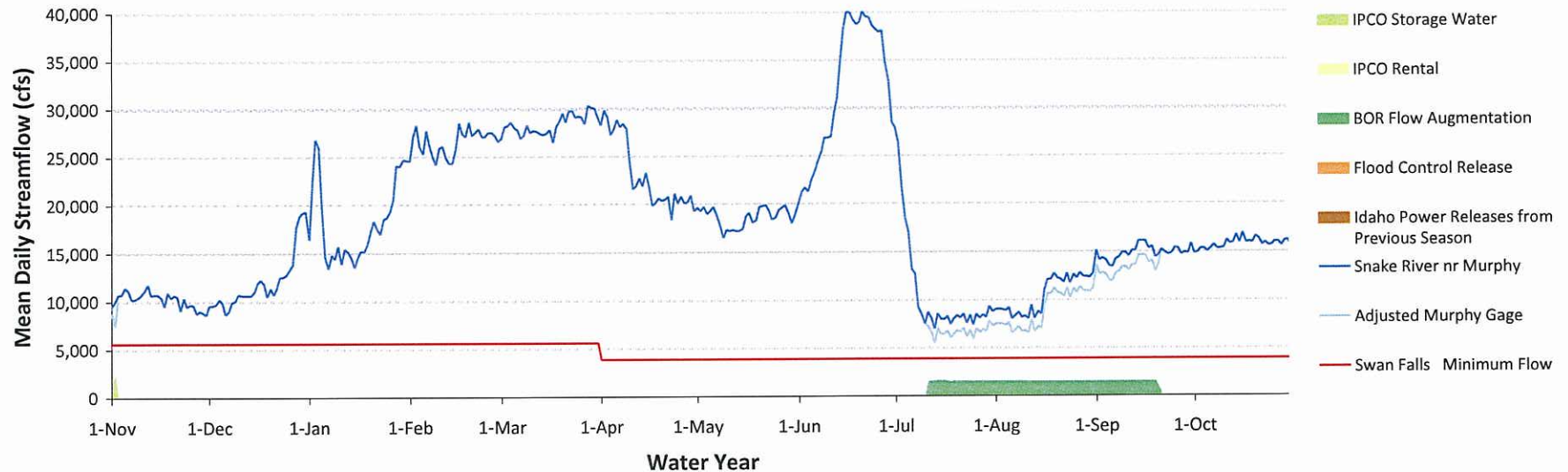
### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Allocation = 43,910, Idaho Power Rental = C
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

Data Discrepancy (per IDWR): 43,910 acre-ft of IPCO Storage Water was released but it is not known when 15,038 acre-ft of it was released

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**1997**



Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

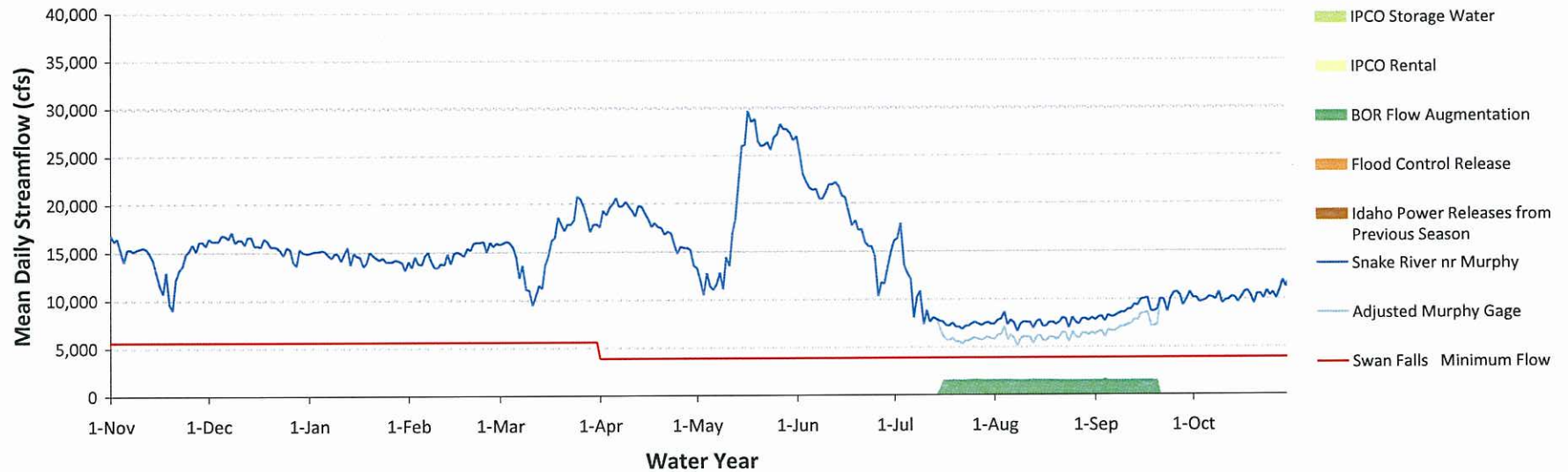
### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Darr
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 43,983, Idaho Power Rental = C
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

Data Discrepancy (per IDWR): 43,983 acre-ft of IPCO Storage Water was released but it is not known when it was released

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**1998**



Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

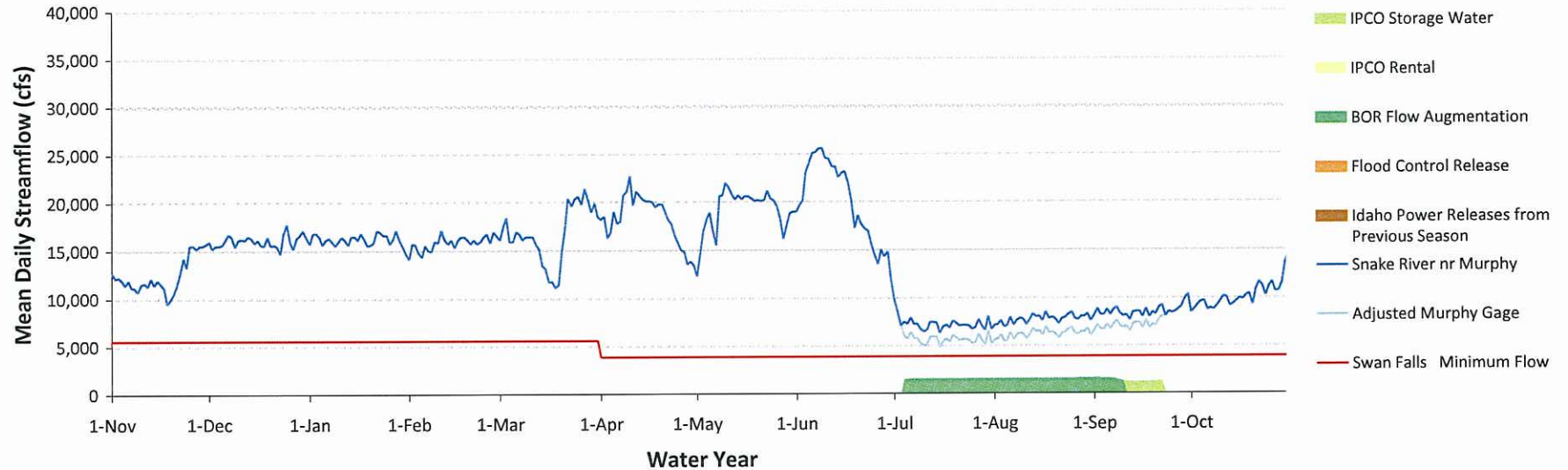
### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 43,942, Idaho Power Rental = C
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

Data Discrepancy (per IDWR): 43,942 acre-ft of IPCO Storage Water was released but it is not known when it was released

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

1999



Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

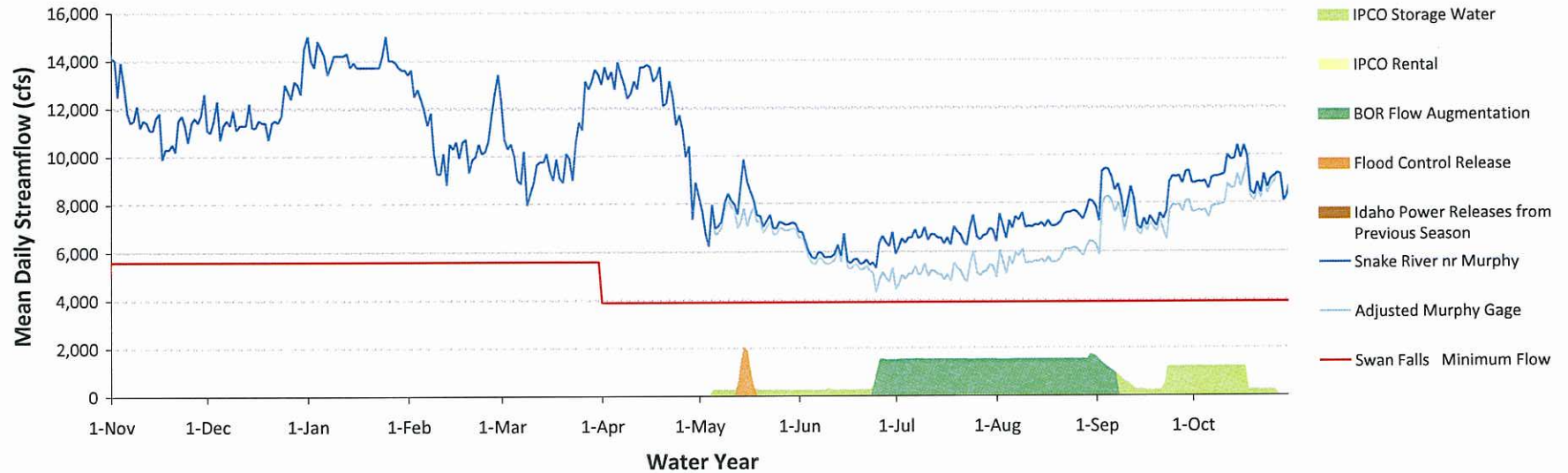
### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 43,608, Idaho Power Rental = C
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

Data Discrepancy (per IDWR): 43,608 acre-ft of IPCO Storage Water was released but it is not known when 15,046 acre-ft of it was released

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

2000



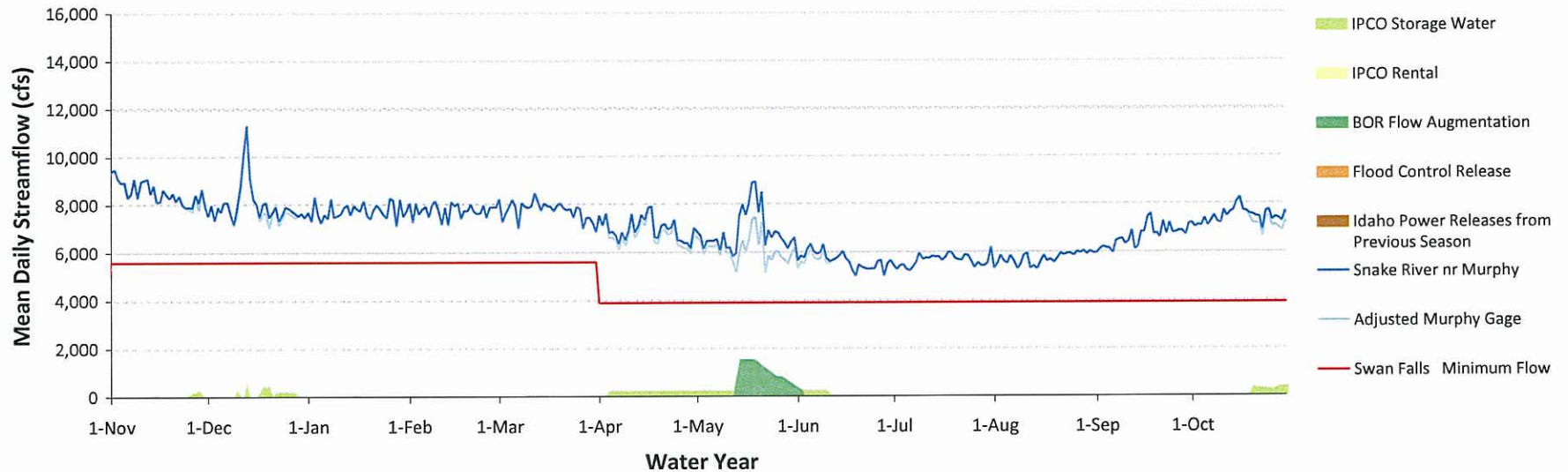
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Darr
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Allocation = 42,926, Idaho Power Rental = 53,325
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**2001**



Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Allocation = 42,115, Idaho Power Rental = C
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**2002**



Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Darr
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 43,388, Idaho Power Rental = C
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

# Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

2003



Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

## Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 42,918, Idaho Power Rental = C
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**2004**



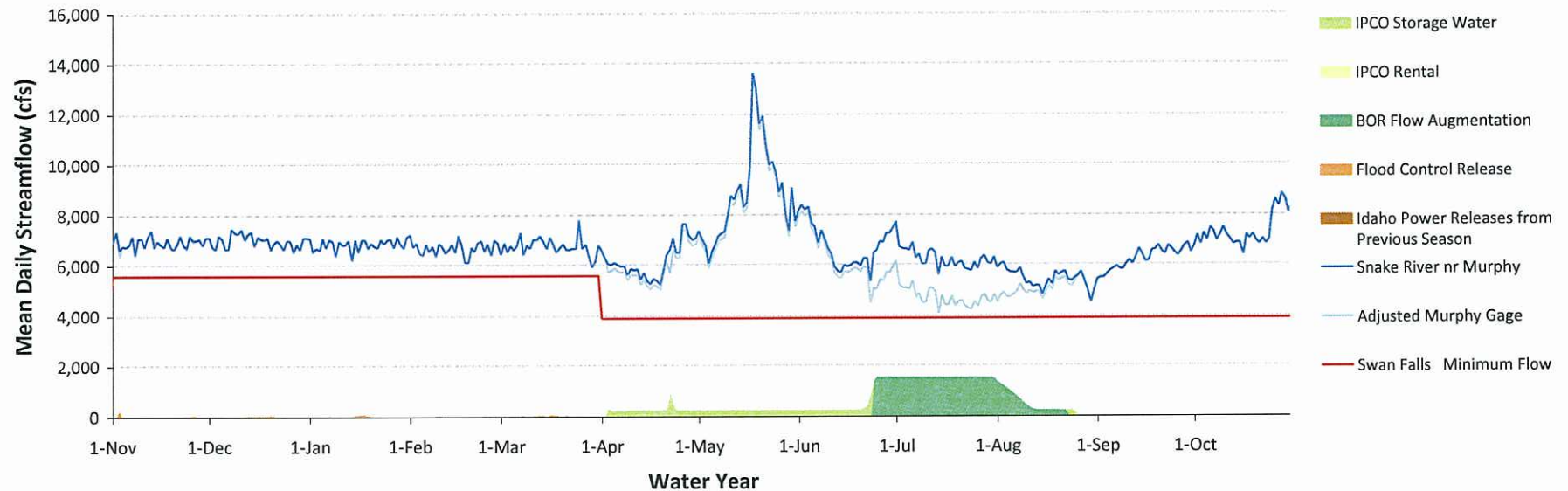
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 34,827, Idaho Power Rental = C
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

2005



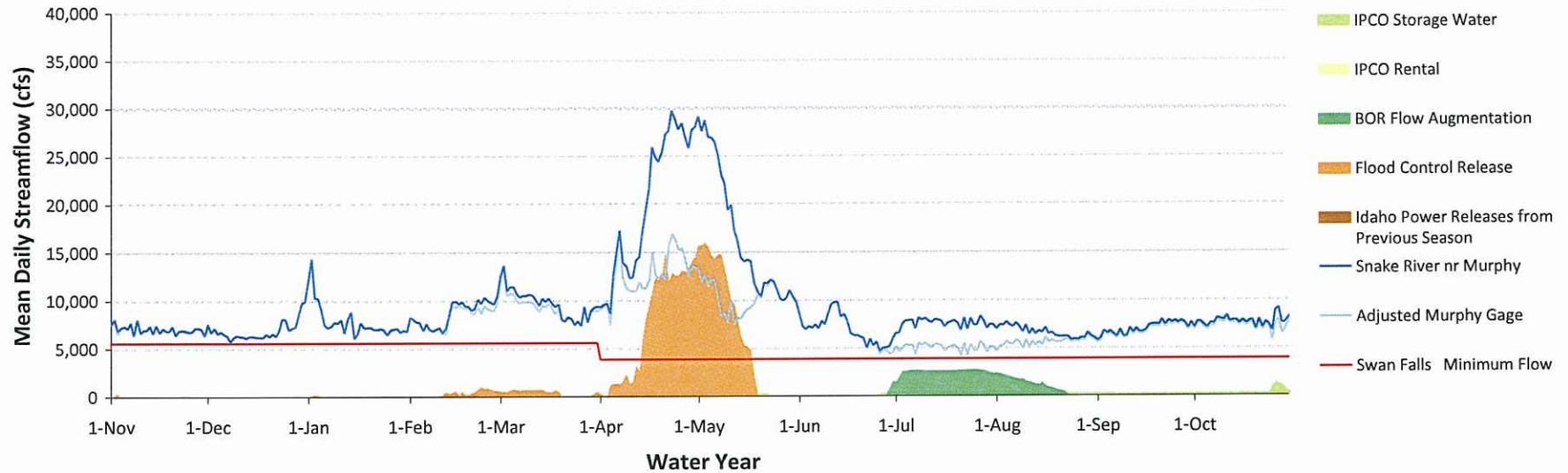
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Darr
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 43,175, Idaho Power Rental = C
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**2006**



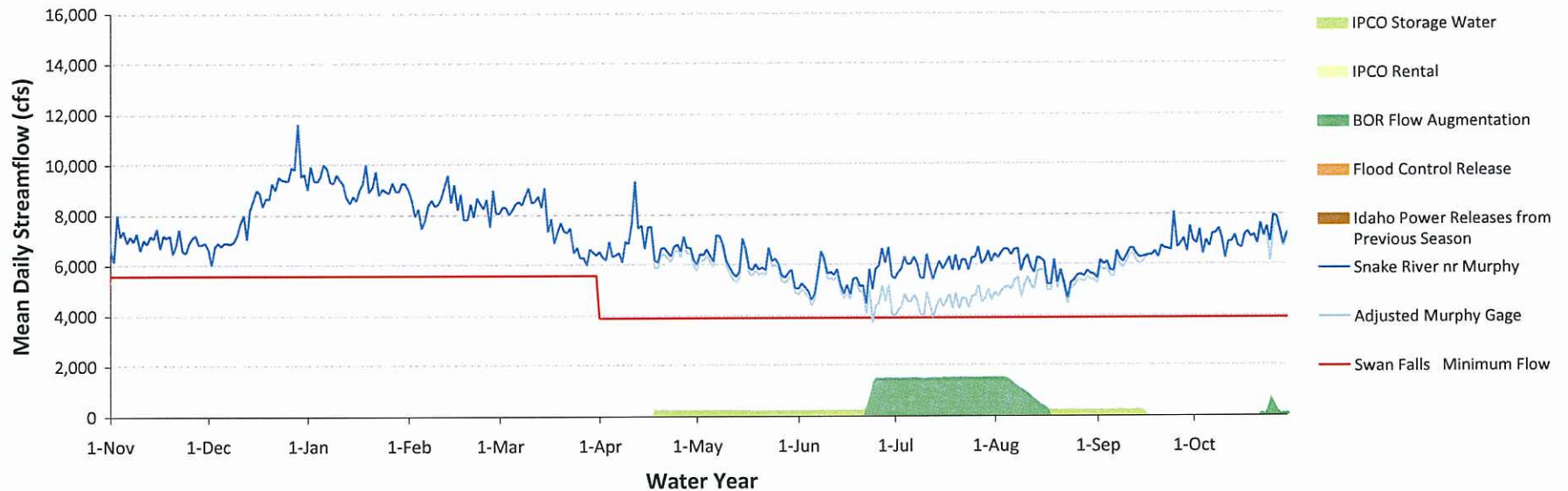
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 43,336, Idaho Power Rental = C
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted <sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**2007**



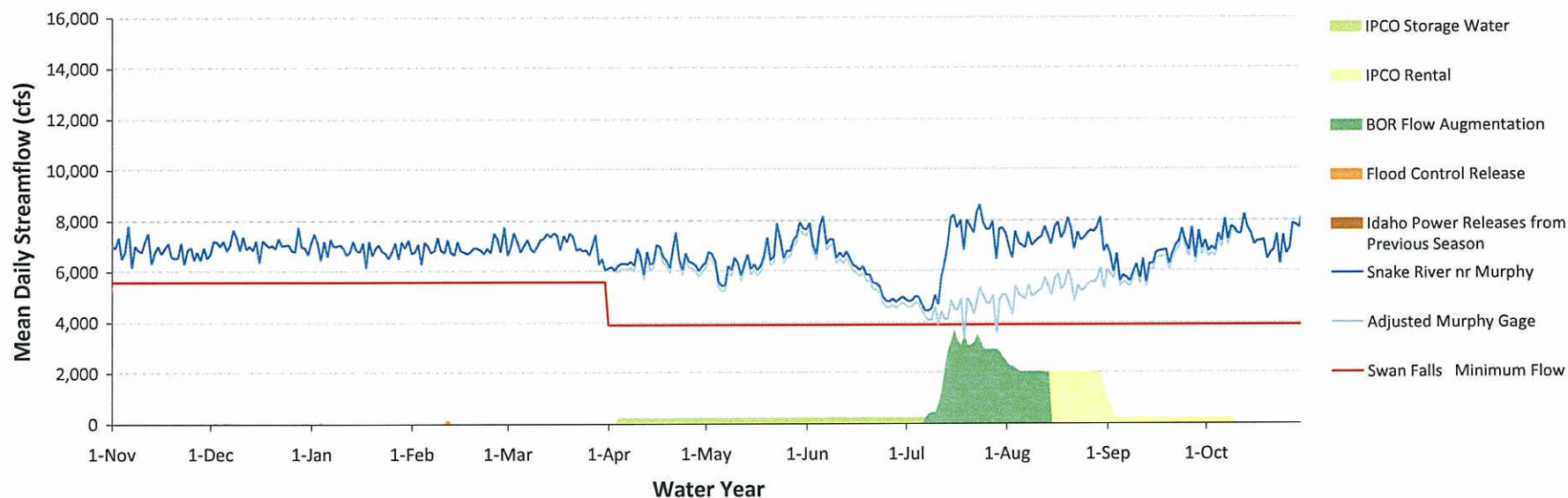
Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 43,306, Idaho Power Rental = C
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.

## Actual and Adjusted<sup>(1), (2)</sup> Murphy Gage Daily Streamflows mean daily cfs

**2008**



Source: USGS gage No. 13172500 Snake River nr Murphy, Swan Falls Agreement and IdahoPowerReleases.xls

### Notes:

- (1) Adjusted Murphy gage equals actual Murphy gage minus IDWR's tabulation of actual and estimated daily releases of the following types of water past Milner Dam
  - (a) Idaho Power Storage Water - IPCO's annual storage allocation which varies annually depending on reservoir fill and evaporation and operational losses.  
1981 - 1991, 1993 and 2000: Storage water also includes Idaho Power Rental water.  
Storage Water Storage Allocation = 43,085, Idaho Power Rental = 87,336
  - (b) Idaho Power Rental Water
  - (c) Bureau of Reclamation (BOR) flow augmentation
  - (d) BOR Flood Control Releases
  - (e) Idaho Power releases from previous season - IPCO's storage allocation and rental water that was allocated but not released until the following year
- (2) Two day lagging of releases at Milner.