John Day Dam[1]

1. Special Project Operations.

1.1. Spill. Spill for fish passage will be provided during the spring and summer outmigration seasons in accordance with spill specifications in Appendix E Fish Operations Plan (FOP) and as coordinated through TMT. Alternative spill patterns to control dissolved gas levels or change fish passage conditions will be coordinated through the FPOM. Planning dates for spill are from April 10 through August 31 for spring and summer migrants as required in the 2008 BiOp. Prototype top spillway weirs (TSW) will be evaluated in 2010 to provide information for design of a permanent surface flow outlet system at John Day Dam. The evaluation will compare the performance of two TSWs operating with two different training spill levels. A repeat of the 2009 TSW test will occur. Two prototype TSWs that pass about 10 kcfs spill each will be relocated to spill bays 18 and 19. Training spill patterns to support the TSW jets and provide good downstream egress for juvenile salmonids have been developed by modeling at ERDC and coordination with regional agencies. The TSW test will occur between 20 April and 20 July. During testing, spill and operation of the TSWs will be provided 24-hours per day. Before this test, from April 10 to approximately April 20 (planning dates), spill discharges will be 30% of instantaneous project flow 24 hours per day using the TSW test pattern. Following the TSW test, from approximately July 21 through August 31, spill will be 30% of instantaneous project flow 24-hours per day. Spill will be provided in a manner consistent with TDG management to avoid excessive gas supersaturation conditions. Spill patterns and amounts may change following regional review of 2009 TSW test results.

2. Studies.

2.1. Adult Lamprey Studies. Half-duplex PIT and radio-telemetry antennas and receivers will be operational to monitor adult lamprey passage no later than mid-May. Access to RT antenna and receivers for downloading and maintenance will be needed from March until August. Any new antenna or receiver installations will be completed during the 2009-2010 IWW period. JSATS-tagged adult lamprey will be released in the Bonneville Dam forebay and mobile tracked by boat through the reservoir reaches, tributary mouths, and tailraces of upstream dams. This work may require a permit for access to the tailrace BRZ of John Day Dam.

2.2. Adult Salmon Studies. Half-duplex PIT and radio-telemetry tagged adult Spring Chinook salmon (tagged at Bonneville Dam) will be used to evaluate adult salmon passage, with particular emphasis on assessing the effects of modifications to the upper sections of the North Fish Ladder. Radio-telemetry antennas and receivers will be operational to monitor adult Spring Chinook salmon passage no later than the end of March. Access to radio-telemetry antennas and receivers for downloading and maintenance will be needed from March until August. Any new antenna or receiver

[1] The purpose of this section is to notify regional interests of planned activities that will or may affect fish passage. Further coordination may occur as needed.

installations will be completed during the 2009-2010 IWW period. The Fisheries Field Unit (FFU) will conduct periodic post-construction visual and/or video monitoring at the North Fish Ladder between September 1 and October 31 to identify and diagnose potential problem areas associated with the ladder modifications.

2.3. Evaluation of Top Spillway Weirs (TSW)

2.3.1. General. Two prototype top spillway weirs that pass ~10 kcfs each will be moved from Bays 15 and 16 from 2009 and placed in bays 18 & 19 in 2010. In 2009-10 in-water work season bay 20 has added a new spill deflector place at elevation 150' msl. Training spill patterns to support the TSW jets and provide good downstream egress for juvenile salmonids have been developed (Table ?) and will be used to replicate tests that occurred in 2009. Two spill levels will be tested to provide spill / TSW efficiency curves. These data will be used for designing surface flow outlet and tailrace improvements at John Day Dam. Passage distribution, forebay retention, tailrace egress, and survival will be estimated for yearling Chinook, steelhead, and subyearling Chinook salmon.

2.3.2. TSW Evaluations. An evaluation of the effects of operating two TSWs at two spill levels on juvenile Chinook and steelhead passage distribution, forebay residence time, tailrace egress conditions, and total survival will be conducted. Acoustic telemetry will be used to assess passage behavior and survival at the dam. Passage metrics will be collected under two training spill conditions, 30% spill vs. 40% spill. A randomized block design will be used to accomplish this, with each spill treatment lasting 2 or 3 days. The period for all of these study components will run from approximately 20 April – 20 July and will depend on fish availability and river conditions. Emergency outages may be requested for replacement or repair of damaged equipment during the study. These will be coordinated through FFDRWG/FPOM and RCC. Approximately every two weeks from May through July, battery changes will be necessary for hydrophones located in the JDA forebay. This will require a BRZ permit for forebay access which may impact the level of spill allowed.

Table 2.3.1. JDA TSW Spill Patterns.

Patterns pending.

2.4. Post Construction Balloon Tag Tests of New Spillbay Deflector at Bay 20. The Corps is completing a new spill deflector in spillbay 20 at John Day Dam. A post construction test of the new deflector will take place in late March/Early April to test the new deflector with training spill from a TSW in Bay 19. Approximately 400 fish will be released via a mid point release pipe at the center of bay 20 at 2.4 and 4K respectively. Training spill will be required through bay 19 each day of testing as well as a spill level of 2.4k or 4K during specific fish releases. Fish will be recovered downstream of John Day dam with recovery boats and held for 24 and 48hours for post passage survival. Testing will be completed prior to the start of the 2010 spill season on 10 April.

2.5. Out of Criteria Operations Related to Research. An extended in-water work period from 15 November 2009 to 30 March 2010 is needed to ensure completion of the second phase of the FCRPS BIOP required JDA north ladder modifications from the count window to the exit. Evaluations of the 2003-2007 fish run passage timing suggests that these dates should minimize the impacts on listed fish. Emergency outages may be requested for replacement or repair of damaged equipment during the study. These will be coordinated through FFDRWG/FPOM and RCC. Approximately every two weeks from May through July, battery changes will be necessary for hydrophones located in the JDA forebay.

2.6. Summary. All dates shown are approximate and could be advanced or delayed by a week or so depending on various factors such as river flows, contractor schedules, and equipment failures, etc. Some evaluations may not proceed. Therefore, a final description of studies and outages being conducted will be coordinated with the region through AFEP (FFDRWG and SRWG), prior to April 1. All special operation requests or schedule changes will be coordinated with the fisheries agencies and tribes through the AFEP and with RCC and BPA.

Table JDA-10. Spill Patterns for John Day Dam with TSWs.

SPILLWAY BAY NUMBER																	TSW	TSW		Total	SPILL
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	STOPS	Kcfs
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	6.1	6.1	0.0	12.1	19.4
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.1	6.1	**1.0**	13.1	21.0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.1	6.1	**1.5**	13.6	21.8
0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.1	6.1	1.5	14.6	23.4
0	1	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.1	6.1	1.5	15.6	25.0
0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	6.1	6.1	1.5	16.6	26.6
0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**	1	6.1	6.1	1.5	17.6	28.2
0	1	1	0	0	0	0	0	0	0	0	0	0	0	**1**	1	1	6.1	6.1	1.5	18.6	29.8
0	1	1	0	0	0	0	0	0	0	0	0	0	**1**	1	1	1	6.1	6.1	1.5	19.6	31.4
0	1	1	0	0	0	0	0	0	0	0	0	**1**	1	1	1	1	6.1	6.1	1.5	20.6	33.0
0	1	1	0	0	0	0	0	0	0	0	**1**	1	1	1	1	1	6.1	6.1	1.5	21.6	34.6
0	1	1	0	0	0	0	0	0	0	**1**	1	1	1	1	1	1	6.1	6.1	1.5	22.6	36.2
0	1	1	0	0	0	0	0	0	**1**	1	1	1	1	1	1	1	6.1	6.1	1.5	23.6	37.8
0	1	1	0	0	0	0	0	**1**	1	1	1	1	1	1	1	1	6.1	6.1	1.5	24.6	39.4
0	1	1	0	0	0	0	**1**	1	1	1	1	1	1	1	1	1	6.1	6.1	1.5	25.6	41.0
0	1	1	0	0	0	**1**	1	1	1	1	1	1	1	1	1	1	6.1	6.1	1.5	26.6	42.6
0	1	1	**1**	0	0	1	1	1	1	1	1	1	1	1	1	1	6.1	6.1	1.5	27.6	44.2
0	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	**1.5**	6.1	6.1	1.5	28.1	45.0
0	**1.5**	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1.5	6.1	6.1	1.5	28.6	45.8
0	1.5	**1.5**	1	0	0	1	1	1	1	1	1	1	1	1	1	1.5	6.1	6.1	1.5	29.1	46.6
0	1.5	1.5	1	**1**	0	1	1	1	1	1	1	1	1	1	1	1.5	6.1	6.1	1.5	30.1	48.2
0	1.5	1.5	1	1	0	1	1	1	1	1	1	1	1	1	**1.5**	1.5	6.1	6.1	1.5	30.6	49.0
0	1.5	1.5	**1.5**	1	0	1	1	1	1	1	1	1	1	1	1.5	1.5	6.1	6.1	1.5	31.1	49.8
0	1.5	1.5	1.5	1	0	1	1	1	1	1	1	1	1	1	1.5	1.5	6.1	6.1	**2.0**	31.6	50.6
0	1.5	1.5	1.5	1	0	1	1	1	1	1	1	1	1	1	1.5	**2**	6.1	6.1	2.0	32.1	51.4
0	1.5	1.5	1.5	1	**1**	1	1	1	1	1	1	1	1	1	1.5	2	6.1	6.1	2.0	33.1	53.0
0	1.5	1.5	1.5	**1.5**	1	1	1	1	1	1	1	1	1	1	1.5	2	6.1	6.1	2.0	33.6	53.8
0	**2**	1.5	**1**	1.5	1	1	1	**1.5**	1	1	1	1	1	1	1.5	2	6.1	6.1	2.0	34.1	54.6
0	2	1.5	1	1.5	1	**1.5**	1	1.5	1	1	1	1	1	1	1.5	2	6.1	6.1	2.0	34.6	55.4
0	2	1.5	1	1.5	1	1.5	1	1.5	1	1	1	1	1	**1.5**	1.5	2	6.1	6.1	2.0	35.1	56.2
0	2	1.5	1	1.5	1	1.5	1	1.5	1	1	1	1	1	1.5	**2**	2	6.1	6.1	2.0	35.6	57.0
0	**2.5**	1.5	1	1.5	1	1.5	1	1.5	1	1	1	1	1	1.5	2	2	6.1	6.1	2.0	36.1	57.8
0	2.5	1.5	1	1.5	1	1.5	1	1.5	**1.5**	1	1	1	1	1.5	2	2	6.1	6.1	2.0	36.6	58.6
0	2.5	1.5	1	1.5	1	1.5	**1.5**	1.5	1.5	1	1	1	1	1.5	2	2	6.1	6.1	2.0	37.1	59.4
0	2.5	1.5	1	1.5	1	1.5	1.5	1.5	1.5	1	1	1	**1.5**	1.5	2	2	6.1	6.1	2.0	37.6	60.2
0	2.5	1.5	1	1.5	1	1.5	1.5	**2**	1.5	1	1	1	1.5	1.5	2	2	6.1	6.1	2.0	38.1	61.0
0	2.5	1.5	1	1.5	**1.5**	1.5	1.5	2	1.5	1	1	1	1.5	1.5	2	2	6.1	6.1	2.0	38.6	61.8
0	2.5	1.5	1	1.5	1.5	1.5	1.5	2	1.5	1	1	**1.5**	1.5	1.5	2	2	6.1	6.1	2.0	39.1	62.6
0	2.5	1.5	1	1.5	1.5	1.5	1.5	2	1.5	1	**1.5**	1.5	1.5	1.5	2	2	6.1	6.1	2.0	39.6	63.4
0	2.5	1.5	1	1.5	1.5	**2**	1.5	2	1.5	1	1.5	1.5	1.5	1.5	2	2	6.1	6.1	2.0	40.1	64.2
0	2.5	1.5	1	1.5	1.5	2	1.5	2	1.5	1	1.5	1.5	1.5	1.5	2	**2.5**	6.1	6.1	2.0	40.6	65.0
0	2.5	1.5	1	1.5	1.5	2	1.5	2	1.5	1	1.5	1.5	1.5	**2**	2	2.5	6.1	6.1	2.0	41.1	65.8
0	2.5	1.5	1	1.5	1.5	2	1.5	2	1.5	**1.5**	1.5	1.5	1.5	2	2	2.5	6.1	6.1	2.0	41.6	66.6
0	2.5	1.5	**1.5**	1.5	1.5	2	1.5	2	1.5	1.5	1.5	1.5	1.5	2	2	2.5	6.1	6.1	2.0	42.1	67.4
0	2.5	1.5	1.5	1.5	1.5	2	**2**	2	1.5	1.5	1.5	1.5	1.5	2	2	2.5	6.1	6.1	2.0	42.6	68.2
0	2.5	1.5	1.5	1.5	1.5	2	2	2	1.5	1.5	1.5	1.5	**2**	2	2	2.5	6.1	6.1	2.0	43.1	69.0
0	2.5	1.5	1.5	1.5	1.5	2	2	2	1.5	1.5	1.5	1.5	2	2	**2.5**	2.5	6.1	6.1	2.0	43.6	69.8
0	2.5	**2**	1.5	1.5	1.5	2	2	2	1.5	1.5	1.5	1.5	2	2	2.5	2.5	6.1	6.1	2.0	44.1	70.6
0	2.5	2	1.5	1.5	1.5	2	2	2	1.5	1.5	1.5	1.5	2	2	2.5	2.5	6.1	6.1	**2.5**	44.6	71.4
0	2.5	2	1.5	1.5	1.5	2	2	2	1.5	1.5	1.5	**2**	2	2	2.5	2.5	6.1	6.1	2.5	45.1	72.2
0	**3**	2	1.5	1.5	1.5	2	2	2	1.5	1.5	1.5	2	2	2	2.5	2.5	6.1	6.1	2.5	45.6	73.0
0	3	2	1.5	**2**	1.5	2	2	2	1.5	1.5	1.5	2	2	2	2.5	2.5	6.1	6.1	2.5	46.1	73.8
0	3	2	1.5	2	1.5	2	2	2	1.5	1.5	**2**	2	2	2	2.5	2.5	6.1	6.1	2.5	46.6	74.6
0	3	2	1.5	2	1.5	2	2	2	**2**	1.5	2	2	2	2	2.5	2.5	6.1	6.1	2.5	47.1	75.4
0	3	2	1.5	2	1.5	2	2	2	2	**2**	2	2	2	2	2.5	2.5	6.1	6.1	2.5	47.6	76.2
0	3	2	1.5	2	**2**	2	2	2	2	2	2	2	2	2	2.5	2.5	6.1	6.1	2.5	48.1	77.0
0	3	2	1.5	2	2	**2.5**	2	2	2	2	2	2	2	2	2.5	2.5	6.1	6.1	2.5	48.6	77.8
0	3	2	**2**	2	2	2.5	2	2	2	2	2	2	2	2	2.5	2.5	6.1	6.1	2.5	49.1	78.6
0	3	**2.5**	2	2	2	2.5	2	2	2	2	2	2	2	2	2.5	2.5	6.1	6.1	2.5	49.6	79.4
0	3	2.5	2	2	**2.5**	2.5	2	2	2	2	2	2	2	2	2.5	2.5	6.1	6.1	2.5	50.1	80.2
0	**3.5**	2.5	2	2	2.5	2.5	2	2	2	2	2	2	2	2	2.5	2.5	6.1	6.1	2.5	50.6	81.0
0	3.5	2.5	2	2	2.5	2.5	2	2	2	2	2	2	2	**2.5**	2.5	2.5	6.1	6.1	2.5	51.1	81.8
0	3.5	2.5	2	2	2.5	2.5	**2.5**	2	2	2	2	2	2	2.5	2.5	2.5	6.1	6.1	2.5	51.6	82.6
0	3.5	2.5	2	2	2.5	2.5	2.5	2	2	2	2	2	**2.5**	2.5	2.5	2.5	6.1	6.1	2.5	52.1	83.4
0	3.5	2.5	**1.5**	2	2.5	2.5	2.5	**2.5**	2	2	2	**2.5**	2.5	2.5	2.5	2.5	6.1	6.1	2.5	52.6	84.2
0	3.5	2.5	1.5	2	2.5	2.5	2.5	2.5	**2.5**	2	2	2.5	2.5	2.5	2.5	2.5	6.1	6.1	2.5	53.1	85.0
0	3.5	2.5	1.5	2	2.5	2.5	2.5	2.5	2.5	2	2	2.5	2.5	2.5	**3**	2.5	6.1	6.1	2.5	53.6	85.8
0	3.5	2.5	1.5	2	2.5	2.5	2.5	2.5	2.5	2	2	2.5	2.5	**3**	3	2.5	6.1	6.1	2.5	54.1	86.6
0	3.5	2.5	1.5	2	2.5	2.5	2.5	2.5	2.5	2	**2.5**	2.5	2.5	3	3	2.5	6.1	6.1	2.5	54.6	87.4
0	3.5	**3**	1.5	2	2.5	2.5	2.5	2.5	2.5	2	2.5	2.5	2.5	3	3	2.5	6.1	6.1	2.5	55.1	88.2
0	3.5	3	1.5	2	2.5	2.5	2.5	2.5	2.5	2	2.5	2.5	**3**	3	3	2.5	6.1	6.1	2.5	55.6	89.0
0	3.5	3	1.5	2	2.5	**3**	2.5	2.5	2.5	2	2.5	2.5	3	3	3	2.5	6.1	6.1	2.5	56.1	89.8
0	3.5	3	1.5	2	2.5	3	2.5	2.5	2.5	**2.5**	2.5	2.5	3	3	3	2.5	6.1	6.1	2.5	56.6	90.6
0	3.5	3	**2**	2	2.5	3	2.5	2.5	2.5	2.5	2.5	2.5	3	3	3	2.5	6.1	6.1	2.5	57.1	91.4
0	3.5	3	2	2	2.5	3	2.5	2.5	2.5	2.5	2.5	2.5	3	3	3	**3**	6.1	6.1	2.5	57.6	92.2
0	3.5	3	2	**2.5**	2.5	3	2.5	2.5	2.5	2.5	2.5	2.5	3	3	3	3	6.1	6.1	2.5	58.1	93.0
0	3.5	3	2	2.5	2.5	3	2.5	2.5	2.5	2.5	2.5	2.5	3	3	**3.5**	3	6.1	6.1	2.5	58.6	93.8
0	3.5	**3.5**	2	2.5	2.5	3	2.5	2.5	2.5	2.5	2.5	2.5	3	3	3.5	3	6.1	6.1	2.5	59.1	94.6
0	3.5	3.5	2	2.5	2.5	3	**3**	2.5	2.5	2.5	2.5	2.5	3	3	3.5	3	6.1	6.1	2.5	59.6	95.4
0	3.5	3.5	2	2.5	2.5	3	3	2.5	2.5	2.5	2.5	2.5	3	3	3.5	**3.5**	6.1	6.1	2.5	60.1	96.2
0	3.5	3.5	2	**3**	2.5	3	3	2.5	2.5	2.5	2.5	2.5	3	3	3.5	3.5	6.1	6.1	2.5	60.6	97.0
0	3.5	3.5	**2.5**	3	2.5	3	3	2.5	2.5	2.5	2.5	2.5	3	3	3.5	3.5	6.1	6.1	2.5	61.1	97.8
0	3.5	3.5	2.5	3	2.5	3	3	2.5	2.5	2.5	**3**	2.5	3	3	3.5	3.5	6.1	6.1	2.5	61.6	98.6
0	3.5	3.5	2.5	3	2.5	3	3	**3**	2.5	2.5	3	2.5	3	3	3.5	3.5	6.1	6.1	2.5	62.1	99.4
0	3.5	3.5	2.5	3	2.5	3	3	3	**3**	2.5	3	2.5	3	3	3.5	3.5	6.1	6.1	2.5	62.6	100.2

Table JDA-10 (cont). Spill Patterns for John Day Dam with TSWs.

SPILLWAY BAY NUMBER																	TSW	TSW		Total	SPILL
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	STOPS	Kcfs
0	3.5	3.5	2.5	3	2.5	3	3	3	3	2.5	3	**3**	3	3	3.5	3.5	6.1	6.1	2.5	63.1	101.0
0	3.5	3.5	2.5	**3.5**	2.5	3	3	3	3	2.5	3	3	3	3	3.5	3.5	6.1	6.1	2.5	63.6	101.8
0	3.5	3.5	**3**	3.5	2.5	3	3	3	3	2.5	3	3	3	3	3.5	3.5	6.1	6.1	2.5	64.1	102.6
0	3.5	3.5	3	3.5	2.5	3	3	3	3	2.5	3	3	3	3	3.5	**4**	6.1	6.1	2.5	64.6	103.4
0	3.5	3.5	3	3.5	2.5	3	3	3	3	2.5	3	3	3	**3.5**	3.5	4	6.1	6.1	2.5	65.1	104.2
0	**4**	3.5	3	3.5	2.5	3	3	3	3	2.5	3	3	3	3.5	3.5	4	6.1	6.1	2.5	65.6	105.0
0	4	3.5	3	3.5	2.5	3	3	3	3	**3**	3	3	3	3.5	3.5	4	6.1	6.1	2.5	66.1	105.8
0	4	3.5	3	3.5	**3**	3	3	3	3	3	3	3	3	3.5	3.5	4	6.1	6.1	2.5	66.6	106.6
0	4	3.5	3	3.5	3	3	3	3	3	3	3	3	3	3.5	**4**	4	6.1	6.1	2.5	67.1	107.4
0	4	3.5	3	3.5	3	3	3	3	3	3	3	3	**3.5**	3.5	4	4	6.1	6.1	2.5	67.6	108.2
0	4	**4**	3	3.5	3	3	3	3	3	3	3	3	3.5	3.5	4	4	6.1	6.1	2.5	68.1	109.0
0	4	4	3	3.5	3	3	3	3	3	3	**3.5**	3	3.5	3.5	4	4	6.1	6.1	2.5	68.6	109.8
0	4	4	3	3.5	3	**3.5**	3	3	3	3	3.5	3	3.5	3.5	4	4	6.1	6.1	2.5	69.1	110.6
0	4	4	3	3.5	3	3.5	3	3	3	**3.5**	3.5	3	3.5	3.5	4	4	6.1	6.1	2.5	69.6	111.4
0	4	4	3	3.5	3	3.5	3	3	3	3.5	3.5	**3.5**	3.5	3.5	4	4	6.1	6.1	2.5	70.1	112.2
0	4	4	3	3.5	**3.5**	3.5	3	3	3	3.5	3.5	3.5	3.5	3.5	4	4	6.1	6.1	2.5	70.6	113.0
0	4	4	3	3.5	3.5	3.5	3	**3.5**	3	3.5	3.5	3.5	3.5	3.5	4	4	6.1	6.1	2.5	71.1	113.8
0	4	4	3	3.5	3.5	3.5	3	3.5	3	3.5	3.5	3.5	3.5	3.5	4	**4.5**	6.1	6.1	2.5	71.6	114.6
0	4	4	3	3.5	3.5	3.5	3	3.5	3	3.5	3.5	3.5	3.5	3.5	4	4.5	6.1	6.1	**3.0**	72.1	115.4
0	4	4	3	3.5	3.5	3.5	3	3.5	3	3.5	3.5	3.5	3.5	**4**	4	4.5	6.1	6.1	3.0	72.6	116.2
0	4	4	**3.5**	3.5	3.5	3.5	3	3.5	3	3.5	3.5	3.5	3.5	4	4	4.5	6.1	6.1	3.0	73.1	117.0
0	4	4	3.5	3.5	3.5	3.5	**3.5**	3.5	3	3.5	3.5	3.5	3.5	4	4	4.5	6.1	6.1	3.0	73.6	117.8
0	4	4	3.5	3.5	3.5	3.5	3.5	3.5	**3.5**	3.5	3.5	3.5	3.5	4	4	4.5	6.1	6.1	3.0	74.1	118.6
0	4	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4	**4.5**	4.5	6.1	6.1	3.0	74.6	119.4
0	4	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	**4**	4	4.5	4.5	6.1	6.1	3.0	75.1	120.2
0	4	**4.5**	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4	4	4.5	4.5	6.1	6.1	3.0	75.6	121.0
0	4	4.5	3.5	**4**	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4	4	4.5	4.5	6.1	6.1	3.0	76.1	121.8
0	4	4.5	3.5	4	3.5	3.5	3.5	3.5	3.5	3.5	**4**	3.5	4	4	4.5	4.5	6.1	6.1	3.0	76.6	122.6
0	4	4.5	3.5	4	3.5	**4**	3.5	3.5	3.5	3.5	4	3.5	4	4	4.5	4.5	6.1	6.1	3.0	77.1	123.4
0	4	4.5	3.5	4	3.5	4	3.5	3.5	3.5	**4**	4	3.5	4	4	4.5	4.5	6.1	6.1	3.0	77.6	124.2
0	4	4.5	3.5	4	3.5	4	3.5	3.5	3.5	4	4	**4**	4	4	4.5	4.5	6.1	6.1	3.0	78.1	125.0
0	4	4.5	3.5	4	**4**	4	3.5	3.5	3.5	4	4	4	4	4	4.5	4.5	6.1	6.1	3.0	78.6	125.8
0	4	4.5	3.5	4	4	4	3.5	**4**	3.5	4	4	4	4	4	4.5	4.5	6.1	6.1	3.0	79.1	126.6
0	4	4.5	3.5	4	4	4	3.5	4	3.5	4	4	4	4	4	4.5	**5**	6.1	6.1	3.0	79.6	127.4
0	4	4.5	3.5	4	4	4	3.5	4	3.5	4	4	4	4	4	4.5	5	6.1	6.1	**3.5**	80.1	128.2
0	4	4.5	3.5	4	4	4	3.5	4	3.5	4	4	4	4	**4.5**	4.5	5	6.1	6.1	3.5	80.6	129.0
0	4	4.5	**4**	4	4	4	3.5	4	3.5	4	4	4	4	4.5	4.5	5	6.1	6.1	3.5	81.1	129.8
0	4	4.5	4	4	4	4	**4**	4	3.5	4	4	4	4	4.5	4.5	5	6.1	6.1	3.5	81.6	130.6
0	4	4.5	4	4	4	4	4	4	**4**	4	4	4	4	4.5	4.5	5	6.1	6.1	3.5	82.1	131.4
0	4	4.5	4	4	4	4	4	4	4	4	4	4	4	4.5	**5**	5	6.1	6.1	3.5	82.6	132.2
0	4	4.5	4	4	4	4	4	4	4	4	4	4	**4.5**	4.5	5	5	6.1	6.1	3.5	83.1	133.0
0	4	**5**	4	4	4	4	4	4	4	4	4	4	4.5	4.5	5	5	6.1	6.1	3.5	83.6	133.8
0	4	5	4	**4.5**	4	4	4	4	4	4	4	4	4.5	4.5	5	5	6.1	6.1	3.5	84.1	134.6
0	4	5	4	4.5	4	4	4	4	4	4	**4.5**	4	4.5	4.5	5	5	6.1	6.1	3.5	84.6	135.4
0	4	5	4	4.5	4	**4.5**	4	4	4	4	4.5	4	4.5	4.5	5	5	6.1	6.1	3.5	85.1	136.2
0	4	5	4	4.5	4	4.5	4	4	4	**4.5**	4.5	4	4.5	4.5	5	5	6.1	6.1	3.5	85.6	137.0
0	4	5	4	4.5	4	4.5	4	4	4	4.5	4.5	**4.5**	4.5	4.5	5	5	6.1	6.1	3.5	86.1	137.8
0	4	5	4	4.5	**4.5**	4.5	4	4	4	4.5	4.5	4.5	4.5	4.5	5	5	6.1	6.1	3.5	86.6	138.6
0	4	5	4	4.5	4.5	4.5	4	**4.5**	4	4.5	4.5	4.5	4.5	4.5	5	5	6.1	6.1	3.5	87.1	139.4
0	4	5	4	4.5	4.5	4.5	4	4.5	4	4.5	4.5	4.5	4.5	4.5	5	**5.5**	6.1	6.1	3.5	87.6	140.2
0	4	5	4	4.5	4.5	4.5	4	4.5	4	4.5	4.5	4.5	4.5	4.5	5	5.5	6.1	6.1	**4.0**	88.1	141.0
0	4	5	4	4.5	4.5	4.5	4	4.5	4	4.5	4.5	4.5	4.5	**5**	5	5.5	6.1	6.1	4.0	88.6	141.8
0	4	5	**4.5**	4.5	4.5	4.5	4	4.5	4	4.5	4.5	4.5	4.5	5	5	5.5	6.1	6.1	4.0	89.1	142.6
0	4	5	4.5	4.5	4.5	4.5	**4.5**	4.5	4	4.5	4.5	4.5	4.5	5	5	5.5	6.1	6.1	4.0	89.6	143.4
0	4	5	4.5	4.5	4.5	4.5	4.5	4.5	**4.5**	4.5	4.5	4.5	4.5	5	5	5.5	6.1	6.1	4.0	90.1	144.2
0	4	5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5	**5.5**	5.5	6.1	6.1	4.0	90.6	145.0
0	4	5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	**5**	5	5.5	5.5	6.1	6.1	4.0	91.1	145.8
0	4	**5.5**	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5	5	5.5	5.5	6.1	6.1	4.0	91.6	146.6
0	4	5.5	4.5	**5**	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5	5	5.5	5.5	6.1	6.1	4.0	92.1	147.4
0	4	5.5	4.5	5	4.5	4.5	4.5	4.5	4.5	4.5	**5**	4.5	5	5	5.5	5.5	6.1	6.1	4.0	92.6	148.2
0	4	5.5	4.5	5	4.5	**5**	4.5	4.5	4.5	4.5	5	4.5	5	5	5.5	5.5	6.1	6.1	4.0	93.1	149.0
0	4	5.5	4.5	5	4.5	5	4.5	4.5	4.5	**5**	5	4.5	5	5	5.5	5.5	6.1	6.1	4.0	93.6	149.8
0	4	5.5	4.5	5	4.5	5	4.5	4.5	4.5	5	5	**5**	5	5	5.5	5.5	6.1	6.1	4.0	94.1	150.6
0	4	5.5	4.5	5	**5**	5	4.5	4.5	4.5	5	5	5	5	5	5.5	5.5	6.1	6.1	4.0	94.6	151.4
0	4	5.5	4.5	5	5	5	4.5	**5**	4.5	5	5	5	5	5	5.5	5.5	6.1	6.1	4.0	95.1	152.2
0	4	5.5	4.5	5	5	5	4.5	5	4.5	5	5	5	5	5	5.5	**6**	6.1	6.1	4.0	95.6	153.0
0	4	5.5	4.5	5	5	5	4.5	5	4.5	5	5	5	5	5	5.5	6	6.1	6.1	**4.5**	96.1	153.8
0	4	5.5	4.5	5	5	5	4.5	5	4.5	5	5	5	5	**5.5**	5.5	6	6.1	6.1	4.5	96.6	154.6
0	4	5.5	**5**	5	5	5	4.5	5	4.5	5	5	5	5	5.5	5.5	6	6.1	6.1	4.5	97.1	155.4
0	4	5.5	5	5	5	5	**5**	5	4.5	5	5	5	5	5.5	5.5	6	6.1	6.1	4.5	97.6	156.2
0	4	5.5	5	5	5	5	5	5	**5**	5	5	5	5	5.5	5.5	6	6.1	6.1	4.5	98.1	157.0
0	4	5.5	5	5	5	5	5	5	5	5	5	5	5	5.5	**6**	6	6.1	6.1	4.5	98.6	157.8
0	4	5.5	5	5	5	5	5	5	5	5	5	5	**5.5**	5.5	6	6	6.1	6.1	4.5	99.1	158.6
0	4	**6**	5	5	5	5	5	5	5	5	5	5	5.5	5.5	6	6	6.1	6.1	4.5	99.6	159.4
0	4	6	5	**5.5**	5	5	5	5	5	5	5	5	5.5	5.5	6	6	6.1	6.1	4.5	100.1	160.2
0	4	6	5	5.5	5	5	5	5	5	5	**5.5**	5	5.5	5.5	6	6	6.1	6.1	4.5	100.6	161.0
0	4	6	5	5.5	5	**5.5**	5	5	5	5	5.5	5	5.5	5.5	6	6	6.1	6.1	4.5	101.1	161.8
0	4	6	5	5.5	5	5.5	5	5	5	**5.5**	5.5	5	5.5	5.5	6	6	6.1	6.1	4.5	101.6	162.6
0	4	6	5	5.5	5	5.5	5	5	5	5.5	5.5	**5.5**	5.5	5.5	6	6	6.1	6.1	4.5	102.1	163.4
0	4	6	5	5.5	**5.5**	5.5	5	5	5	5.5	5.5	5.5	5.5	5.5	6	6	6.1	6.1	4.5	102.6	164.2
0	4	6	5	5.5	5.5	5.5	5	**5.5**	5	5.5	5.5	5.5	5.5	5.5	6	6	6.1	6.1	4.5	103.1	165.0
0	4	6	5	5.5	5.5	5.5	5	5.5	5	5.5	5.5	5.5	5.5	5.5	6	**6.5**	6.1	6.1	4.5	103.6	165.8
0	4	6	5	5.5	5.5	5.5	5	5.5	5	5.5	5.5	5.5	5.5	5.5	6	6.5	6.1	6.1	**5.0**	104.1	166.6
0	4	6	5	5.5	5.5	5.5	5	5.5	5	5.5	5.5	5.5	5.5	**6**	6	6.5	6.1	6.1	5.0	104.6	167.4
0	4	6	**5.5**	5.5	5.5	5.5	5	5.5	5	5.5	5.5	5.5	5.5	6	6	6.5	6.1	6.1	5.0	105.1	168.2

Table JDA-10 (cont). Spill Patterns for John Day Dam with TSWs.

SPILLWAY BAY NUMBER																	TSW	TSW		Total	SPILL
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	STOPS	Kcfs
0	4	6	5.5	5.5	5.5	5.5	**5.5**	5.5	5	5.5	5.5	5.5	5.5	6	6	6.5	6.1	6.1	5.0	105.6	169.0
0	4	6	5.5	5.5	5.5	5.5	5.5	5.5	**5.5**	5.5	5.5	5.5	5.5	6	6	6.5	6.1	6.1	5.0	106.1	169.8
0	4	6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	6	**6.5**	6.5	6.1	6.1	5.0	106.6	170.6
0	4	6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	**6**	6	6.5	6.5	6.1	6.1	5.0	107.1	171.4
0	4	6	5.5	**6**	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	6	6	6.5	6.5	6.1	6.1	5.0	107.6	172.2
0	4	6	5.5	6	5.5	5.5	5.5	5.5	5.5	5.5	**6**	5.5	6	6	6.5	6.5	6.1	6.1	5.0	108.1	173.0
0	4	6	5.5	6	5.5	**6**	5.5	5.5	5.5	5.5	6	5.5	6	6	6.5	6.5	6.1	6.1	5.0	108.6	173.8
0	4	6	5.5	6	5.5	6	5.5	5.5	5.5	**6**	6	5.5	6	6	6.5	6.5	6.1	6.1	5.0	109.1	174.6
0	4	6	5.5	6	5.5	6	5.5	5.5	5.5	6	6	**6**	6	6	6.5	6.5	6.1	6.1	5.0	109.6	175.4
0	4	6	5.5	6	**6**	6	5.5	5.5	5.5	6	6	6	6	6	6.5	6.5	6.1	6.1	5.0	110.1	176.2
0	4	6	5.5	6	6	6	5.5	**6**	5.5	6	6	6	6	6	6.5	6.5	6.1	6.1	5.0	110.6	177.0
0	4	6	5.5	6	6	6	5.5	6	5.5	6	6	6	6	6	6.5	**7**	6.1	6.1	5.0	111.1	177.8
0	4	6	5.5	6	6	6	5.5	6	5.5	6	6	6	6	6	6.5	7	6.1	6.1	**5.5**	111.6	178.6
0	4	6	5.5	6	6	6	5.5	6	5.5	6	6	6	6	**6.5**	6.5	7	6.1	6.1	5.5	112.1	179.4
0	4	6	**6**	6	6	6	5.5	6	5.5	6	6	6	6	6.5	6.5	7	6.1	6.1	5.5	112.6	180.2
0	4	6	6	6	6	6	**6**	6	5.5	6	6	6	6	6.5	6.5	7	6.1	6.1	5.5	113.1	181.0
0	4	6	6	6	6	6	6	6	**6**	6	6	6	6	6.5	6.5	7	6.1	6.1	5.5	113.6	181.8
0	4	6	6	6	6	6	6	6	6	6	6	6	6	6.5	**7**	7	6.1	6.1	5.5	114.1	182.6
0	4	6	6	6	6	6	6	6	6	6	6	6	**6.5**	6.5	7	7	6.1	6.1	5.5	114.6	183.4
0	4	6	6	**6.5**	6	6	6	6	6	6	6	6	6.5	6.5	7	7	6.1	6.1	5.5	115.1	184.2
0	4	6	6	6.5	6	6	6	6	6	6	**6.5**	6	6.5	6.5	7	7	6.1	6.1	5.5	115.6	185.0
0	4	6	6	6.5	6	**6.5**	6	6	6	6	6.5	6	6.5	6.5	7	7	6.1	6.1	5.5	116.1	185.8
0	4	6	6	6.5	6	6.5	6	6	6	**6.5**	6.5	6	6.5	6.5	7	7	6.1	6.1	5.5	116.6	186.6
0	4	6	6	6.5	6	6.5	6	6	6	6.5	6.5	**6.5**	6.5	6.5	7	7	6.1	6.1	5.5	117.1	187.4
0	4	6	6	6.5	**6.5**	6.5	6	6	6	6.5	6.5	6.5	6.5	6.5	7	7	6.1	6.1	5.5	117.6	188.2
0	4	6	6	6.5	6.5	6.5	6	**6.5**	6	6.5	6.5	6.5	6.5	6.5	7	7	6.1	6.1	5.5	118.1	189.0
0	4	6	6	6.5	6.5	6.5	6	6.5	6	6.5	6.5	6.5	6.5	6.5	7	**7.5**	6.1	6.1	5.5	118.6	189.8
0	4	6	6	6.5	6.5	6.5	6	6.5	6	6.5	6.5	6.5	6.5	6.5	7	7.5	6.1	6.1	**6.0**	119.1	190.6
0	4	6	6	6.5	6.5	6.5	6	6.5	6	6.5	6.5	6.5	6.5	**7**	7	7.5	6.1	6.1	6.0	119.6	191.4
0	4	6	**6.5**	6.5	6.5	6.5	6	6.5	6	6.5	6.5	6.5	6.5	7	7	7.5	6.1	6.1	6.0	120.1	192.2
0	4	6	6.5	6.5	6.5	6.5	**6.5**	6.5	6	6.5	6.5	6.5	6.5	7	7	7.5	6.1	6.1	6.0	120.6	193.0
0	4	6	6.5	6.5	6.5	6.5	6.5	6.5	**6.5**	6.5	6.5	6.5	6.5	7	7	7.5	6.1	6.1	6.0	121.1	193.8
0	4	6	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7	**7.5**	7.5	6.1	6.1	6.0	121.6	194.6
0	4	6	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	**7**	7	7.5	7.5	6.1	6.1	6.0	122.1	195.4
0	4	6	6.5	**7**	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7	7	7.5	7.5	6.1	6.1	6.0	122.6	196.2
0	4	6	6.5	7	6.5	6.5	6.5	6.5	6.5	6.5	**7**	6.5	7	7	7.5	7.5	6.1	6.1	6.0	123.1	197.0
0	4	6	6.5	7	6.5	**7**	6.5	6.5	6.5	6.5	7	6.5	7	7	7.5	7.5	6.1	6.1	6.0	123.6	197.8
0	4	6	6.5	7	6.5	7	6.5	6.5	6.5	**7**	7	6.5	7	7	7.5	7.5	6.1	6.1	6.0	124.1	198.6
0	4	6	6.5	7	6.5	7	6.5	6.5	6.5	7	7	**7**	7	7	7.5	7.5	6.1	6.1	6.0	124.6	199.4
0	4	6	6.5	7	**7**	7	6.5	6.5	6.5	7	7	7	7	7	7.5	7.5	6.1	6.1	6.0	125.1	200.2
0	4	6	6.5	7	7	7	6.5	**7**	6.5	7	7	7	7	7	7.5	7.5	6.1	6.1	6.0	125.6	201.0
0	4	6	6.5	7	7	7	6.5	7	6.5	7	7	7	7	7	7.5	**8**	6.1	6.1	6.0	126.1	201.8
0	4	6	6.5	7	7	7	6.5	7	6.5	7	7	7	7	7	7.5	8	6.1	6.1	**6.5**	126.6	202.6
0	4	6	6.5	7	7	7	6.5	7	6.5	7	7	7	7	**7.5**	7.5	8	6.1	6.1	6.5	127.1	203.4
0	4	6	**7**	7	7	7	6.5	7	6.5	7	7	7	7	7.5	7.5	8	6.1	6.1	6.5	127.6	204.2
0	4	6	7	7	7	7	**7**	7	6.5	7	7	7	7	7.5	7.5	8	6.1	6.1	6.5	128.1	205.0
0	4	6	7	7	7	7	7	7	**7**	7	7	7	7	7.5	7.5	8	6.1	6.1	6.5	128.6	205.8
0	4	6	7	7	7	7	7	7	7	7	7	7	7	7.5	**8**	8	6.1	6.1	6.5	129.1	206.6
0	4	6	7	7	7	7	7	7	7	7	7	7	**7.5**	7.5	8	8	6.1	6.1	6.5	129.6	207.4
0	4	6	7	**7.5**	7	7	7	7	7	7	7	7	7.5	7.5	8	8	6.1	6.1	6.5	130.1	208.2
0	4	6	7	7.5	7	7	7	7	7	7	**7.5**	7	7.5	7.5	8	8	6.1	6.1	6.5	130.6	209.0
0	4	6	7	7.5	7	**7.5**	7	7	7	7	7.5	7	7.5	7.5	8	8	6.1	6.1	6.5	131.1	209.8
0	4	6	7	7.5	7	7.5	7	7	7	**7.5**	7.5	7	7.5	7.5	8	8	6.1	6.1	6.5	131.6	210.6
0	4	6	7	7.5	7	7.5	7	7	7	7.5	7.5	**7.5**	7.5	7.5	8	8	6.1	6.1	6.5	132.1	211.4
0	4	6	7	7.5	**7.5**	7.5	7	7	7	7.5	7.5	7.5	7.5	7.5	8	8	6.1	6.1	6.5	132.6	212.2
0	4	6	7	7.5	7.5	7.5	7	**7.5**	7	7.5	7.5	7.5	7.5	7.5	8	8	6.1	6.1	6.5	133.1	213.0
0	4	6	7	7.5	7.5	7.5	7	7.5	7	7.5	7.5	7.5	7.5	7.5	8	**8.5**	6.1	6.1	6.5	133.6	213.8
0	4	6	7	7.5	7.5	7.5	7	7.5	7	7.5	7.5	7.5	7.5	7.5	8	8.5	6.1	6.1	**7.0**	134.1	214.6
0	4	6	7	7.5	7.5	7.5	7	7.5	7	7.5	7.5	7.5	7.5	**8**	8	8.5	6.1	6.1	7.0	134.6	215.4
0	4	6	**7.5**	7.5	7.5	7.5	7	7.5	7	7.5	7.5	7.5	7.5	8	8	8.5	6.1	6.1	7.0	135.1	216.2
0	4	6	7.5	7.5	7.5	7.5	**7.5**	7.5	7	7.5	7.5	7.5	7.5	8	8	8.5	6.1	6.1	7.0	135.6	217.0
0	4	6	7.5	7.5	7.5	7.5	7.5	7.5	**7.5**	7.5	7.5	7.5	7.5	8	8	8.5	6.1	6.1	7.0	136.1	217.8
0	4	6	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8	**8.5**	8.5	6.1	6.1	7.0	136.6	218.6
0	4	6	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	**8**	8	8.5	8.5	6.1	6.1	7.0	137.1	219.4
0	4	6	7.5	**8**	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8	8	8.5	8.5	6.1	6.1	7.0	137.6	220.2
0	4	6	7.5	8	7.5	7.5	7.5	7.5	7.5	7.5	**8**	7.5	8	8	8.5	8.5	6.1	6.1	7.0	138.1	221.0
0	4	6	7.5	8	7.5	**8**	7.5	7.5	7.5	7.5	8	7.5	8	8	8.5	8.5	6.1	6.1	7.0	138.6	221.8
0	4	6	7.5	8	7.5	8	7.5	7.5	7.5	**8**	8	7.5	8	8	8.5	8.5	6.1	6.1	7.0	139.1	222.6
0	4	6	7.5	8	7.5	8	7.5	7.5	7.5	8	8	**8**	8	8	8.5	8.5	6.1	6.1	7.0	139.6	223.4
0	4	6	7.5	8	**8**	8	7.5	7.5	7.5	8	8	8	8	8	8.5	8.5	6.1	6.1	7.0	140.1	224.2
0	4	6	7.5	8	8	8	7.5	**8**	7.5	8	8	8	8	8	8.5	8.5	6.1	6.1	7.0	140.6	225.0
0	4	6	7.5	8	8	8	7.5	8	7.5	8	8	8	8	8	8.5	**9**	6.1	6.1	7.0	141.1	225.8
0	4	6	7.5	8	8	8	7.5	8	7.5	8	8	8	8	8	8.5	9	6.1	6.1	**7.5**	141.6	226.6
0	4	6	7.5	8	8	8	7.5	8	7.5	8	8	8	8	**8.5**	8.5	9	6.1	6.1	7.5	142.1	227.4
0	4	6	**8**	8	8	8	7.5	8	7.5	8	8	8	8	8.5	8.5	9	6.1	6.1	7.5	142.6	228.2
0	4	6	8	8	8	8	**8**	8	7.5	8	8	8	8	8.5	8.5	9	6.1	6.1	7.5	143.1	229.0
0	4	6	8	8	8	8	8	8	**8**	8	8	8	8	8.5	8.5	9	6.1	6.1	7.5	143.6	229.8
0	4	6	8	8	8	8	8	8	8	8	8	8	8	8.5	**9**	9	6.1	6.1	7.5	144.1	230.6
0	4	6	8	8	8	8	8	8	8	8	8	8	**8.5**	8.5	9	9	6.1	6.1	7.5	144.6	231.4
0	4	6	8	**8.5**	8	8	8	8	8	8	8	8	8.5	8.5	9	9	6.1	6.1	7.5	145.1	232.2
0	4	6	8	8.5	8	8	8	8	8	8	**8.5**	8	8.5	8.5	9	9	6.1	6.1	7.5	145.6	233.0
0	4	6	8	8.5	8	**8.5**	8	8	8	8	8.5	8	8.5	8.5	9	9	6.1	6.1	7.5	146.1	233.8
0	4	6	8	8.5	8	8.5	8	8	8	**8.5**	8.5	8	8.5	8.5	9	9	6.1	6.1	7.5	146.6	234.6
0	4	6	8	8.5	8	8.5	8	8	8	8.5	8.5	**8.5**	8.5	8.5	9	9	6.1	6.1	7.5	147.1	235.4
0	4	6	8	8.5	**8.5**	8.5	8	8	8	8.5	8.5	8.5	8.5	8.5	9	9	6.1	6.1	7.5	147.6	236.2

Table JDA-10 (cont). Spill Patterns for John Day Dam with TSWs.

SPILLWAY BAY NUMBER																	TSW	TSW		Total	SPILL
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	STOPS	Kcfs
0	4	6	8	8.5	8.5	8.5	8	**8.5**	8	8.5	8.5	8.5	8.5	8.5	9	9	6.1	6.1	7.5	148.1	237.0
0	4	6	8	8.5	8.5	8.5	8	8.5	8	8.5	8.5	8.5	8.5	8.5	9	**9.5**	6.1	6.1	7.5	148.6	237.8
0	4	6	8	8.5	8.5	8.5	8	8.5	8	8.5	8.5	8.5	8.5	8.5	9	9.5	6.1	6.1	**8.0**	149.1	238.6
0	4	6	8	8.5	8.5	8.5	8	8.5	8	8.5	8.5	8.5	8.5	**9**	9	9.5	6.1	6.1	8.0	149.6	239.4
0	4	6	8	8.5	8.5	8.5	**8.5**	8.5	8	8.5	8.5	8.5	8.5	9	9	9.5	6.1	6.1	8.0	150.1	240.2
0	4	6	8	8.5	8.5	8.5	8.5	8.5	**8.5**	8.5	8.5	8.5	8.5	9	9	9.5	6.1	6.1	8.0	150.6	241.0
0	4	6	8	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9	**9.5**	9.5	6.1	6.1	8.0	151.1	241.8
0	4	6	8	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	**9**	9	9.5	9.5	6.1	6.1	8.0	151.6	242.6
0	4	6	8	**9**	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9	9	9.5	9.5	6.1	6.1	8.0	152.1	243.4
0	4	6	8	9	8.5	8.5	8.5	8.5	8.5	8.5	**9**	8.5	9	9	9.5	9.5	6.1	6.1	8.0	152.6	244.2
0	4	6	8	9	8.5	**9**	8.5	8.5	8.5	8.5	9	8.5	9	9	9.5	9.5	6.1	6.1	8.0	153.1	245.0
0	4	6	8	9	8.5	9	8.5	8.5	8.5	**9**	9	8.5	9	9	9.5	9.5	6.1	6.1	8.0	153.6	245.8
0	4	6	8	9	8.5	9	8.5	8.5	8.5	9	9	**9**	9	9	9.5	9.5	6.1	6.1	8.0	154.1	246.6
0	4	6	8	9	**9**	9	8.5	8.5	8.5	9	9	9	9	9	9.5	9.5	6.1	6.1	8.0	154.6	247.4
0	4	6	8	9	9	9	8.5	**9**	8.5	9	9	9	9	9	9.5	9.5	6.1	6.1	8.0	155.1	248.2
0	4	6	8	9	9	9	8.5	9	8.5	9	9	9	9	9	9.5	**10**	6.1	6.1	8.0	155.6	249.0
0	4	6	8	9	9	9	8.5	9	8.5	9	9	9	9	9	9.5	10	6.1	6.1	**8.5**	156.1	249.8
0	4	6	8	9	9	9	8.5	9	8.5	9	9	9	9	**9.5**	9.5	10	6.1	6.1	8.5	156.6	250.6
0	4	6	8	9	9	9	**9**	9	8.5	9	9	9	9	9.5	9.5	10	6.1	6.1	8.5	157.1	251.4
0	4	6	8	9	9	9	9	9	**9**	9	9	9	9	9.5	9.5	10	6.1	6.1	8.5	157.6	252.2
0	4	6	8	9	9	9	9	9	9	9	9	9	9	9.5	**10**	10	6.1	6.1	8.5	158.1	253.0
0	4	6	8	9	9	9	9	9	9	9	9	9	**9.5**	9.5	10	10	6.1	6.1	8.5	158.6	253.8
0	4	6	8	**9.5**	9	9	9	9	9	9	9	9	9.5	9.5	10	10	6.1	6.1	8.5	159.1	254.6
0	4	6	8	9.5	9	9	9	9	9	9	**9.5**	9	9.5	9.5	10	10	6.1	6.1	8.5	159.6	255.4
0	4	6	8	9.5	9	**9.5**	9	9	9	9	9.5	9	9.5	9.5	10	10	6.1	6.1	8.5	160.1	256.2
0	4	6	8	9.5	9	9.5	9	9	9	**9.5**	9.5	9	9.5	9.5	10	10	6.1	6.1	8.5	160.6	257.0
0	4	6	8	9.5	9	9.5	9	9	9	9.5	9.5	**9.5**	9.5	9.5	10	10	6.1	6.1	8.5	161.1	257.8
0	4	6	8	9.5	**9.5**	9.5	9	9	9	9.5	9.5	9.5	9.5	9.5	10	10	6.1	6.1	8.5	161.6	258.6
0	4	6	8	9.5	9.5	9.5	9	**9.5**	9	9.5	9.5	9.5	9.5	9.5	10	10	6.1	6.1	8.5	162.1	259.4
0	4	6	8	9.5	9.5	9.5	9	9.5	9	9.5	9.5	9.5	9.5	9.5	10	**10.5**	6.1	6.1	8.5	162.6	260.2
0	4	6	8	9.5	9.5	9.5	9	9.5	9	9.5	9.5	9.5	9.5	9.5	10	10.5	6.1	6.1	**9.0**	163.1	261.0
0	4	6	8	9.5	9.5	9.5	9	9.5	9	9.5	9.5	9.5	9.5	**10**	10	10.5	6.1	6.1	9.0	163.6	261.8
0	4	6	8	9.5	9.5	9.5	**9.5**	9.5	9	9.5	9.5	9.5	9.5	10	10	10.5	6.1	6.1	9.0	164.1	262.6
0	4	6	8	9.5	9.5	9.5	9.5	9.5	**9.5**	9.5	9.5	9.5	9.5	10	10	10.5	6.1	6.1	9.0	164.6	263.4
0	4	6	8	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10	**10.5**	10.5	6.1	6.1	9.0	165.1	264.2
0	4	6	8	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	**10**	10	10.5	10.5	6.1	6.1	9.0	165.6	265.0
0	4	6	8	**10**	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10	10	10.5	10.5	6.1	6.1	9.0	166.1	265.8
0	4	6	8	10	9.5	9.5	9.5	9.5	9.5	9.5	**10**	9.5	10	10	10.5	10.5	6.1	6.1	9.0	166.6	266.6
0	4	6	8	10	9.5	**10**	9.5	9.5	9.5	9.5	10	9.5	10	10	10.5	10.5	6.1	6.1	9.0	167.1	267.4
0	4	6	8	10	9.5	10	9.5	9.5	9.5	**10**	10	9.5	10	10	10.5	10.5	6.1	6.1	9.0	167.6	268.2
0	4	6	8	10	9.5	10	9.5	9.5	9.5	10	10	**10**	10	10	10.5	10.5	6.1	6.1	9.0	168.1	269.0
0	4	6	8	10	**10**	10	9.5	9.5	9.5	10	10	10	10	10	10.5	10.5	6.1	6.1	9.0	168.6	269.8
0	4	6	8	10	10	10	9.5	**10**	9.5	10	10	10	10	10	10.5	10.5	6.1	6.1	9.0	169.1	270.6
0	4	6	8	10	10	10	9.5	10	9.5	10	10	10	10	10	10.5	**11**	6.1	6.1	9.0	169.6	271.4
0	4	6	8	10	10	10	9.5	10	9.5	10	10	10	10	10	10.5	11	6.1	6.1	**9.5**	170.1	272.2
0	4	6	8	10	10	10	9.5	10	9.5	10	10	10	10	**10.5**	10.5	11	6.1	6.1	9.5	170.6	273.0
0	4	6	8	10	10	10	**10**	10	9.5	10	10	10	10	10.5	10.5	11	6.1	6.1	9.5	171.1	273.8
0	4	6	8	10	10	10	10	10	**10**	10	10	10	10	10.5	10.5	11	6.1	6.1	9.5	171.6	274.6
0	4	6	8	10	10	10	10	10	10	10	10	10	10	10.5	**11**	11	6.1	6.1	9.5	172.1	275.4
0	4	6	8	10	10	10	10	10	10	10	10	10	**10.5**	10.5	11	11	6.1	6.1	9.5	172.6	276.2
0	4	6	8	**10.5**	10	10	10	10	10	10	10	10	10.5	10.5	11	11	6.1	6.1	9.5	173.1	277.0
0	4	6	8	10.5	10	10	10	10	10	10	**10.5**	10	10.5	10.5	11	11	6.1	6.1	9.5	173.6	277.8
0	4	6	8	10.5	10	**10.5**	10	10	10	10	10.5	10	10.5	10.5	11	11	6.1	6.1	9.5	174.1	278.6
0	4	6	8	10.5	10	10.5	10	10	10	**10.5**	10.5	10	10.5	10.5	11	11	6.1	6.1	9.5	174.6	279.4
0	4	6	8	10.5	10	10.5	10	10	10	10.5	10.5	**10.5**	10.5	10.5	11	11	6.1	6.1	9.5	175.1	280.2
0	4	6	8	10.5	**10.5**	10.5	10	10	10	10.5	10.5	10.5	10.5	10.5	11	11	6.1	6.1	9.5	175.6	281.0
0	4	6	8	10.5	10.5	10.5	10	**10.5**	10	10.5	10.5	10.5	10.5	10.5	11	11	6.1	6.1	9.5	176.1	281.8
0	4	6	8	10.5	10.5	10.5	10	10.5	10	10.5	10.5	10.5	10.5	10.5	11	**11.5**	6.1	6.1	9.5	176.6	282.6
0	4	6	8	10.5	10.5	10.5	10	10.5	10	10.5	10.5	10.5	10.5	10.5	11	11.5	6.1	6.1	**10.0**	177.1	283.4
0	4	6	8	10.5	10.5	10.5	10	10.5	10	10.5	10.5	10.5	10.5	**11**	11	11.5	6.1	6.1	10.0	177.6	284.2
0	4	6	8	10.5	10.5	10.5	**10.5**	10.5	10	10.5	10.5	10.5	10.5	11	11	11.5	6.1	6.1	10.0	178.1	285.0
0	4	6	8	10.5	10.5	10.5	10.5	10.5	**10.5**	10.5	10.5	10.5	10.5	11	11	11.5	6.1	6.1	10.0	178.6	285.8
0	4	6	8	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	11	**11.5**	11.5	6.1	6.1	10.0	179.1	286.6
0	4	6	8	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	**11**	11	11.5	11.5	6.1	6.1	10.0	179.6	287.4
0	4	6	8	**11**	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	11	11	11.5	11.5	6.1	6.1	10.0	180.1	288.2
0	4	6	8	11	10.5	10.5	10.5	10.5	10.5	10.5	**11**	10.5	11	11	11.5	11.5	6.1	6.1	10.0	180.6	289.0
0	4	6	8	11	10.5	**11**	10.5	10.5	10.5	10.5	11	10.5	11	11	11.5	11.5	6.1	6.1	10.0	181.1	289.8
0	4	6	8	11	10.5	11	10.5	10.5	10.5	**11**	11	10.5	11	11	11.5	11.5	6.1	6.1	10.0	181.6	290.6
0	4	6	8	11	10.5	11	10.5	10.5	10.5	11	11	**11**	11	11	11.5	11.5	6.1	6.1	10.0	182.1	291.4
0	4	6	8	11	**11**	11	10.5	10.5	10.5	11	11	11	11	11	11.5	11.5	6.1	6.1	10.0	182.6	292.2
0	4	6	8	11	11	11	10.5	**11**	10.5	11	11	11	11	11	11.5	11.5	6.1	6.1	10.0	183.1	293.0
0	4	6	8	11	11	11	10.5	11	10.5	11	11	11	11	11	11.5	**12**	6.1	6.1	10.0	183.6	293.8
0	4	6	8	11	11	11	10.5	11	10.5	11	11	11	11	11	11.5	12	6.1	6.1	**10.5**	184.1	294.6
0	4	6	8	11	11	11	10.5	11	10.5	11	11	11	11	**11.5**	11.5	12	6.1	6.1	10.5	184.6	295.4
0	4	6	8	11	11	11	**11**	11	10.5	11	11	11	11	11.5	11.5	12	6.1	6.1	10.5	185.1	296.2
0	4	6	8	11	11	11	11	11	**11**	11	11	11	11	11.5	11.5	12	6.1	6.1	10.5	185.6	297.0
0	4	6	8	11	11	11	11	11	11	11	11	11	11	11.5	**12**	12	6.1	6.1	10.5	186.1	297.8
0	4	6	8	11	11	11	11	11	11	11	11	11	**11.5**	11.5	12	12	6.1	6.1	10.5	186.6	298.6
0	4	6	8	**11.5**	11	11	11	11	11	11	11	11	11.5	11.5	12	12	6.1	6.1	10.5	187.1	299.4
0	4	6	8	11.5	11	11	11	11	11	11	**11.5**	11	11.5	11.5	12	12	6.1	6.1	10.5	187.6	300.2
0	4	6	8	11.5	11	**11.5**	11	11	11	11	11.5	11	11.5	11.5	12	12	6.1	6.1	10.5	188.1	301.0
0	4	6	8	11.5	11	11.5	11	11	11	**11.5**	11.5	11	11.5	11.5	12	12	6.1	6.1	10.5	188.6	301.8
0	4	6	8	11.5	11	11.5	11	11	11	11.5	11.5	**11.5**	11.5	11.5	12	12	6.1	6.1	10.5	189.1	302.6
0	4	6	8	11.5	**11.5**	11.5	11	11	11	11.5	11.5	11.5	11.5	11.5	12	12	6.1	6.1	10.5	189.6	303.4
0	4	6	8	11.5	11.5	11.5	11	**11.5**	11	11.5	11.5	11.5	11.5	11.5	12	12	6.1	6.1	10.5	190.1	304.2

Table JDA-10 (cont). Spill Patterns for John Day Dam with TSWs.

SPILLWAY BAY NUMBER																	TSW	TSW		Total	SPILL	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	STOPS	Kcfs	
0	4	6	8	11.5	11.5	11.5	11	11.5	11	11.5	11.5	11.5	11.5	11.5	12	12	6.1	6.1	**11.0**	190.6	305.0	(1)
0	4	6	8	11.5	11.5	11.5	**11.5**	11.5	11	11.5	11.5	11.5	11.5	11.5	12	12	6.1	6.1	11.0	191.1	305.8	
0	4	6	8	11.5	11.5	11.5	11.5	11.5	11	11.5	11.5	11.5	**12**	11.5	12	12	6.1	6.1	11.0	191.6	306.6	
0	4	6	8	11.5	11.5	11.5	11.5	11.5	11	11.5	**12**	11.5	12	11.5	12	12	6.1	6.1	11.0	192.1	307.4	
0	4	6	8	11.5	11.5	11.5	11.5	11.5	**11.5**	11.5	12	11.5	12	11.5	12	12	6.1	6.1	11.0	192.6	308.2	
0	4	6	8	11.5	11.5	11.5	**12**	11.5	11.5	11.5	12	11.5	12	11.5	12	12	6.1	6.1	11.0	193.1	309.0	
0	4	6	8	11.5	**12**	11.5	12	11.5	11.5	11.5	12	11.5	12	11.5	12	12	6.1	6.1	11.0	193.6	309.8	
0	4	6	8	**12**	12	11.5	12	11.5	11.5	11.5	12	11.5	12	11.5	12	12	6.1	6.1	11.0	194.1	310.6	
0	4	6	8	12	12	11.5	12	11.5	11.5	11.5	12	11.5	12	**12**	12	12	6.1	6.1	11.0	194.6	311.4	
0	4	6	8	12	12	11.5	12	11.5	11.5	11.5	12	**12**	12	12	12	12	6.1	6.1	11.0	195.1	312.2	
0	4	6	8	12	12	11.5	12	11.5	11.5	**12**	12	12	12	12	12	12	6.1	6.1	11.0	195.6	313.0	
0	4	6	8	12	12	11.5	12	**12**	11.5	12	12	12	12	12	12	12	6.1	6.1	11.0	196.1	313.8	
0	4	6	8	12	12	**12**	12	12	11.5	12	12	12	12	12	12	12	6.1	6.1	11.0	196.6	314.6	
0	4	6	8	12	12	12	12	12	**12**	12	12	12	12	12	12	12	6.1	6.1	11.0	197.1	315.4	(2)
1	4	6	8	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	198.1	317.0	
2	4	6	8	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	199.1	318.6	
3	4	6	8	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	200.1	320.2	
3	4	6	**9**	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	201.1	321.8	
4	4	6	9	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	202.1	323.4	
4	**5**	6	9	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	203.1	325.0	
4	5	**7**	9	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	204.1	326.6	
4	5	7	**10**	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	205.1	328.2	
5	5	7	10	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	206.1	329.8	
5	**6**	7	10	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	207.1	331.4	
5	6	**8**	10	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	208.1	333.0	
5	6	8	**11**	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	209.1	334.6	
6	6	8	11	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	210.1	336.2	
6	**7**	8	11	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	211.1	337.8	
6	7	**9**	11	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	212.1	339.4	
6	7	9	**12**	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	213.1	341.0	
7	7	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	214.1	342.6	
7	**8**	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	215.1	344.2	
7	8	**10**	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	216.1	345.8	
8	8	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	217.1	347.4	
8	**9**	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	218.1	349.0	
8	9	**11**	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	219.1	350.6	
9	9	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	220.1	352.2	
9	**10**	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	221.1	353.8	
10	10	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	222.1	355.4	
10	**11**	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	223.1	357.0	
10	11	**12**	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	224.1	358.6	
11	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	225.1	360.2	(3)
11	11	**13**	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6.1	6.1	11.0	226.1	361.8	
11	11	13	12	12	12	12	12	12	12	12	12	12	12	12	12	**13**	6.1	6.1	11.0	227.1	363.4	
11	11	13	**13**	12	12	12	12	12	12	12	12	12	12	12	12	13	6.1	6.1	11.0	228.1	365.0	
11	11	13	13	12	12	12	12	12	12	12	12	12	12	**13**	12	13	6.1	6.1	11.0	229.1	366.6	
11	11	13	13	**13**	12	12	12	12	12	12	12	12	12	13	12	13	6.1	6.1	11.0	230.1	368.2	
11	11	13	13	13	12	12	**13**	12	12	12	12	12	12	13	12	13	6.1	6.1	11.0	231.1	369.8	
11	11	13	13	13	12	12	13	12	**13**	12	12	12	12	13	12	13	6.1	6.1	11.0	232.1	371.4	
11	11	13	13	13	12	12	13	12	13	12	**13**	12	12	13	12	13	6.1	6.1	11.0	233.1	373.0	
11	11	13	13	13	**13**	12	13	12	13	12	13	12	12	13	12	13	6.1	6.1	11.0	234.1	374.6	
11	11	13	13	13	13	12	13	12	13	12	13	12	12	13	**13**	13	6.1	6.1	11.0	235.1	376.2	
11	11	13	13	13	13	**13**	13	12	13	12	13	12	12	13	13	13	6.1	6.1	11.0	236.1	377.8	
11	11	13	13	13	13	13	13	12	13	12	13	12	**13**	13	13	13	6.1	6.1	11.0	237.1	379.4	
11	11	13	13	13	13	13	13	**13**	13	12	13	12	13	13	13	13	6.1	6.1	11.0	238.1	381.0	
11	11	13	13	13	13	13	13	13	13	**13**	13	12	13	13	13	13	6.1	6.1	11.0	239.1	382.6	
11	11	13	13	13	13	13	13	13	13	13	13	**13**	13	13	13	13	6.1	6.1	11.0	240.1	384.2	
11	11	**14**	13	13	13	13	13	13	13	13	13	13	13	13	13	13	6.1	6.1	11.0	241.1	385.8	
11	11	14	13	13	13	13	13	13	13	13	13	13	13	13	13	**14**	6.1	6.1	11.0	242.1	387.4	
11	11	14	**14**	13	13	13	13	13	13	13	13	13	13	13	13	14	6.1	6.1	11.0	243.1	389.0	
11	11	14	14	13	13	13	13	13	13	13	13	13	13	**14**	13	14	6.1	6.1	11.0	244.1	390.6	
11	11	14	14	**14**	13	13	13	13	13	13	13	13	13	14	13	14	6.1	6.1	11.0	245.1	392.2	
11	11	14	14	14	13	13	**14**	13	13	13	13	13	13	14	13	14	6.1	6.1	11.0	246.1	393.8	
11	11	14	14	14	13	13	14	13	**14**	13	13	13	13	14	13	14	6.1	6.1	11.0	247.1	395.4	
11	11	14	14	14	13	13	14	13	14	13	**14**	13	13	14	13	14	6.1	6.1	11.0	248.1	397.0	
11	11	14	14	14	**14**	13	14	13	14	13	14	13	13	14	13	14	6.1	6.1	11.0	249.1	398.6	
11	11	14	14	14	14	13	14	13	14	13	14	13	13	14	**14**	14	6.1	6.1	11.0	250.1	400.2	
11	11	14	14	14	14	**14**	14	13	14	13	14	13	13	14	14	14	6.1	6.1	11.0	251.1	401.8	
11	11	14	14	14	14	14	14	13	14	13	14	13	**14**	14	14	14	6.1	6.1	11.0	252.1	403.4	
11	11	14	14	14	14	14	14	**14**	14	13	14	13	14	14	14	14	6.1	6.1	11.0	253.1	405.0	
11	11	14	14	14	14	14	14	14	14	**14**	14	13	14	14	14	14	6.1	6.1	11.0	254.1	406.6	
11	11	14	14	14	14	14	14	14	14	14	14	**14**	14	14	14	14	6.1	6.1	11.0	255.1	408.2	
11	11	**15**	14	14	14	14	14	14	14	14	14	14	14	14	14	14	6.1	6.1	11.0	256.1	409.8	
11	11	15	14	14	14	14	14	14	14	14	14	14	14	14	14	**15**	6.1	6.1	11.0	257.1	411.4	
11	11	15	**15**	14	14	14	14	14	14	14	14	14	14	14	14	15	6.1	6.1	11.0	258.1	413.0	
11	11	15	15	14	14	14	14	14	14	14	14	14	14	**15**	14	15	6.1	6.1	11.0	259.1	414.6	
11	11	15	15	**15**	14	14	14	14	14	14	14	14	14	15	14	15	6.1	6.1	11.0	260.1	416.2	
11	11	15	15	15	14	14	**15**	14	14	14	14	14	14	15	14	15	6.1	6.1	11.0	261.1	417.8	
11	11	15	15	15	14	14	15	14	**15**	14	14	14	14	15	14	15	6.1	6.1	11.0	262.1	419.4	
11	11	15	15	15	14	14	15	14	15	14	**15**	14	14	15	14	15	6.1	6.1	11.0	263.1	421.0	
11	11	15	15	15	**15**	14	15	14	15	14	15	14	14	15	14	15	6.1	6.1	11.0	264.1	422.6	
11	11	15	15	15	15	14	15	14	15	14	15	14	14	15	**15**	15	6.1	6.1	11.0	265.1	424.2	
11	11	15	15	15	15	**15**	15	14	15	14	15	14	14	15	15	15	6.1	6.1	11.0	266.1	425.8	
11	11	15	15	15	15	15	15	14	15	14	15	14	**15**	15	15	15	6.1	6.1	11.0	267.1	427.4	
11	11	15	15	15	15	15	15	**15**	15	14	15	14	15	15	15	15	6.1	6.1	11.0	268.1	429.0	

Table JDA-10 (cont). Spill Patterns for John Day Dam with TSWs.

SPILLWAY BAY NUMBER																	TSW	TSW		Total	SPILL
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	STOPS	Kcfs
11	11	15	15	15	15	15	15	15	15	**15**	15	14	15	15	15	15	6.1	6.1	11.0	269.1	430.6
11	11	15	15	15	15	15	15	15	15	15	15	**15**	15	15	15	15	6.1	6.1	11.0	270.1	432.2
11	11	**16**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	6.1	6.1	11.0	271.1	433.8
11	11	16	15	15	15	15	15	15	15	15	15	15	15	15	15	**16**	6.1	6.1	11.0	272.1	435.4
11	11	16	**16**	15	15	15	15	15	15	15	15	15	15	15	15	16	6.1	6.1	11.0	273.1	437.0
11	11	16	16	15	15	15	15	15	15	15	15	15	15	**16**	15	16	6.1	6.1	11.0	274.1	438.6
11	11	16	16	**16**	15	15	15	15	15	15	15	15	15	16	15	16	6.1	6.1	11.0	275.1	440.2
11	11	16	16	16	15	15	**16**	15	15	15	15	15	15	16	15	16	6.1	6.1	11.0	276.1	441.8
11	11	16	16	16	15	15	16	15	**16**	15	15	15	15	16	15	16	6.1	6.1	11.0	277.1	443.4
11	11	16	16	16	15	15	16	15	16	15	**16**	15	15	16	15	16	6.1	6.1	11.0	278.1	445.0
11	11	16	16	16	**16**	15	16	15	16	15	16	15	15	16	15	16	6.1	6.1	11.0	279.1	446.6
11	11	16	16	16	16	15	16	15	16	15	16	15	15	16	**16**	16	6.1	6.1	11.0	280.1	448.2
11	11	16	16	16	16	**16**	16	15	16	15	16	15	15	16	16	16	6.1	6.1	11.0	281.1	449.8
11	11	16	16	16	16	16	16	15	16	15	16	15	**16**	16	16	16	6.1	6.1	11.0	282.1	451.4
11	11	16	16	16	16	16	16	**16**	16	15	16	15	16	16	16	16	6.1	6.1	11.0	283.1	453.0
11	11	16	16	16	16	16	16	16	16	**16**	16	15	16	16	16	16	6.1	6.1	11.0	284.1	454.6
11	11	16	16	16	16	16	16	16	16	16	16	**16**	16	16	16	16	6.1	6.1	11.0	285.1	456.2
11	11	**17**	16	16	16	16	16	16	16	16	16	16	16	16	16	16	6.1	6.1	11.0	286.1	457.8
11	11	17	16	16	16	16	16	16	16	16	16	16	16	16	16	**17**	6.1	6.1	11.0	287.1	459.4
11	11	17	**17**	16	16	16	16	16	16	16	16	16	16	16	16	17	6.1	6.1	11.0	288.1	461.0
11	11	17	17	16	16	16	16	16	16	16	16	16	16	**17**	16	17	6.1	6.1	11.0	289.1	462.6
11	11	17	17	**17**	16	16	16	16	16	16	16	16	16	17	16	17	6.1	6.1	11.0	290.1	464.2
11	11	17	17	17	16	16	**17**	16	16	16	16	16	16	17	16	17	6.1	6.1	11.0	291.1	465.8
11	11	17	17	17	16	16	17	16	**17**	16	16	16	16	17	16	17	6.1	6.1	11.0	292.1	467.4
11	11	17	17	17	16	16	17	16	17	16	**17**	16	16	17	16	17	6.1	6.1	11.0	293.1	469.0
11	11	17	17	17	**17**	16	17	16	17	16	17	16	16	17	16	17	6.1	6.1	11.0	294.1	470.6
11	11	17	17	17	17	16	17	16	17	16	17	16	16	17	**17**	17	6.1	6.1	11.0	295.1	472.2
11	11	17	17	17	17	**17**	17	16	17	16	17	16	16	17	17	17	6.1	6.1	11.0	296.1	473.8
11	11	17	17	17	17	17	17	16	17	16	17	16	**17**	17	17	17	6.1	6.1	11.0	297.1	475.4
11	11	17	17	17	17	17	17	**17**	17	16	17	16	17	17	17	17	6.1	6.1	11.0	298.1	477.0
11	11	17	17	17	17	17	17	17	17	**17**	17	16	17	17	17	17	6.1	6.1	11.0	299.1	478.6
11	11	17	17	17	17	17	17	17	17	17	17	**17**	17	17	17	17	6.1	6.1	11.0	300.1	480.2
11	11	**18**	17	17	17	17	17	17	17	17	17	17	17	17	17	17	6.1	6.1	11.0	301.1	481.8
11	11	18	17	17	17	17	17	17	17	17	17	17	17	17	17	**18**	6.1	6.1	11.0	302.1	483.4
11	11	18	**18**	17	17	17	17	17	17	17	17	17	17	17	17	18	6.1	6.1	11.0	303.1	485.0
11	11	18	18	17	17	17	17	17	17	17	17	17	17	**18**	17	18	6.1	6.1	11.0	304.1	486.6
11	11	18	18	**18**	17	17	17	17	17	17	17	17	17	18	17	18	6.1	6.1	11.0	305.1	488.2
11	11	18	18	18	17	17	**18**	17	17	17	17	17	17	18	17	18	6.1	6.1	11.0	306.1	489.8
11	11	18	18	18	17	17	18	17	**18**	17	17	17	17	18	17	18	6.1	6.1	11.0	307.1	491.4
11	11	18	18	18	17	17	18	17	18	17	**18**	17	17	18	17	18	6.1	6.1	11.0	308.1	493.0
11	11	18	18	18	**18**	17	18	17	18	17	18	17	17	18	17	18	6.1	6.1	11.0	309.1	494.6
11	11	18	18	18	18	17	18	17	18	17	18	17	17	18	**18**	18	6.1	6.1	11.0	310.1	496.2
11	11	18	18	18	18	**18**	18	17	18	17	18	17	17	18	18	18	6.1	6.1	11.0	311.1	497.8
11	11	18	18	18	18	18	18	17	18	17	18	17	**18**	18	18	18	6.1	6.1	11.0	312.1	499.4
11	11	18	18	18	18	18	18	**18**	18	17	18	17	18	18	18	18	6.1	6.1	11.0	313.1	501.0
11	11	18	18	18	18	18	18	18	18	**18**	18	17	18	18	18	18	6.1	6.1	11.0	314.1	502.6
11	11	18	18	18	18	18	18	18	18	18	18	**18**	18	18	18	18	6.1	6.1	11.0	315.1	504.2
11	11	**19**	18	18	18	18	18	18	18	18	18	18	18	18	18	18	6.1	6.1	11.0	316.1	505.8
11	11	19	18	18	18	18	18	18	18	18	18	18	18	18	18	**19**	6.1	6.1	11.0	317.1	507.4
11	11	19	**19**	18	18	18	18	18	18	18	18	18	18	18	18	19	6.1	6.1	11.0	318.1	509.0
11	11	19	19	18	18	18	18	18	18	18	18	18	18	**19**	18	19	6.1	6.1	11.0	319.1	510.6
11	11	19	19	**19**	18	18	18	18	18	18	18	18	18	19	18	19	6.1	6.1	11.0	320.1	512.2
11	11	19	19	19	18	18	**19**	18	18	18	18	18	18	19	18	19	6.1	6.1	11.0	321.1	513.8
11	11	19	19	19	18	18	19	18	**19**	18	18	18	18	19	18	19	6.1	6.1	11.0	322.1	515.4
11	11	19	19	19	18	18	19	18	19	18	**19**	18	18	19	18	19	6.1	6.1	11.0	323.1	517.0
11	11	19	19	19	**19**	18	19	18	19	18	19	18	18	19	18	19	6.1	6.1	11.0	324.1	518.6
11	11	19	19	19	19	18	19	18	19	18	19	18	18	19	**19**	19	6.1	6.1	11.0	325.1	520.2
11	11	19	19	19	19	**19**	19	18	19	18	19	18	18	19	19	19	6.1	6.1	11.0	326.1	521.8
11	11	19	19	19	19	19	19	18	19	18	19	18	**19**	19	19	19	6.1	6.1	11.0	327.1	523.4
11	11	19	19	19	19	19	19	**19**	19	18	19	18	19	19	19	19	6.1	6.1	11.0	328.1	525.0
11	11	19	19	19	19	19	19	19	19	**19**	19	18	19	19	19	19	6.1	6.1	11.0	329.1	526.6
11	11	19	19	19	19	19	19	19	19	19	19	**19**	19	19	19	19	6.1	6.1	11.0	330.1	528.2
11	11	**20**	19	19	19	19	19	19	19	19	19	19	19	19	19	19	6.1	6.1	11.0	331.1	529.8
11	11	20	19	19	19	19	19	19	19	19	19	19	19	19	19	**20**	6.1	6.1	11.0	332.1	531.4
11	11	20	**20**	19	19	19	19	19	19	19	19	19	19	19	19	20	6.1	6.1	11.0	333.1	533.0
11	11	20	20	19	19	19	19	19	19	19	19	19	19	**20**	19	20	6.1	6.1	11.0	334.1	534.6
11	11	20	20	**20**	19	19	19	19	19	19	19	19	19	20	19	20	6.1	6.1	11.0	335.1	536.2
11	11	20	20	20	19	19	**20**	19	19	19	19	19	19	20	19	20	6.1	6.1	11.0	336.1	537.8
11	11	20	20	20	19	19	20	19	**20**	19	19	19	19	20	19	20	6.1	6.1	11.0	337.1	539.4
11	11	20	20	20	19	19	20	19	20	19	**20**	19	19	20	19	20	6.1	6.1	11.0	338.1	541.0
11	11	20	20	20	**20**	19	20	19	20	19	20	19	19	20	19	20	6.1	6.1	11.0	339.1	542.6
11	11	20	20	20	20	19	20	19	20	19	20	19	19	20	**20**	20	6.1	6.1	11.0	340.1	544.2
11	11	20	20	20	20	**20**	20	19	20	19	20	19	19	20	20	20	6.1	6.1	11.0	341.1	545.8
11	11	20	20	20	20	20	20	19	20	19	20	19	**20**	20	20	20	6.1	6.1	11.0	342.1	547.4
11	11	20	20	20	20	20	20	**20**	20	19	20	19	20	20	20	20	6.1	6.1	11.0	343.1	549.0
11	11	20	20	20	20	20	20	20	20	**20**	20	19	20	20	20	20	6.1	6.1	11.0	344.1	550.6
11	11	20	20	20	20	20	20	20	20	20	20	**20**	20	20	20	20	6.1	6.1	11.0	345.1	552.2
11	11	**21**	20	20	20	20	20	20	20	20	20	20	20	20	20	20	6.1	6.1	11.0	346.1	553.8
11	11	21	20	20	20	20	20	20	20	20	20	20	20	20	20	**21**	6.1	6.1	11.0	347.1	555.4
11	11	21	**21**	20	20	20	20	20	20	20	20	20	20	20	20	21	6.1	6.1	11.0	348.1	557.0
11	11	21	21	20	20	20	20	20	20	20	20	20	20	**21**	20	21	6.1	6.1	11.0	349.1	558.6
11	11	21	21	**21**	20	20	20	20	20	20	20	20	20	21	20	21	6.1	6.1	11.0	350.1	560.2
11	11	21	21	21	20	20	**21**	20	20	20	20	20	20	21	20	21	6.1	6.1	11.0	351.1	561.8
11	11	21	21	21	20	20	21	20	**21**	20	20	20	20	21	20	21	6.1	6.1	11.0	352.1	563.4
11	11	21	21	21	20	20	21	20	21	20	**21**	20	20	21	20	21	6.1	6.1	11.0	353.1	565.0

Table JDA-10 (cont). Spill Patterns for John Day Dam with TSWs.

SPILLWAY BAY NUMBER																	TSW	TSW		Total	SPILL
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	STOPS	Kcfs
11	11	21	21	21	**21**	20	21	20	21	20	21	20	20	21	20	21	6.1	6.1	11.0	354.1	566.6
11	11	21	21	21	21	20	21	20	21	20	21	20	20	21	**21**	21	6.1	6.1	11.0	355.1	568.2
11	11	21	21	21	21	**21**	21	20	21	20	21	20	20	21	21	21	6.1	6.1	11.0	356.1	569.8
11	11	21	21	21	21	21	21	20	21	20	21	20	**21**	21	21	21	6.1	6.1	11.0	357.1	571.4
11	11	21	21	21	21	21	21	**21**	21	20	21	20	21	21	21	21	6.1	6.1	11.0	358.1	573.0
11	11	21	21	21	21	21	21	21	21	**21**	21	20	21	21	21	21	6.1	6.1	11.0	359.1	574.6
11	11	21	21	21	21	21	21	21	21	21	21	**21**	21	21	21	21	6.1	6.1	11.0	360.1	576.2
11	11	**22**	21	21	21	21	21	21	21	21	21	21	21	21	21	21	6.1	6.1	11.0	361.1	577.8
11	11	22	21	21	21	21	21	21	21	21	21	21	21	21	21	**22**	6.1	6.1	11.0	362.1	579.4
11	11	22	**22**	21	21	21	21	21	21	21	21	21	21	21	21	22	6.1	6.1	11.0	363.1	581.0
11	11	22	22	21	21	21	21	21	21	21	21	21	21	**22**	21	22	6.1	6.1	11.0	364.1	582.6
11	11	22	22	**22**	21	21	21	21	21	21	21	21	21	22	21	22	6.1	6.1	11.0	365.1	584.2
11	11	22	22	22	21	21	**22**	21	21	21	21	21	21	22	21	22	6.1	6.1	11.0	366.1	585.8
11	11	22	22	22	21	21	22	21	**22**	21	21	21	21	22	21	22	6.1	6.1	11.0	367.1	587.4
11	11	22	22	22	21	21	22	21	22	21	**22**	21	21	22	21	22	6.1	6.1	11.0	368.1	589.0
11	11	22	22	22	**22**	21	22	21	22	21	22	21	21	22	21	22	6.1	6.1	11.0	369.1	590.6
11	11	22	22	22	22	21	22	21	22	21	22	21	21	22	**22**	22	6.1	6.1	11.0	370.1	592.2
11	11	22	22	22	22	**22**	22	21	22	21	22	21	21	22	22	22	6.1	6.1	11.0	371.1	593.8
11	11	22	22	22	22	22	22	21	22	21	22	21	**22**	22	22	22	6.1	6.1	11.0	372.1	595.4
11	11	22	22	22	22	22	22	**22**	22	21	22	21	22	22	22	22	6.1	6.1	11.0	373.1	597.0
11	11	22	22	22	22	22	22	22	22	**22**	22	21	22	22	22	22	6.1	6.1	11.0	374.1	598.6
11	11	22	22	22	22	22	22	22	22	22	22	**22**	22	22	22	22	6.1	6.1	11.0	375.1	600.2 (4)

(1) Begin transition from Juvenile Pattern to flood pattern
(2) Gate 20 blocked at 10.3 ft opening
(3) Gate 1 blocked at 10.3 ft opening
(4) TSW does not affect spillway flood capacity until flows reach 1,492 kcfs. TSW removal is recommended before river levels exceed 685 kcfs.