
**Bear River Hydroelectric Project
Federal Energy Regulatory Commission
Project No. 20**

**Oneida Development
Water Year 2022 Operations Report**



Submitted to:

Idaho Department of Environmental Quality

Prepared by:



November 1, 2022

1.0 INTRODUCTION

This report fulfills the requirements of paragraph 4 of the 401 Water Quality Certification dated 23 June 2003 and Appendix A of the FERC license for FERC Project No. 20 issued 22 December 2003. The precise requirements are:

“At the November meeting of the Bear River Commission, PacifiCorp shall provide IDEQ a report for the preceding water year that describes PacifiCorp’s operation of the Oneida Project. The report shall set forth a record showing the times during the preceding water year when PacifiCorp released water for power production, flood control, irrigation delivery, facility maintenance or for other reasons. The annual report shall be delivered to IDEQ each year during the term of the New License.”

In addition, this report summarizes down-ramp rates and the Article 420 summer goal flow compliance.

2.0 RESERVOIR INFLOW, RELEASES AND ELEVATION

Reservoir releases were made to pass inflow for power generation and for downstream irrigation demand (Figure 1). Flows in Figure 1 include both power releases and spill gate discharge. See Figure 2 for changes in reservoir storage. Fluctuations in reservoir elevation are highlighted and explained on Figure 2.

Figure 1 also highlights the period of Article 420 goal flows between Memorial Day and Labor Day. Article 420 reads, “Oneida Recreation Goal Flow, release flows greater than 900 cfs below the powerhouse, if available, between Memorial Day and Labor Day.” Recreation flows were provided in relation to required irrigation releases. For 46 of 99 possible days (46%) in the goal flow period between May 30 and September 5, high irrigation demand resulted in flows above 900 cfs in the Oneida Narrows reach.

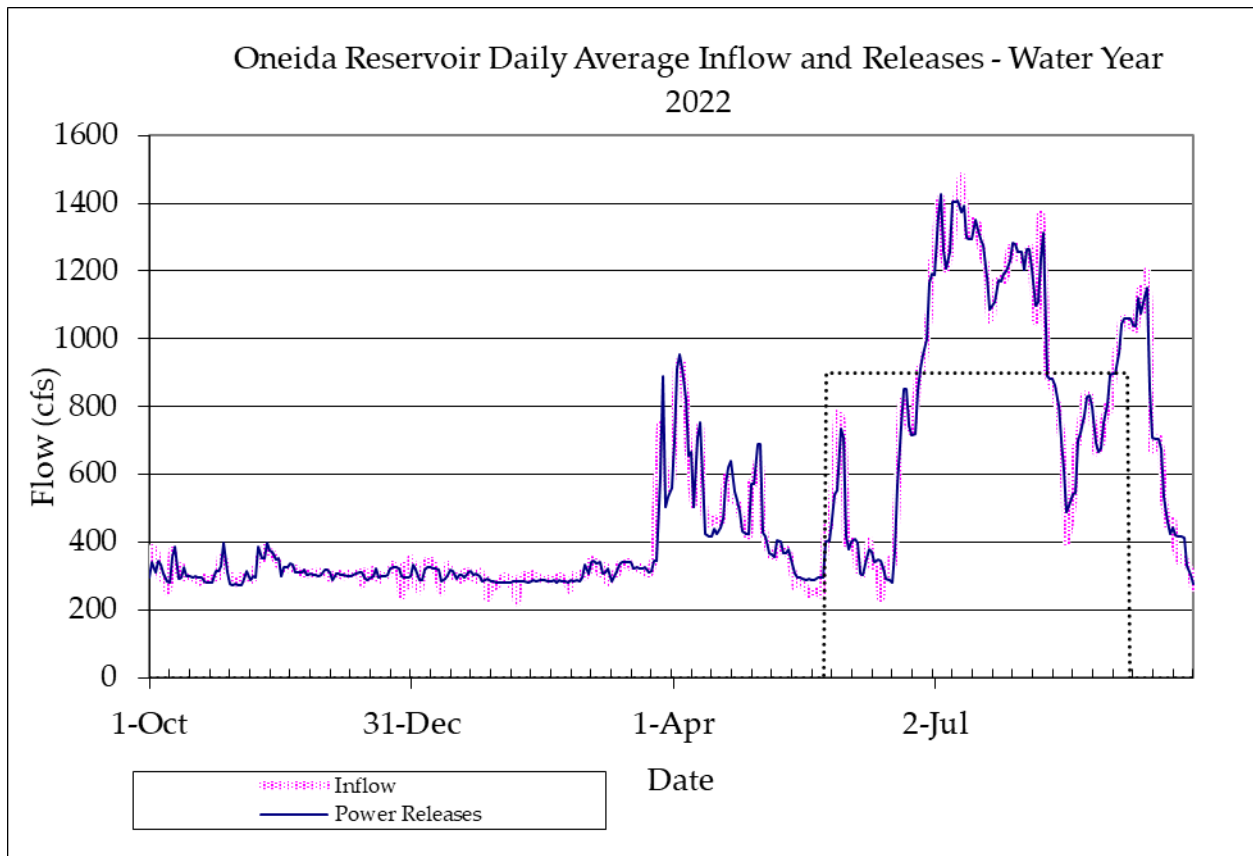


Figure 1. Daily average reservoir inflow, all flow past the gage and goal flow for the Memorial Day to Labor Day period. Flows are in cubic feet per second (CFS). The flows shown *include* spill gate releases.

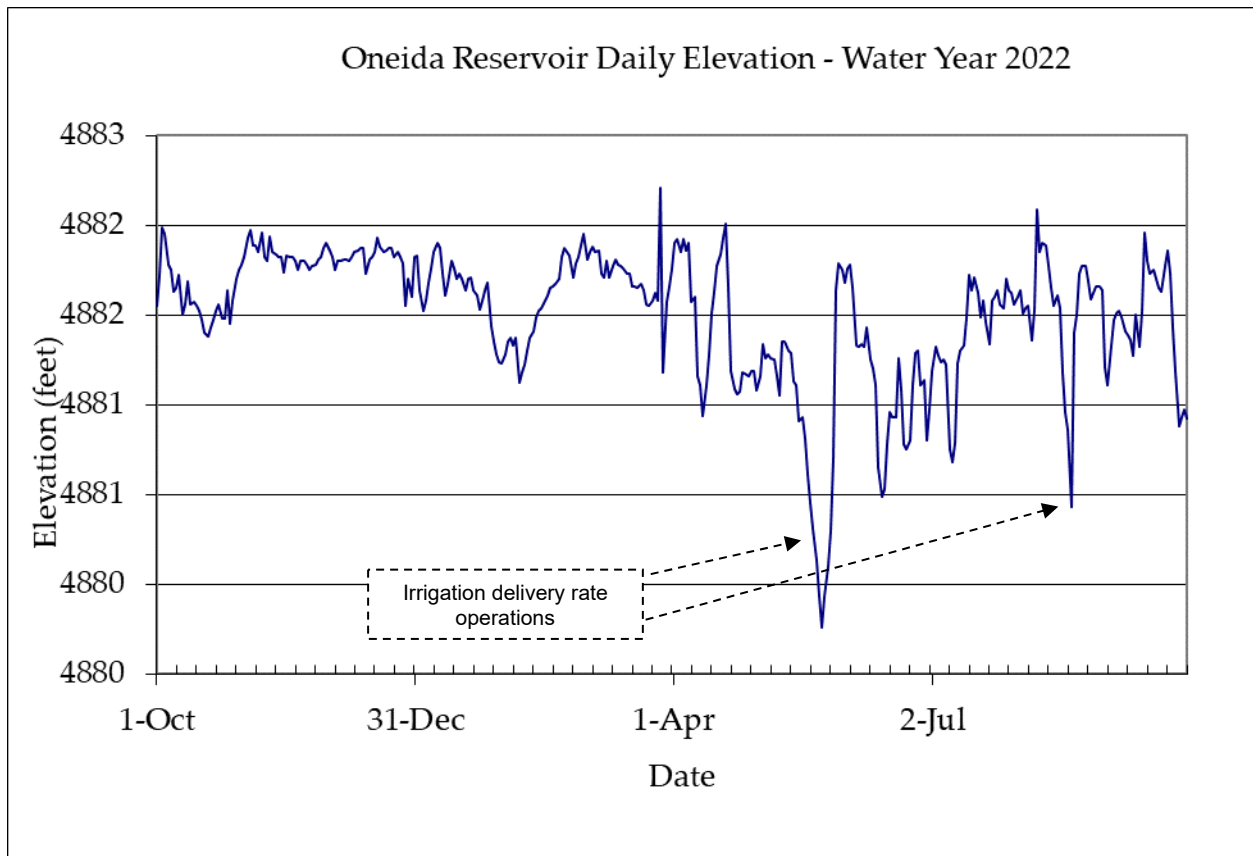


Figure 2. Oneida Reservoir elevations.

3.0 DAILY FLUCTUATIONS

Daily fluctuations are summarized in this report by the plots and tables of statistics of daily stage values that are recorded every 15-minutes. The statistics presented are average, maximum and minimum. This is a concise way of demonstrating the daily fluctuations. Figures 3 and 4 depict the average stage by day as a black square with a line spanning the range between the minimum and maximum stage.

Note that during maintenance and repair events, the higher water level fluctuations are a result of establishing the new flow from a different unit or from the spill gates *before* the existing unit is reduced to avoid the possibility of minimum flow reportable events. As indicated by the daily average relative to the daily maximum, the excess water is only released for a short time.

In the 1980s, the Oneida Project was used for electrical grid stabilization and as a result, frequent and large flow fluctuations on the order of minutes were common downstream. Current operations do not produce this type of downstream flow fluctuation as shown by Figures 3 and 4. The primary purpose of daily reservoir releases is noted in Appendix A along with the maximum daily ramp rate.

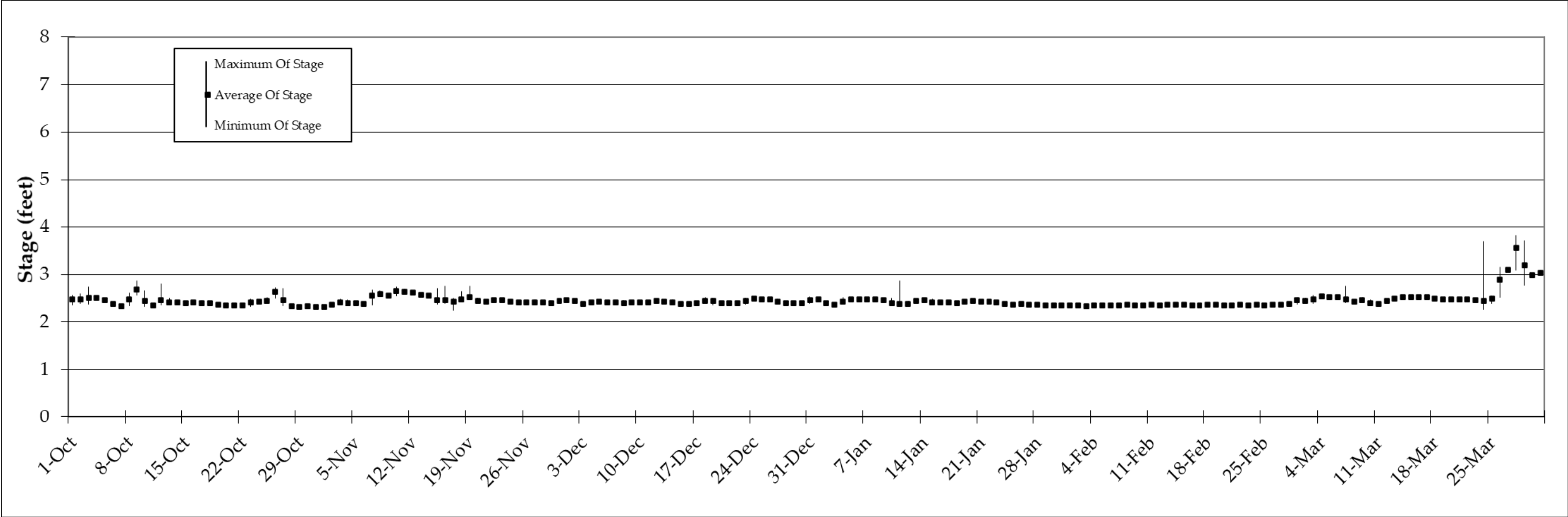


Figure 3. October 2021 through March 2022 daily average, maximum and minimum stage below Oneida. Precise values for each day and explanations are provided in Appendix A. Corresponding flows are shown in Figure 1.

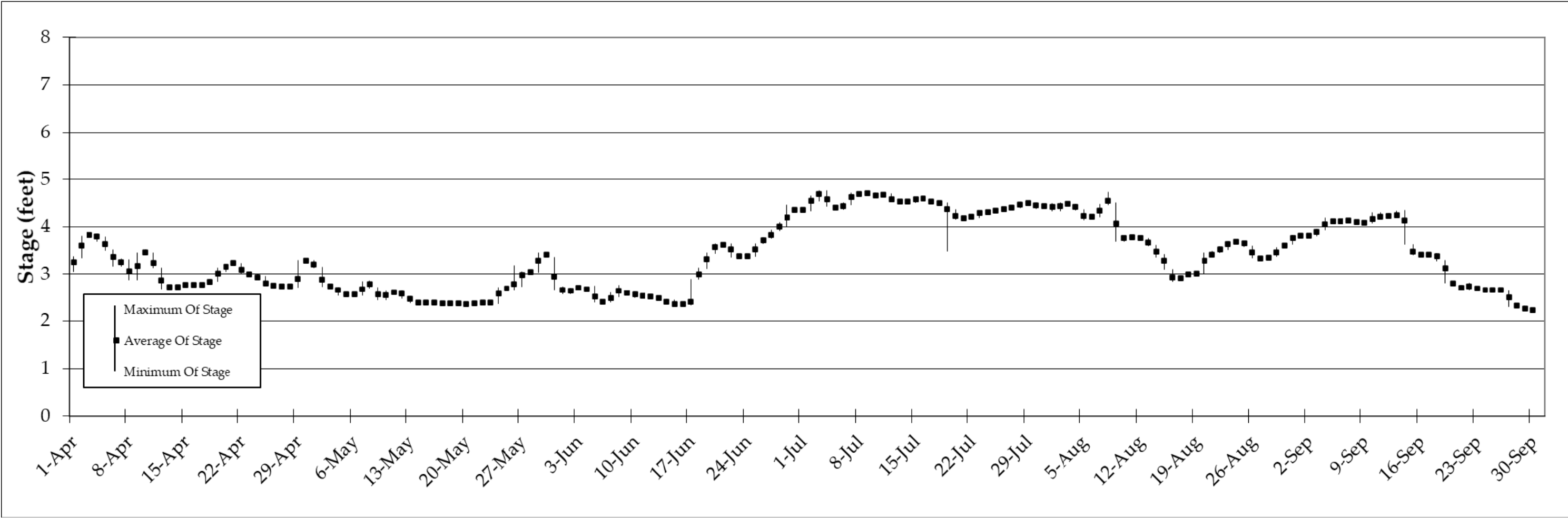


Figure 4. April through September 2022 daily average, maximum and minimum stage below Oneida. Precise values for each day and explanations are provided in Appendix A. Corresponding power releases are shown in Figure 1.

4.0 RAMPING RATE ANALYSIS

An analysis of the maximum daily ramping rate is shown in Appendix A. The table summarizes the maximum stage decrease in any 15-minute period in each day. There were no exceedances of the ramping rate in water year 2022.

Appendix A. Daily Summary of Gage Height, Primary Purpose for Water Releases and Daily Maximum Down-Ramping Rate

Date	Maximum of Stage (feet)	Minimum of Stage (feet)	Average of Stage (feet)	Maximum 15-minute Down-Ramping Rate (feet per 15 minutes)	Primary Purpose for Water Releases and Comments
1-Oct	2.56	2.36	2.48	0.03	Power production
2-Oct	2.59	2.39	2.47	0.08	Power production
3-Oct	2.74	2.38	2.51	0.13	Power production
4-Oct	2.53	2.46	2.50	0.01	Power production
5-Oct	2.51	2.40	2.45	0.06	Power production
6-Oct	2.42	2.33	2.38	0.04	Power production
7-Oct	2.37	2.31	2.33	0.03	Power production
8-Oct	2.61	2.34	2.48	0.02	Power production
9-Oct	2.86	2.57	2.68	0.17	Power production
10-Oct	2.66	2.33	2.45	0.09	Power production
11-Oct	2.39	2.30	2.35	0.03	Power production
12-Oct	2.80	2.35	2.46	0.19	Power production
13-Oct	2.49	2.37	2.41	0.08	Power production
14-Oct	2.42	2.40	2.41	0.01	Power production
15-Oct	2.41	2.38	2.39	0.02	Power production
16-Oct	2.46	2.38	2.41	0.04	Power production
17-Oct	2.45	2.36	2.39	0.08	Power production
18-Oct	2.43	2.36	2.40	0.02	Power production
19-Oct	2.37	2.35	2.36	0.01	Power production
20-Oct	2.37	2.32	2.35	0.01	Power production
21-Oct	2.36	2.33	2.34	0.01	Power production
22-Oct	2.37	2.33	2.34	0.02	Power production
23-Oct	2.48	2.33	2.41	0.01	Power production
24-Oct	2.47	2.41	2.43	0.06	Power production
25-Oct	2.52	2.41	2.45	0.01	Power production
26-Oct	2.72	2.51	2.63	0.02	Power production
27-Oct	2.71	2.34	2.46	0.14	Power production
28-Oct	2.36	2.31	2.33	0.02	Power production
29-Oct	2.34	2.30	2.32	0.03	Power production
30-Oct	2.35	2.31	2.33	0.02	Power production
31-Oct	2.36	2.30	2.32	0.02	Power production
1-Nov	2.33	2.30	2.31	0.01	Power production
2-Nov	2.39	2.33	2.36	0.02	Power production
3-Nov	2.49	2.36	2.42	0.04	Power production
4-Nov	2.46	2.35	2.40	0.07	Power production

Date	Maximum of Stage (feet)	Minimum of Stage (feet)	Average of Stage (feet)	Maximum 15-minute Down-Ramping Rate (feet per 15 minutes)	Primary Purpose for Water Releases and Comments
5-Nov	2.43	2.34	2.39	0.01	Power production
6-Nov	2.42	2.36	2.38	0.04	Power production
7-Nov	2.67	2.36	2.55	0.01	Power production
8-Nov	2.66	2.54	2.59	0.04	Power production
9-Nov	2.57	2.53	2.55	0.03	Power production
10-Nov	2.73	2.55	2.64	0.03	Power production
11-Nov	2.69	2.60	2.64	0.07	Power production
12-Nov	2.64	2.60	2.61	0.02	Power production
13-Nov	2.62	2.53	2.58	0.03	Power production
14-Nov	2.60	2.53	2.56	0.01	Power production
15-Nov	2.71	2.37	2.46	0.29	Power production
16-Nov	2.75	2.39	2.45	0.24	Power production
17-Nov	2.51	2.25	2.43	0.25	Power production
18-Nov	2.65	2.42	2.48	0.16	Power production
19-Nov	2.75	2.48	2.53	0.27	Power production
20-Nov	2.50	2.40	2.44	0.08	Power production
21-Nov	2.47	2.39	2.42	0.02	Power production
22-Nov	2.48	2.45	2.46	0.01	Power production
23-Nov	2.50	2.44	2.46	0.01	Power production
24-Nov	2.47	2.40	2.43	0.03	Power production
25-Nov	2.45	2.39	2.42	0.02	Power production
26-Nov	2.44	2.40	2.42	0.02	Power production
27-Nov	2.46	2.39	2.42	0.03	Power production
28-Nov	2.45	2.40	2.41	0.02	Power production
29-Nov	2.45	2.37	2.40	0.04	Power production
30-Nov	2.48	2.40	2.44	0.01	Power production
1-Dec	2.48	2.43	2.46	0.01	Power production
2-Dec	2.49	2.39	2.45	0.08	Power production
3-Dec	2.43	2.35	2.38	0.04	Power production
4-Dec	2.45	2.36	2.41	0.01	Power production
5-Dec	2.45	2.40	2.42	0.02	Power production
6-Dec	2.43	2.40	2.41	0.02	Power production
7-Dec	2.45	2.41	2.42	0.02	Power production
8-Dec	2.45	2.38	2.40	0.04	Power production
9-Dec	2.43	2.40	2.41	0.01	Power production
10-Dec	2.44	2.40	2.41	0.01	Power production
11-Dec	2.43	2.40	2.42	0.01	Power production
12-Dec	2.48	2.42	2.44	0.02	Power production

Date	Maximum of Stage (feet)	Minimum of Stage (feet)	Average of Stage (feet)	Maximum 15-minute Down-Ramping Rate (feet per 15 minutes)	Primary Purpose for Water Releases and Comments
13-Dec	2.47	2.41	2.43	0.04	Power production
14-Dec	2.46	2.38	2.41	0.03	Power production
15-Dec	2.39	2.35	2.37	0.01	Power production
16-Dec	2.40	2.35	2.38	0.01	Power production
17-Dec	2.43	2.38	2.40	0.01	Power production
18-Dec	2.51	2.38	2.45	0.04	Power production
19-Dec	2.51	2.36	2.44	0.12	Power production
20-Dec	2.43	2.35	2.39	0.02	Power production
21-Dec	2.42	2.38	2.40	0.02	Power production
22-Dec	2.43	2.36	2.40	0.04	Power production
23-Dec	2.50	2.38	2.45	0.02	Power production
24-Dec	2.50	2.48	2.49	0.02	Power production
25-Dec	2.50	2.47	2.48	0.01	Power production
26-Dec	2.50	2.47	2.48	0.01	Power production
27-Dec	2.48	2.40	2.43	0.06	Power production
28-Dec	2.44	2.38	2.40	0.03	Power production
29-Dec	2.40	2.38	2.39	0.01	Power production
30-Dec	2.44	2.37	2.40	0.03	Power production
31-Dec	2.53	2.38	2.46	0.01	Power production
1-Jan	2.52	2.43	2.48	0.07	Power production
2-Jan	2.44	2.35	2.39	0.06	Power production
3-Jan	2.38	2.35	2.36	0.01	Power production
4-Jan	2.51	2.37	2.42	0.05	Power production
5-Jan	2.49	2.47	2.48	0.01	Power production
6-Jan	2.49	2.46	2.48	0.01	Power production
7-Jan	2.49	2.46	2.47	0.01	Power production
8-Jan	2.49	2.46	2.47	0.01	Power production
9-Jan	2.47	2.45	2.46	0.01	Power production
10-Jan	2.50	2.35	2.40	0.13	Power production
11-Jan	2.86	2.35	2.38	0.28	Power production
12-Jan	2.43	2.34	2.39	0.01	Power production
13-Jan	2.47	2.41	2.44	0.01	Power production
14-Jan	2.47	2.44	2.46	0.01	Power production
15-Jan	2.49	2.38	2.41	0.08	Power production
16-Jan	2.45	2.38	2.41	0.03	Power production
17-Jan	2.43	2.39	2.41	0.01	Power production
18-Jan	2.43	2.37	2.40	0.03	Power production
19-Jan	2.46	2.37	2.42	0.01	Power production

Date	Maximum of Stage (feet)	Minimum of Stage (feet)	Average of Stage (feet)	Maximum 15-minute Down-Ramping Rate (feet per 15 minutes)	Primary Purpose for Water Releases and Comments
20-Jan	2.46	2.41	2.44	0.03	Power production
21-Jan	2.45	2.41	2.43	0.02	Power production
22-Jan	2.45	2.39	2.42	0.02	Power production
23-Jan	2.45	2.35	2.41	0.05	Power production
24-Jan	2.42	2.34	2.37	0.06	Power production
25-Jan	2.37	2.34	2.36	0.01	Power production
26-Jan	2.41	2.35	2.38	0.02	Power production
27-Jan	2.38	2.34	2.36	0.03	Power production
28-Jan	2.37	2.35	2.36	0.01	Power production
29-Jan	2.36	2.33	2.35	0.02	Power production
30-Jan	2.37	2.33	2.35	0.01	Power production
31-Jan	2.37	2.33	2.34	0.02	Power production
1-Feb	2.37	2.34	2.35	0.01	Power production
2-Feb	2.36	2.34	2.35	0.01	Power production
3-Feb	2.35	2.33	2.34	0.01	Power production
4-Feb	2.37	2.33	2.35	0.01	Power production
5-Feb	2.38	2.34	2.35	0.01	Power production
6-Feb	2.37	2.33	2.35	0.02	Power production
7-Feb	2.38	2.34	2.35	0.03	Power production
8-Feb	2.39	2.34	2.36	0.02	Power production
9-Feb	2.36	2.34	2.35	0.01	Power production
10-Feb	2.37	2.34	2.36	0.01	Power production
11-Feb	2.38	2.35	2.36	0.01	Power production
12-Feb	2.38	2.34	2.36	0.01	Power production
13-Feb	2.38	2.34	2.36	0.01	Power production
14-Feb	2.38	2.35	2.36	0.01	Power production
15-Feb	2.38	2.35	2.36	0.02	Power production
16-Feb	2.37	2.35	2.36	0.01	Power production
17-Feb	2.38	2.34	2.36	0.01	Power production
18-Feb	2.39	2.36	2.37	0.01	Power production
19-Feb	2.38	2.33	2.36	0.04	Power production
20-Feb	2.37	2.33	2.34	0.02	Power production
21-Feb	2.38	2.33	2.35	0.02	Power production
22-Feb	2.37	2.35	2.36	0.01	Power production
23-Feb	2.36	2.34	2.35	0.01	Power production
24-Feb	2.37	2.35	2.36	0.00	Power production
25-Feb	2.37	2.34	2.35	0.01	Power production
26-Feb	2.38	2.34	2.36	0.01	Power production

Date	Maximum of Stage (feet)	Minimum of Stage (feet)	Average of Stage (feet)	Maximum 15-minute Down-Ramping Rate (feet per 15 minutes)	Primary Purpose for Water Releases and Comments
27-Feb	2.39	2.34	2.36	0.03	Power production
28-Feb	2.41	2.34	2.37	0.02	Power production
1-Mar	2.52	2.37	2.46	0.01	Power production
2-Mar	2.51	2.39	2.45	0.04	Power production
3-Mar	2.57	2.40	2.48	0.02	Power production
4-Mar	2.57	2.52	2.54	0.02	Power production
5-Mar	2.54	2.51	2.52	0.01	Power production
6-Mar	2.55	2.50	2.52	0.03	Power production
7-Mar	2.75	2.41	2.47	0.19	Power production
8-Mar	2.45	2.40	2.43	0.01	Power production
9-Mar	2.52	2.41	2.46	0.04	Power production
10-Mar	2.47	2.34	2.39	0.06	Power production
11-Mar	2.42	2.33	2.37	0.01	Power production
12-Mar	2.46	2.40	2.44	0.01	Power production
13-Mar	2.53	2.43	2.49	0.01	Power production
14-Mar	2.54	2.51	2.52	0.01	Power production
15-Mar	2.54	2.51	2.52	0.01	Power production
16-Mar	2.54	2.52	2.53	0.01	Power production
17-Mar	2.54	2.52	2.53	0.01	Power production
18-Mar	2.53	2.46	2.49	0.04	Power production
19-Mar	2.50	2.46	2.48	0.01	Power production
20-Mar	2.50	2.47	2.48	0.01	Power production
21-Mar	2.49	2.46	2.48	0.01	Power production
22-Mar	2.52	2.46	2.48	0.02	Power production
23-Mar	2.50	2.42	2.46	0.06	Power production
24-Mar	3.70	2.26	2.44	1.24	Power production
25-Mar	2.55	2.39	2.49	0.02	Power production
26-Mar	3.15	2.51	2.89	0.04	Power production
27-Mar	3.13	3.05	3.09	0.02	Power production
28-Mar	3.83	3.09	3.56	0.10	Power production
29-Mar	3.72	2.78	3.18	0.24	Power production
30-Mar	3.03	2.92	2.99	0.01	Power production
31-Mar	3.08	2.98	3.04	0.02	Power production
1-Apr	3.38	3.05	3.26	0.02	Power production
2-Apr	3.81	3.35	3.61	0.01	Power production
3-Apr	3.85	3.79	3.82	0.01	Power production
4-Apr	3.86	3.70	3.79	0.13	Power production
5-Apr	3.79	3.51	3.64	0.08	Power production

Date	Maximum of Stage (feet)	Minimum of Stage (feet)	Average of Stage (feet)	Maximum 15-minute Down-Ramping Rate (feet per 15 minutes)	Primary Purpose for Water Releases and Comments
6-Apr	3.52	3.17	3.37	0.17	Power production
7-Apr	3.32	3.16	3.25	0.01	Power production
8-Apr	3.31	2.88	3.07	0.15	Power production
9-Apr	3.46	2.88	3.17	0.02	Power production
10-Apr	3.52	3.44	3.46	0.05	Power production
11-Apr	3.45	3.14	3.24	0.18	Power production
12-Apr	3.14	2.69	2.88	0.14	Power production
13-Apr	2.74	2.71	2.73	0.02	Power production
14-Apr	2.76	2.71	2.73	0.03	Power production
15-Apr	2.82	2.73	2.77	0.02	Power production
16-Apr	2.80	2.72	2.77	0.08	Power production
17-Apr	2.80	2.72	2.77	0.03	Power production
18-Apr	2.89	2.78	2.83	0.06	Power production
19-Apr	3.14	2.85	3.02	0.05	Power production
20-Apr	3.20	3.06	3.16	0.01	Power production
21-Apr	3.26	3.19	3.23	0.01	Power production
22-Apr	3.24	3.03	3.10	0.11	Power production
23-Apr	3.05	2.98	3.00	0.05	Power production
24-Apr	3.00	2.89	2.93	0.10	Power production
25-Apr	2.95	2.76	2.81	0.08	Power production
26-Apr	2.77	2.74	2.75	0.01	Power production
27-Apr	2.77	2.74	2.75	0.01	Power production
28-Apr	2.76	2.74	2.75	0.01	Power production
29-Apr	3.29	2.72	2.90	0.03	Power production
30-Apr	3.30	3.27	3.29	0.01	Power production
1-May	3.30	3.14	3.21	0.04	Power production
2-May	3.15	2.74	2.89	0.23	Power production
3-May	2.78	2.72	2.74	0.03	Power production
4-May	2.72	2.54	2.66	0.07	Power production
5-May	2.61	2.53	2.57	0.01	Power production
6-May	2.59	2.56	2.57	0.01	Power production
7-May	2.85	2.54	2.67	0.01	Power production
8-May	2.86	2.70	2.79	0.07	Power production
9-May	2.72	2.44	2.57	0.12	Power production
10-May	2.63	2.44	2.56	0.03	Power production
11-May	2.65	2.58	2.62	0.01	Power production
12-May	2.65	2.48	2.58	0.09	Power production
13-May	2.54	2.39	2.47	0.06	Power production

Date	Maximum of Stage (feet)	Minimum of Stage (feet)	Average of Stage (feet)	Maximum 15-minute Down-Ramping Rate (feet per 15 minutes)	Primary Purpose for Water Releases and Comments
14-May	2.41	2.38	2.39	0.01	Power production
15-May	2.41	2.36	2.39	0.04	Power production
16-May	2.40	2.35	2.38	0.04	Power production
17-May	2.40	2.35	2.38	0.04	Power production
18-May	2.40	2.36	2.38	0.01	Power production
19-May	2.41	2.34	2.38	0.02	Power production
20-May	2.38	2.35	2.36	0.01	Power production
21-May	2.42	2.35	2.38	0.03	Power production
22-May	2.41	2.37	2.39	0.01	Power production
23-May	2.41	2.37	2.39	0.02	Irrigation delivery
24-May	2.71	2.37	2.59	0.31	Irrigation delivery
25-May	2.71	2.66	2.69	0.03	Irrigation delivery
26-May	3.18	2.65	2.79	0.45	Irrigation delivery
27-May	3.06	2.73	2.98	0.21	Irrigation delivery
28-May	3.06	3.03	3.04	0.01	Irrigation delivery
29-May	3.45	3.04	3.28	0.01	Irrigation delivery
30-May	3.46	3.35	3.41	0.06	Irrigation delivery
31-May	3.35	2.67	2.94	0.22	Power production
1-Jun	2.73	2.58	2.67	0.09	Power production
2-Jun	2.71	2.57	2.65	0.02	Power production
3-Jun	2.73	2.68	2.71	0.03	Power production
4-Jun	2.72	2.66	2.69	0.05	Power production
5-Jun	2.75	2.41	2.52	0.20	Power production
6-Jun	2.45	2.40	2.41	0.02	Power production
7-Jun	2.61	2.40	2.49	0.03	Irrigation delivery
8-Jun	2.77	2.52	2.64	0.15	Irrigation delivery
9-Jun	2.63	2.58	2.60	0.02	Irrigation delivery
10-Jun	2.63	2.50	2.56	0.11	Irrigation delivery
11-Jun	2.56	2.52	2.54	0.02	Irrigation delivery
12-Jun	2.54	2.50	2.52	0.02	Irrigation delivery
13-Jun	2.52	2.46	2.48	0.05	Irrigation delivery
14-Jun	2.46	2.35	2.41	0.03	Irrigation delivery
15-Jun	2.46	2.30	2.36	0.10	Irrigation delivery
16-Jun	2.37	2.33	2.35	0.02	Irrigation delivery
17-Jun	2.90	2.33	2.40	0.01	Irrigation delivery
18-Jun	3.13	2.90	2.99	0.01	Irrigation delivery
19-Jun	3.45	3.12	3.32	0.01	Irrigation delivery
20-Jun	3.64	3.43	3.57	0.01	Irrigation delivery

Date	Maximum of Stage (feet)	Minimum of Stage (feet)	Average of Stage (feet)	Maximum 15-minute Down-Ramping Rate (feet per 15 minutes)	Primary Purpose for Water Releases and Comments
21-Jun	3.64	3.62	3.63	0.01	Irrigation delivery
22-Jun	3.64	3.37	3.52	0.15	Irrigation delivery
23-Jun	3.39	3.37	3.38	0.01	Irrigation delivery
24-Jun	3.40	3.37	3.38	0.01	Irrigation delivery
25-Jun	3.65	3.38	3.53	0.01	Irrigation delivery
26-Jun	3.78	3.64	3.71	0.01	Irrigation delivery
27-Jun	3.94	3.76	3.83	0.01	Irrigation delivery
28-Jun	4.09	3.92	4.00	0.14	Irrigation delivery
29-Jun	4.47	4.00	4.19	0.09	Irrigation delivery
30-Jun	4.37	4.34	4.36	0.01	Irrigation delivery
1-Jul	4.37	4.34	4.35	0.02	Irrigation delivery
2-Jul	4.65	4.34	4.54	0.01	Irrigation delivery
3-Jul	4.76	4.54	4.69	0.09	Irrigation delivery
4-Jul	4.76	4.43	4.58	0.16	Irrigation delivery
5-Jul	4.44	4.37	4.40	0.02	Irrigation delivery
6-Jul	4.50	4.37	4.43	0.06	Irrigation delivery
7-Jul	4.71	4.45	4.62	0.01	Irrigation delivery
8-Jul	4.71	4.69	4.70	0.01	Irrigation delivery
9-Jul	4.72	4.69	4.70	0.01	Irrigation delivery
10-Jul	4.72	4.61	4.67	0.08	Irrigation delivery
11-Jul	4.70	4.65	4.68	0.01	Irrigation delivery
12-Jul	4.70	4.52	4.58	0.17	Irrigation delivery
13-Jul	4.54	4.52	4.53	0.01	Irrigation delivery
14-Jul	4.55	4.51	4.52	0.01	Irrigation delivery
15-Jul	4.63	4.52	4.59	0.01	Irrigation delivery
16-Jul	4.62	4.54	4.59	0.03	Irrigation delivery
17-Jul	4.56	4.51	4.53	0.03	Irrigation delivery
18-Jul	4.53	4.48	4.50	0.04	Irrigation delivery
19-Jul	4.51	3.48	4.38	0.72	Irrigation delivery
20-Jul	4.37	4.16	4.24	0.18	Irrigation delivery
21-Jul	4.22	4.15	4.18	0.01	Irrigation delivery
22-Jul	4.22	4.19	4.21	0.01	Irrigation delivery
23-Jul	4.34	4.20	4.29	0.01	Irrigation delivery
24-Jul	4.33	4.28	4.32	0.02	Irrigation delivery
25-Jul	4.38	4.32	4.34	0.02	Irrigation delivery
26-Jul	4.38	4.35	4.36	0.01	Irrigation delivery
27-Jul	4.43	4.35	4.40	0.01	Irrigation delivery
28-Jul	4.52	4.40	4.47	0.01	Irrigation delivery

Date	Maximum of Stage (feet)	Minimum of Stage (feet)	Average of Stage (feet)	Maximum 15-minute Down-Ramping Rate (feet per 15 minutes)	Primary Purpose for Water Releases and Comments
29-Jul	4.51	4.49	4.50	0.01	Irrigation delivery
30-Jul	4.51	4.38	4.45	0.03	Irrigation delivery
31-Jul	4.48	4.39	4.43	0.01	Irrigation delivery
1-Aug	4.49	4.34	4.42	0.05	Irrigation delivery
2-Aug	4.51	4.34	4.43	0.02	Irrigation delivery
3-Aug	4.51	4.46	4.48	0.02	Irrigation delivery
4-Aug	4.48	4.34	4.43	0.07	Irrigation delivery
5-Aug	4.36	4.14	4.23	0.19	Irrigation delivery
6-Aug	4.22	4.20	4.21	0.01	Irrigation delivery
7-Aug	4.47	4.20	4.34	0.01	Irrigation delivery
8-Aug	4.73	4.45	4.55	0.15	Irrigation delivery
9-Aug	4.51	3.70	4.07	0.19	Irrigation delivery
10-Aug	3.81	3.69	3.76	0.02	Irrigation delivery
11-Aug	3.81	3.77	3.79	0.02	Irrigation delivery
12-Aug	3.79	3.74	3.77	0.02	Irrigation delivery
13-Aug	3.75	3.60	3.67	0.06	Irrigation delivery
14-Aug	3.62	3.37	3.47	0.11	Irrigation delivery
15-Aug	3.42	3.10	3.29	0.14	Irrigation delivery
16-Aug	3.10	2.85	2.94	0.14	Irrigation delivery
17-Aug	2.96	2.86	2.92	0.01	Irrigation delivery
18-Aug	3.02	2.95	3.00	0.01	Irrigation delivery
19-Aug	3.03	3.01	3.02	0.01	Irrigation delivery
20-Aug	3.45	3.01	3.28	0.03	Irrigation delivery
21-Aug	3.48	3.38	3.42	0.02	Irrigation delivery
22-Aug	3.59	3.46	3.53	0.02	Irrigation delivery
23-Aug	3.69	3.52	3.64	0.14	Irrigation delivery
24-Aug	3.70	3.68	3.69	0.01	Irrigation delivery
25-Aug	3.69	3.59	3.65	0.03	Irrigation delivery
26-Aug	3.59	3.35	3.46	0.07	Irrigation delivery
27-Aug	3.37	3.32	3.34	0.02	Irrigation delivery
28-Aug	3.39	3.31	3.35	0.01	Irrigation delivery
29-Aug	3.57	3.38	3.46	0.01	Irrigation delivery
30-Aug	3.65	3.55	3.61	0.02	Irrigation delivery
31-Aug	3.82	3.63	3.76	0.01	Irrigation delivery
1-Sep	3.83	3.81	3.81	0.01	Irrigation delivery
2-Sep	3.83	3.80	3.81	0.01	Irrigation delivery
3-Sep	3.95	3.81	3.89	0.01	Irrigation delivery
4-Sep	4.20	3.93	4.05	0.04	Irrigation delivery

Date	Maximum of Stage (feet)	Minimum of Stage (feet)	Average of Stage (feet)	Maximum 15-minute Down-Ramping Rate (feet per 15 minutes)	Primary Purpose for Water Releases and Comments
5-Sep	4.14	4.08	4.11	0.01	Irrigation delivery
6-Sep	4.13	4.10	4.12	0.01	Irrigation delivery
7-Sep	4.14	4.12	4.13	0.01	Irrigation delivery
8-Sep	4.13	4.09	4.10	0.03	Irrigation delivery
9-Sep	4.11	4.07	4.09	0.01	Irrigation delivery
10-Sep	4.30	4.07	4.16	0.01	Irrigation delivery
11-Sep	4.30	4.15	4.22	0.14	Irrigation delivery
12-Sep	4.29	4.18	4.23	0.05	Irrigation delivery
13-Sep	4.34	4.20	4.25	0.01	Irrigation delivery
14-Sep	4.34	3.62	4.13	0.36	Irrigation delivery
15-Sep	3.63	3.41	3.48	0.12	Irrigation delivery
16-Sep	3.42	3.41	3.41	0.01	Irrigation delivery
17-Sep	3.42	3.40	3.41	0.01	Irrigation delivery
18-Sep	3.44	3.29	3.38	0.10	Irrigation delivery
19-Sep	3.29	2.82	3.13	0.30	Irrigation delivery
20-Sep	2.85	2.76	2.80	0.09	Irrigation delivery
21-Sep	2.76	2.66	2.71	0.03	Irrigation delivery
22-Sep	2.81	2.67	2.74	0.05	Irrigation delivery
23-Sep	2.73	2.66	2.70	0.06	Irrigation delivery
24-Sep	2.69	2.64	2.66	0.01	Irrigation delivery
25-Sep	2.68	2.65	2.67	0.02	Irrigation delivery
26-Sep	2.68	2.64	2.66	0.02	Irrigation delivery
27-Sep	2.66	2.31	2.50	0.13	Irrigation delivery
28-Sep	2.36	2.31	2.33	0.04	Irrigation delivery
29-Sep	2.31	2.21	2.26	0.02	Irrigation delivery
30-Sep	2.25	2.20	2.22	0.02	Irrigation delivery