Responses to FERC
Additional Information
Request OP-1
(Operational Scenarios)

(c) Navigation

Final Report

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1. **INTRODUCTION**

Agency review of the Idaho Power Company (IPC) license application for the three-dam Hells Canyon Complex (HCC, which includes the Brownlee, Oxbow, and Hells Canyon projects) resulted in requests to the Federal Energy Regulatory Commission (FERC) for additional studies. FERC evaluated these study requests and formulated a list of additional information requests (AIRs) to help in determining potential project-related impacts resulting from these IPC hydroelectric projects. This document addresses AIR OP-1(c), quoted above.

2. **RESPONSES**

2.1. **Response to OP-1(c)—Navigation Operational Scenario**

(a) (i) River flows as predicted for the Hells Canyon Dam gage (no. 13290450) (1-hour intervals, year-round);
Graphs of the river flows for years 1992, 1994, 1995, 1999, and 1997, as predicted for the Hells Canyon Dam gage, are attached to this document.

(ii) River flows as predicted for the China Gardens Rapids gage (no. 13317660) (1-hour intervals, year-round);

Graphs of the river flows for years 1992, 1994, 1995, 1999, and 1997, as predicted for the China Garden Rapids gage, are attached to this document.

(iii) Hourly change in river stage (feet per hour) as predicted for the Johnson Bar gage (no. 13290460) (year-round).

Graphs of the hourly change in river stage for years 1992, 1994, 1995, 1999, and 1997, as predicted for the Johnson Bar gage, are attached to this document.
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Proposed operations
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 1(a)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 1(b)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 1(c)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 1(d)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 1(e)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 1(f)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 2
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 3
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 4

River flow (cubic feet per second)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 5
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 6
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Proposed operations
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 1(a)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 1(b)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 1(c)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 1(d)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 1(e)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 1(f)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 2

River flow (cubic feet per second)

Date Range:
- 12/31/93 to 12/26/94

Values:
- 4000 to 28000 cubic feet per second
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 3

River flow (cubic feet per second)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 5

River flow (cubic feet per second)

River flow (cubic feet per second)

12/31/93 01/30/94 03/01/94 03/31/94 04/30/94 05/30/94 06/29/94 07/29/94 08/28/94 09/27/94 10/27/94 11/26/94 12/26/94
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 6
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Proposed operations

River flow (cubic feet per second)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 1(a)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 1(b)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 1(c)

River flow (cubic feet per second)

River flow (cubic feet per second)

12/31/94 01/30/95 02/28/95 03/31/95 04/30/95 05/30/95 06/29/95 07/29/95 08/28/95 09/27/95 10/27/95 11/26/95 12/26/95
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 1(d)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 1(e)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 1(f)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 2

River flow (cubic feet per second)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 3

River flow (cubic feet per second)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 4

River flow (cubic feet per second)

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</table>
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 5

River flow (cubic feet per second)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 6

River flow (cubic feet per second)

Date:
- 12/31/94
- 01/30/95
- 03/01/95
- 03/31/95
- 04/30/95
- 05/30/95
- 06/29/95
- 07/29/95
- 08/28/95
- 09/27/95
- 10/27/95
- 11/26/95
- 12/26/95
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Proposed operations

River flow (cubic feet per second)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 1(b)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 1(d)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 1(e)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 1(f)

River flow (cubic feet per second)

Date: 12/31/98 to 12/26/99
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 2
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 3

River flow (cubic feet per second)

River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 4

River flow (cubic feet per second)

River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 5
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 6
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Proposed operations
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 1(b)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 1(c)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 1(d)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 1(e)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 1(f)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 2
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 3

River flow (cubic feet per second)

Date: 12/31/96 to 12/26/97
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 4

River flow (cubic feet per second)
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 5

River flow (cubic feet per second)

12/31/96  01/30/97  02/28/97  03/31/97  04/30/97  05/30/97  06/29/97  07/29/97  08/28/97  09/27/97  10/27/97  11/26/97  12/26/97
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 6

River flow (cubic feet per second)

12/31/96 01/30/97 03/01/97 03/31/97 04/30/97 05/30/97 06/29/97 07/29/97 08/28/97 09/27/97 10/27/97 11/26/97 12/26/97
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Proposed Operations
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 1(a)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 1(b)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 1(c)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 1(d)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 1(e)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 1(f)

River flow (cubic feet per second)

12/31/91 01/30/92 02/29/92 03/30/92 04/29/92 05/29/92 06/28/92 07/28/92 08/27/92 09/26/92 10/26/92 11/25/92 12/25/92
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 2
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 3
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 4
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 5

River flow (cubic feet per second)

Date: 12/31/91 to 12/25/92
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 6
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Proposed Operations
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 1(a)

River flow (cubic feet per second)

Date:
12/31/93 01/30/94 03/01/94 03/31/94 04/30/94 05/30/94 06/29/94 07/29/94 08/28/94 09/27/94 10/27/94 11/26/94 12/26/94
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 1(b)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 1(c)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 1(d)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 1(e)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 1(f)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 2
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 3
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 4

River flow (cubic feet per second)

Date: 12/31/93 to 12/26/94

Flow: 8000 to 54000 cubic feet per second
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 5
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Proposed Operations

River flow (cubic feet per second)

- 12/31/94 to 12/26/95

Graph showing river flow over the proposed operations period.
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 1(a)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 1(b)

River flow (cubic feet per second)

Date: 12/31/94 to 12/26/95

Flow values range from 8000 to 118000 cubic feet per second.
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 1(c)

Graph showing river flow (cubic feet per second) from 12/31/94 to 12/26/95.
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 1(d)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 1(e)

River flow (cubic feet per second)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 1(f)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 2
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 3

River flow (cubic feet per second)

12/31/94 01/30/95 03/01/95 03/31/95 04/30/95 05/30/95 06/29/95 07/29/95 08/28/95 09/27/95 10/27/95 11/26/95 12/26/95
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 4
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 5

River flow (cubic feet per second)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 6
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Proposed Operations
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 1(a)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 1(b)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 1(c)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 1(d)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 1(e)

River flow (cubic feet per second)

Date
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 2

River flows (cubic feet per second)

Date: 12/31/98 to 12/26/99

River flow values range from 5000 to 135000 cubic feet per second.
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 3
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 4

River flows (cubic feet per second)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 5

River flow (cubic feet per second)

River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 6
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Proposed Operations
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 1(a)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 1(b)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 1(c)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 1(d)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 1(e)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 1(f)
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 2
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 3
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 4
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 5
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 6

12/31/96 02/19/97 04/10/97 05/30/97 07/19/97 09/07/97 10/27/97 12/16/97
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Proposed Operations

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</table>
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 1(a)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 1(b)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 1(c)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 1(d)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 1(e)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 1(f)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 2
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 3
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 4

hourly change in river stage (feet per hour)

12/31/91 01/30/92 02/29/92 03/30/92 04/29/92 05/29/92 06/28/92 07/28/92 08/27/92 09/26/92 10/26/92 11/25/92 12/25/92
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 5

0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30

12/31/91 01/30/92 02/29/92 03/30/92 04/29/92 05/29/92 06/28/92 07/28/92 08/27/92 09/26/92 10/26/92 11/25/92 12/25/92
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 6
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 1(a)
### Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)

**Representative year - 1994**

**Scenario 1(b)**

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<tr>
<td>12/26/94</td>
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</tbody>
</table>

The graph shows the hourly change in river stage (feet per hour) over the period from December 31, 1993, to December 26, 1994.
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 1(c)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 1(d)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 1(e)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 1(f)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 2

0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00
12/31/93 01/30/94 03/01/94 03/31/94 04/30/94 05/30/94 06/29/94 07/29/94 08/28/94 09/27/94 10/27/94 11/26/94 12/26/94

hourly change in river stage (feet per hour)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 3
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 4

12/31/93 01/30/94 03/01/94 03/31/94 04/30/94 05/30/94 06/29/94 07/29/94 08/28/94 09/27/94 10/27/94 11/26/94 12/26/94

hourly change in river stage (feet per hour)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 5
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 6

hourly change in river stage (feet per hour)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Proposed Operations

hourly change in river stage (feet per hour)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 1(b)

12/31/94 01/30/95 03/01/95 03/31/95 04/30/95 05/30/95 06/29/95 07/29/95 08/28/95 09/27/95 10/27/95 11/26/95 12/26/95
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 1(c)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 1(d)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 1(e)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 1(f)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 2
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 3

Hourly change in river stage (feet per hour)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 4
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 5
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 6

[Graph showing hourly change in river stage (feet per hour) from 12/31/94 to 12/26/95]
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Proposed Operations

hourly change in river stage (feet per hour)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 1(a)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 1(b)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 1(c)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 1(d)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 1(f)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 2
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 4

hourly change in river stage (feet per hour)

Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 5
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 6
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Proposed Operations

12/31/96 01/30/97 03/01/97 03/31/97 04/30/97 05/30/97 06/29/97 07/29/97 08/28/97 09/27/97 10/27/97 11/26/97 12/26/97

hourly change in river stage (feet per hour)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 1(a)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 1(b)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 1(c)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 1(d)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 1(e)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 1(f)
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 2
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 4
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 5
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 6