

# **Appendix J**

## **2019 Fish Operations Plan Spill**

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**Introduction**

This appendix provides an evaluation of the target spill described in the 2019 Fish Operations Plan (FOP) compared to the actual spill during the 2019 fish spill season from April 1 through August 31. Daily data including FOP spill, actual spill, total river flow, and generation flow are displayed graphically (Figures K-1 through K-8) and in tabular form (Tables K-3 through K-10) for the eight fish passage projects on the lower Snake River and the Lower Columbia River. Tables K-11 and K-12 provide a comparison of actual spill, FOP spill, and total flow at each project in 2019.

**Project-Specific Spill Operations for Fish Passage**

The 2019 spring fish passage spill operation at the Corps’ eight lower Snake and lower Columbia River projects differed from previous years’ operations as a result of the Flexible Spill Agreement signed in December 2018. Spring spill operations occur April 3–June 20 at the four lower Snake River projects, and April 10–June 15 at the four lower Columbia River projects. Spring target spill levels are defined in Table K-1.

**Table K-1  
Summary of 2019 spring target spill levels at lower Snake River and lower Columbia River projects.**

<b>PROJECT</b>	<b>GAS CAP SPILL (at least 16 hours per day)<sup>1, 2, 3, 5</sup></b>	<b>PERFORMANCE STANDARD SPILL (up to 8 hours per day)<sup>2, 4, 5</sup></b>
Lower Granite	120% Gas Cap	20 kcfs
Little Goose	120% Gas Cap	30%
Lower Monumental	120% Gas Cap (uniform spill pattern)	30 kcfs
Ice Harbor	120% Gas Cap	30%
McNary	120% Gas Cap	48%
John Day	120% Gas Cap	32%
The Dalles	120% Gas Cap <sup>6</sup>	40%
Bonneville	120% Gas Cap <sup>7</sup>	100 kcfs

1. Uncertainty remains about how the system will respond to these new operations, therefore existing adaptive management processes will be employed to help address any unintended consequences that may arise in-season as a result of implementing these proposed spill operations.
2. Spill may be temporarily reduced at any project if necessary to ensure navigation safety or transmission reliability.
3. 120% Gas Cap spill is spill to the maximum level that meets, but does not exceed, the TDG criteria allowed under state laws/water quality standards.
4. The 8 hours of Performance Standard spill can occur in up to two blocks per calendar day, an AM block and a PM block. An AM block is defined as beginning in the AM (but may end in the PM) and a PM block is defined as beginning in the PM (but may end in the AM). Only Little Goose would be set to at least 4 hours in the AM (beginning near dawn and not to exceed 5 hours in the AM) and no more than 4 hours in the PM (generally near dusk) to help with adult passage issues. All other projects could spill up to 5 hours of performance standard spill either in the AM or PM time period with the remaining hours occurring in the alternate time period (not to exceed 8 hours in a day).
5. No ponding above current Snake River MOP/John Day MIP assumptions (to provide a 1 ft. useable range and a 1.5 ft. useable range, respectively).
6. Spill to the 120 % Gas Cap restricted to spillbays 1-8 (within the spillwall) when river flows is ≤ 350 kcfs).
7. Spill to the 120% Gas Cap, not to exceed 150 kcfs.

Summer spill operations occur June 21–August 31 at the four lower Snake River projects, and June 16–August 31 at the four lower Columbia River projects. Summer target spill levels are defined in Table K-2.

**Table K-2**  
**Summary of 2019 summer target spill levels at lower Snake River and lower Columbia River projects.**

PROJECT	2019 SUMMER SPILL <sup>1</sup> (24 hrs/day)
Lower Granite	18 kcfs
Little Goose	30%
Lower Monumental	17 kcfs
Ice Harbor	30%
McNary	57%
John Day	35%
The Dalles	40%
Bonneville	95 kcfs

1. Spill may be temporarily reduced below the 2019 FOP summer target spill level at any project if necessary to ensure navigation safety or transmission reliability, or to avoid exceeding State TDG standards.

Actual spill may vary from the desired FOP spill due to factors such as involuntary spill conditions, minimum generation requirements, altered spill patterns, fish research and testing, and fluctuating TDG spill caps.

Figure K-1  
FOP Spill at Bonneville

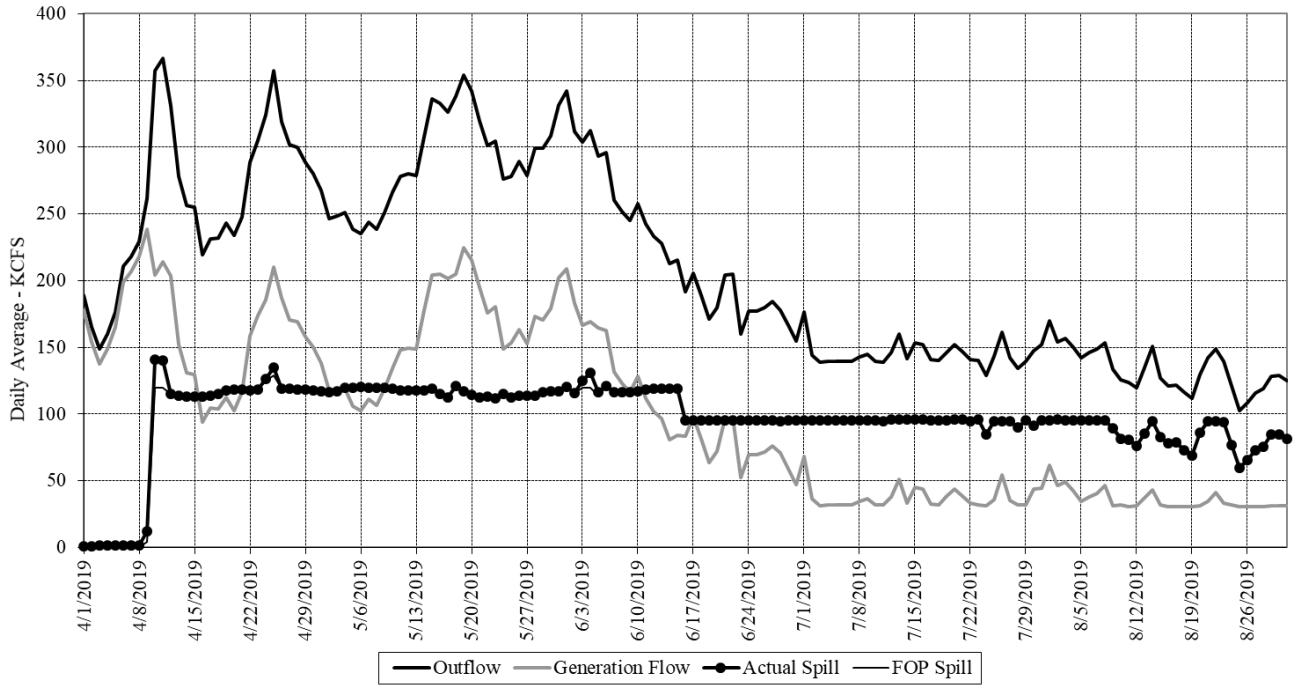


Figure K-2  
FOP Spill at The Dalles

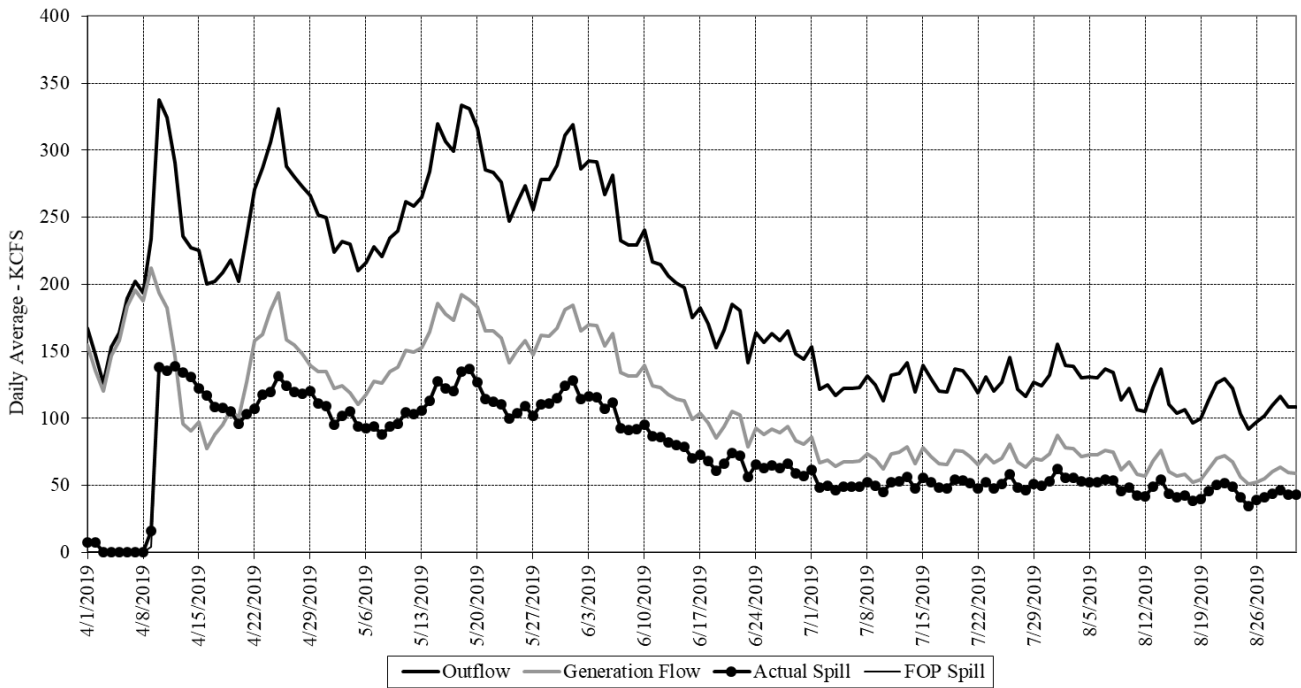


Figure K-3  
FOP Spill at John Day

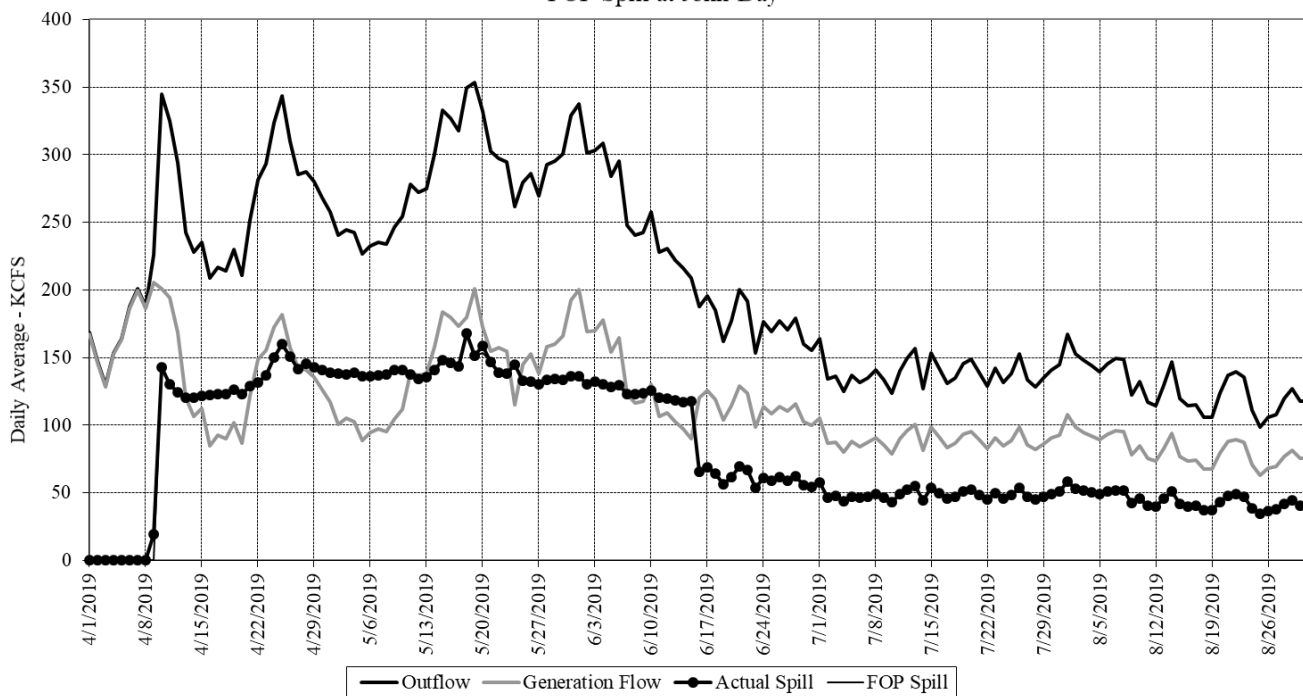


Figure K-4  
FOP Spill at McNary

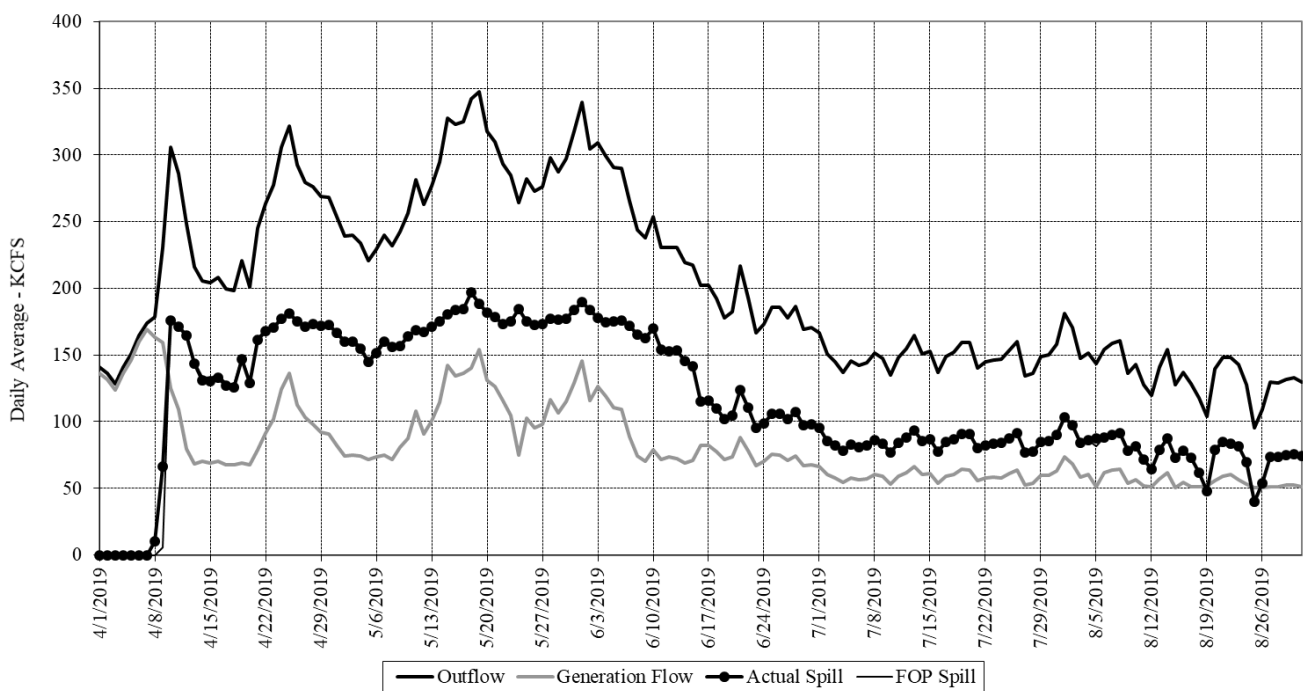


Figure K-5  
FOP Spill at Ice Harbor

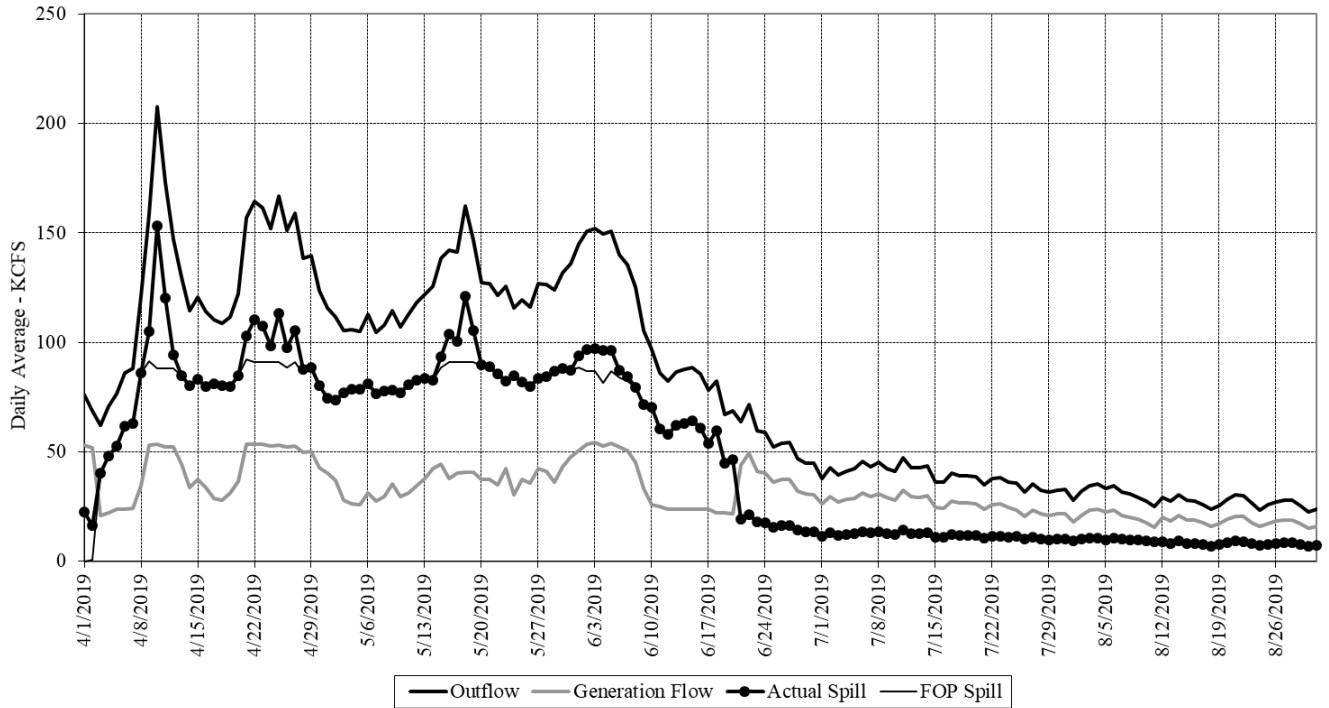


Figure K-6  
FOP Spill at Lower Monumental

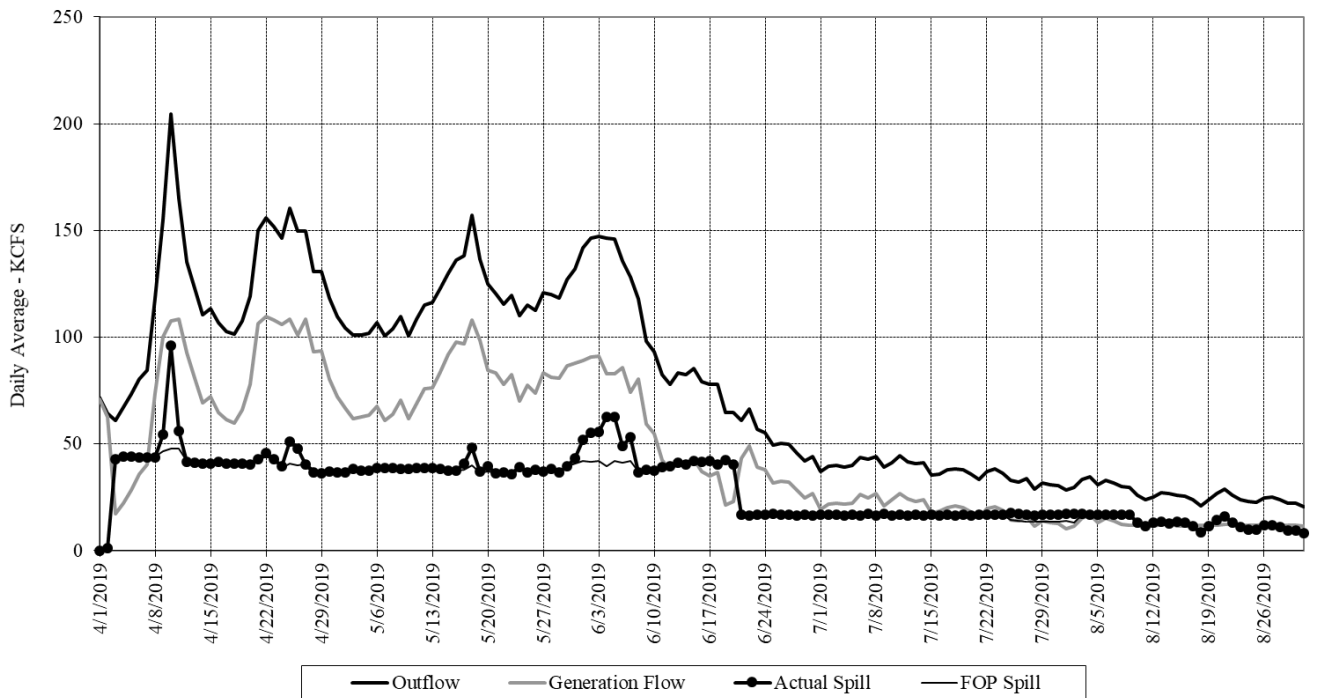


Figure K-7  
FOP Spill at Little Goose

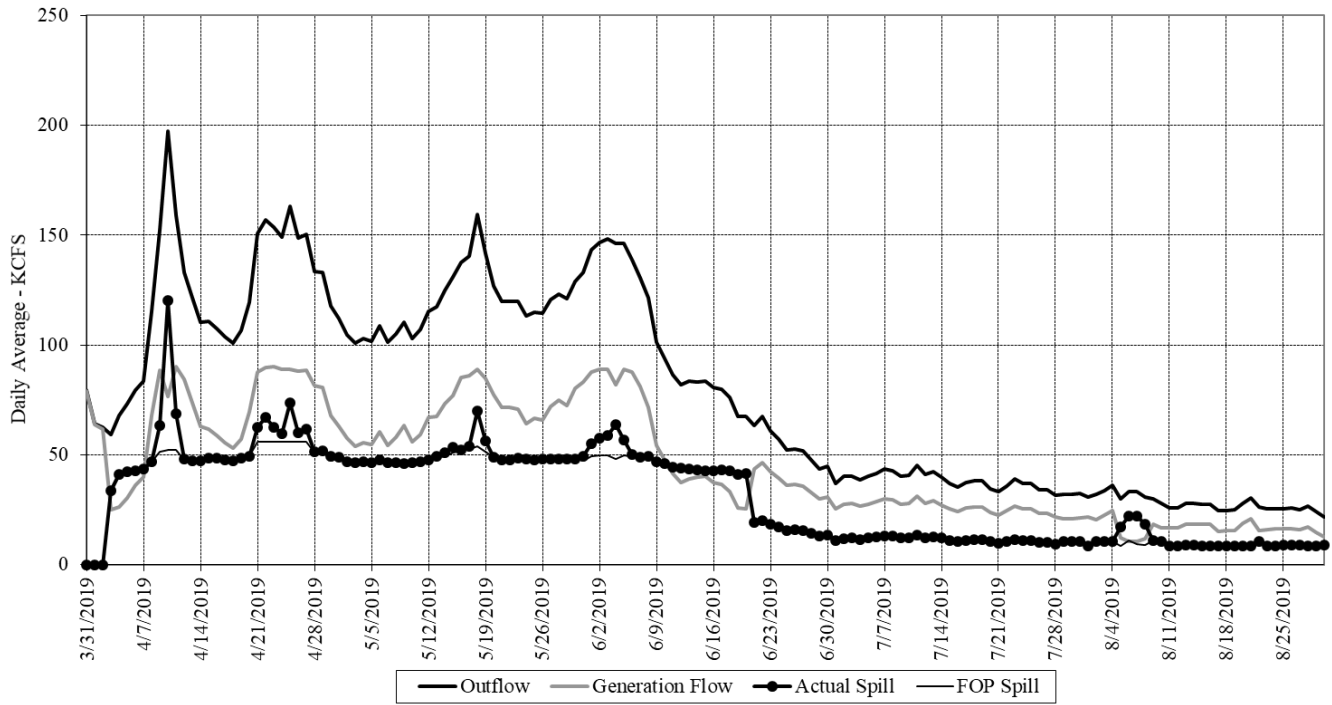
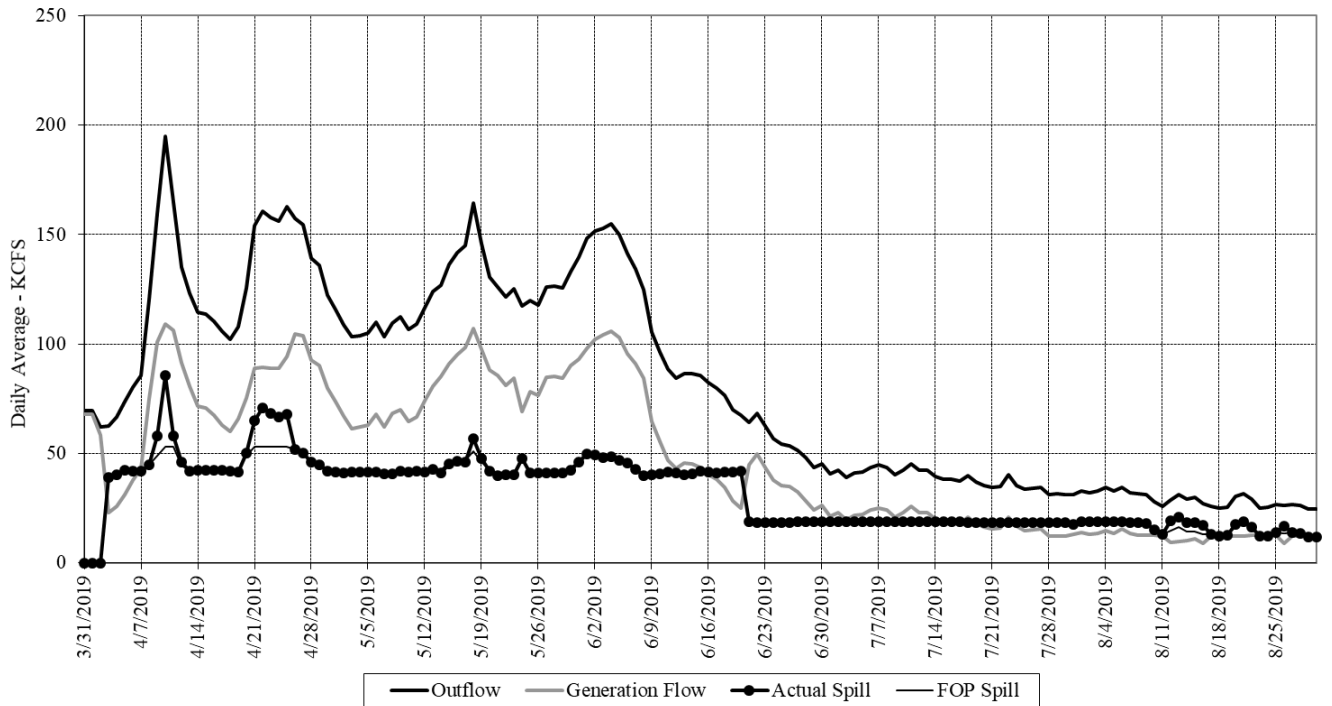


Figure K-8  
FOP Spill at Lower Granite



**Table K-3  
Daily Average FOP Spill at Bonneville**

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/19	189	178	1	0	05/22/19	301	176	113	113	7/12/2019	146	38	96	95
04/02/19	165	154	1	0	05/23/19	305	180	112	112	7/13/2019	160	51	96	95
04/03/19	149	137	1	0	05/24/19	276	149	115	115	7/14/2019	141	33	96	95
04/04/19	160	149	1	0	05/25/19	278	153	113	113	7/15/2019	154	45	96	95
04/05/19	176	165	1	0	05/26/19	290	163	114	114	7/16/2019	152	44	96	95
04/06/19	211	199	1	0	05/27/19	279	153	114	114	7/17/2019	141	33	96	95
04/07/19	218	207	2	0	05/28/19	299	173	114	114	7/18/2019	140	32	95	95
04/08/19	229	218	1	0	05/29/19	299	171	116	116	7/19/2019	146	38	96	95
04/09/19	262	238	12	4	05/30/19	309	179	117	117	7/20/2019	152	44	96	95
04/10/19	357	204	141	120	05/31/19	332	202	117	117	7/21/2019	147	39	96	95
04/11/19	366	214	140	120	06/01/19	342	209	121	121	7/22/2019	141	34	95	95
04/12/19	331	204	115	115	06/02/19	312	183	116	116	7/23/2019	140	32	96	95
04/13/19	278	152	114	113	06/03/19	304	166	125	120	7/24/2019	129	31	85	86
04/14/19	257	131	113	113	06/04/19	312	169	131	120	7/25/2019	143	36	95	95
04/15/19	255	130	113	113	06/05/19	293	164	116	114	7/26/2019	162	55	94	95
04/16/19	219	94	113	113	06/06/19	296	163	121	121	7/27/2019	142	35	95	95
04/17/19	231	105	114	114	06/07/19	261	132	116	116	7/28/2019	134	32	90	90
04/18/19	232	104	115	115	06/08/19	252	123	116	116	7/29/2019	140	32	95	95
04/19/19	243	113	118	118	06/09/19	245	116	117	117	7/30/2019	147	44	91	92
04/20/19	234	103	118	118	06/10/19	258	128	117	117	7/31/2019	152	45	95	95
04/21/19	248	117	119	119	06/11/19	242	112	118	118	8/1/2019	170	62	96	95
04/22/19	289	158	118	118	06/12/19	233	102	119	119	8/2/2019	154	46	96	95
04/23/19	305	174	119	119	06/13/19	228	96	119	122	8/3/2019	157	49	96	95
04/24/19	325	186	127	125	06/14/19	213	81	119	119	8/4/2019	150	43	95	95
04/25/19	357	210	135	129	06/15/19	215	84	119	119	8/5/2019	142	35	95	95
04/26/19	319	187	119	119	06/16/19	191	84	95	95	8/6/2019	146	38	96	95
04/27/19	302	170	119	119	06/17/19	205	98	95	95	8/7/2019	149	41	96	95
04/28/19	300	169	119	119	06/18/19	189	82	95	95	8/8/2019	154	46	95	95
04/29/19	289	158	118	118	06/19/19	171	63	95	95	8/9/2019	133	32	89	90
04/30/19	280	150	118	118	06/20/19	180	72	95	95	8/10/2019	126	32	82	83
05/01/19	268	138	117	117	06/21/19	204	96	95	95	8/11/2019	124	31	81	82
05/02/19	247	118	116	116	06/22/19	205	97	95	95	8/12/2019	119	31	76	77
05/03/19	249	119	117	117	06/23/19	160	53	95	95	8/13/2019	135	37	85	86
05/04/19	251	119	120	120	06/24/19	177	70	95	95	8/14/2019	151	43	95	95
05/05/19	238	106	120	120	06/25/19	177	69	95	95	8/15/2019	127	32	83	85
05/06/19	235	102	120	120	06/26/19	180	72	95	95	8/16/2019	121	30	78	78
05/07/19	244	111	120	120	06/27/19	184	76	95	95	8/17/2019	122	31	79	79
05/08/19	238	107	120	120	06/28/19	178	71	95	95	8/18/2019	116	31	73	74
05/09/19	251	119	120	120	06/29/19	166	59	95	95	8/19/2019	112	31	69	70
05/10/19	266	134	119	119	06/30/19	155	47	95	95	8/20/2019	130	31	86	87
05/11/19	278	148	118	118	07/01/19	176	69	95	95	8/21/2019	142	35	95	95
05/12/19	280	150	118	118	07/02/19	144	37	95	95	8/22/2019	149	41	95	95
05/13/19	279	149	118	118	07/03/19	139	32	95	95	8/23/2019	140	33	94	95
05/14/19	308	178	118	118	07/04/19	139	32	95	95	8/24/2019	121	32	77	78
05/15/19	336	204	119	119	07/05/19	139	32	95	95	8/25/2019	103	31	60	60
05/16/19	333	205	115	115	07/06/19	139	32	95	95	8/26/2019	109	31	66	66
05/17/19	327	201	113	113	07/07/19	140	32	95	95	8/27/2019	116	31	73	74
05/18/19	338	205	121	120	07/08/19	143	35	95	95	8/28/2019	119	31	76	76
05/19/19	354	224	117	116	07/09/19	145	37	96	95	8/29/2019	128	31	85	86
05/20/19	342	216	114	114	07/10/19	139	32	95	95	8/30/2019	129	31	85	86
05/21/19	320	195	113	113	07/11/19	139	32	95	95	8/31/2019	125	31	81	83

**Table K-4  
Daily Average FOP Spill at The Dalles**

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/19	167	155	7	0	05/22/19	284	165	113	113	7/12/2019	134	75	53	54
04/02/19	148	136	7	0	05/23/19	276	160	110	111	7/13/2019	141	79	56	57
04/03/19	126	120	0	0	05/24/19	247	142	100	99	7/14/2019	120	66	48	48
04/04/19	153	147	0	0	05/25/19	261	151	104	104	7/15/2019	139	78	56	56
04/05/19	164	158	0	0	05/26/19	273	158	109	109	7/16/2019	130	72	52	52
04/06/19	190	183	0	0	05/27/19	256	148	102	102	7/17/2019	120	66	48	48
04/07/19	202	196	0	0	05/28/19	278	162	111	111	7/18/2019	120	66	48	48
04/08/19	194	188	0	0	05/29/19	278	161	111	111	7/19/2019	137	76	55	55
04/09/19	234	212	16	4	05/30/19	288	167	115	115	7/20/2019	136	76	54	54
04/10/19	337	194	138	138	05/31/19	311	181	124	124	7/21/2019	129	72	52	52
04/11/19	324	182	136	136	06/01/19	319	185	129	128	7/22/2019	119	65	48	48
04/12/19	291	146	139	139	06/02/19	286	165	115	114	7/23/2019	131	73	52	52
04/13/19	236	96	134	134	06/03/19	292	170	117	117	7/24/2019	121	67	48	48
04/14/19	228	91	131	131	06/04/19	291	169	116	116	7/25/2019	127	70	51	51
04/15/19	225	97	122	122	06/05/19	267	154	107	107	7/26/2019	145	81	58	58
04/16/19	200	77	117	117	06/06/19	281	163	112	113	7/27/2019	122	67	48	49
04/17/19	202	88	108	108	06/07/19	233	134	93	93	7/28/2019	116	64	47	47
04/18/19	209	95	108	108	06/08/19	229	131	92	92	7/29/2019	127	71	51	51
04/19/19	218	107	105	105	06/09/19	229	132	92	92	7/30/2019	125	69	50	50
04/20/19	202	100	96	96	06/10/19	240	139	95	96	7/31/2019	132	74	53	53
04/21/19	236	127	103	104	06/11/19	217	124	87	87	8/1/2019	155	87	62	62
04/22/19	271	158	107	107	06/12/19	215	123	86	86	8/2/2019	140	78	56	56
04/23/19	286	163	118	118	06/13/19	206	118	82	82	8/3/2019	139	77	56	56
04/24/19	306	181	120	120	06/14/19	201	115	80	80	8/4/2019	130	72	53	52
04/25/19	331	194	132	130	06/15/19	198	113	79	79	8/5/2019	131	73	52	52
04/26/19	288	158	124	123	06/16/19	175	99	70	70	8/6/2019	131	73	52	52
04/27/19	280	155	120	119	06/17/19	183	104	73	73	8/7/2019	137	76	55	55
04/28/19	273	148	119	118	06/18/19	170	96	68	68	8/8/2019	134	75	53	54
04/29/19	266	140	120	120	06/19/19	153	86	61	61	8/9/2019	114	62	46	45
04/30/19	252	135	111	111	06/20/19	166	94	66	66	8/10/2019	122	68	49	49
05/01/19	250	135	109	109	06/21/19	185	105	74	74	8/11/2019	107	58	43	43
05/02/19	224	122	96	96	06/22/19	180	102	72	72	8/12/2019	105	57	42	42
05/03/19	232	124	102	102	06/23/19	141	79	57	56	8/13/2019	123	68	49	49
05/04/19	230	119	105	105	06/24/19	164	92	66	66	8/14/2019	137	76	55	55
05/05/19	210	110	94	94	06/25/19	157	88	63	63	8/15/2019	110	60	44	44
05/06/19	216	118	92	92	06/26/19	163	92	65	65	8/16/2019	104	57	41	42
05/07/19	228	128	94	94	06/27/19	158	89	63	63	8/17/2019	107	58	43	43
05/08/19	221	126	88	88	06/28/19	166	94	66	66	8/18/2019	97	52	38	39
05/09/19	235	135	94	94	06/29/19	148	83	59	59	8/19/2019	100	54	40	40
05/10/19	240	138	96	96	06/30/19	144	81	57	58	8/20/2019	114	63	46	46
05/11/19	261	151	105	105	07/01/19	153	86	62	61	8/21/2019	126	70	50	50
05/12/19	258	149	103	103	07/02/19	122	67	49	49	8/22/2019	130	72	52	52
05/13/19	265	153	106	106	07/03/19	125	69	50	50	8/23/2019	122	68	49	49
05/14/19	284	165	113	114	07/04/19	117	65	47	47	8/24/2019	104	56	41	41
05/15/19	320	186	128	128	07/05/19	123	68	49	49	8/25/2019	92	51	35	35
05/16/19	306	178	123	123	07/06/19	122	68	49	49	8/26/2019	97	52	39	39
05/17/19	299	173	120	120	07/07/19	123	68	49	49	8/27/2019	102	55	41	41
05/18/19	334	193	135	136	07/08/19	131	73	52	53	8/28/2019	110	60	44	44
05/19/19	331	188	137	136	07/09/19	125	69	50	50	8/29/2019	116	64	47	47
05/20/19	316	183	127	127	07/10/19	113	62	45	45	8/30/2019	109	60	43	43
05/21/19	286	166	114	114	07/11/19	132	74	53	53	8/31/2019	108	59	44	43

**Table K-5  
Daily Average FOP Spill at John Day**

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/19	169	167	0	0	05/22/19	298	158	139	139	7/12/2019	150	96	52	52
04/02/19	147	146	0	0	05/23/19	294	155	138	139	7/13/2019	157	101	55	55
04/03/19	129	128	0	0	05/24/19	261	115	145	145	7/14/2019	127	81	44	44
04/04/19	154	152	0	0	05/25/19	279	145	133	133	7/15/2019	153	98	54	54
04/05/19	164	163	0	0	05/26/19	286	153	132	133	7/16/2019	142	91	50	50
04/06/19	188	187	0	0	05/27/19	269	138	130	131	7/17/2019	131	84	46	46
04/07/19	201	200	0	0	05/28/19	293	158	134	134	7/18/2019	135	87	47	47
04/08/19	188	187	0	0	05/29/19	295	160	134	134	7/19/2019	146	93	51	51
04/09/19	226	205	20	0	05/30/19	301	166	133	134	7/20/2019	149	95	52	52
04/10/19	345	201	143	143	05/31/19	329	192	136	137	7/21/2019	139	89	48	49
04/11/19	325	194	130	131	06/01/19	337	200	136	136	7/22/2019	129	83	45	45
04/12/19	294	169	124	125	06/02/19	301	170	130	130	7/23/2019	142	91	50	50
04/13/19	242	120	121	122	06/03/19	303	170	132	132	7/24/2019	132	85	46	46
04/14/19	228	106	121	122	06/04/19	309	178	130	130	7/25/2019	138	89	48	48
04/15/19	235	112	122	122	06/05/19	284	154	128	128	7/26/2019	153	98	54	54
04/16/19	209	85	123	123	06/06/19	295	165	130	130	7/27/2019	133	85	47	47
04/17/19	217	93	123	124	06/07/19	248	123	123	123	7/28/2019	128	82	45	45
04/18/19	214	90	123	123	06/08/19	241	116	123	123	7/29/2019	135	86	47	47
04/19/19	230	102	126	127	06/09/19	243	118	124	124	7/30/2019	141	91	49	49
04/20/19	211	87	123	123	06/10/19	258	131	126	126	7/31/2019	145	93	51	51
04/21/19	251	122	129	129	06/11/19	228	106	120	120	8/1/2019	167	108	58	59
04/22/19	282	149	131	132	06/12/19	231	109	120	120	8/2/2019	153	98	53	54
04/23/19	293	155	137	137	06/13/19	222	103	118	118	8/3/2019	148	95	52	52
04/24/19	324	172	150	150	06/14/19	216	97	117	117	8/4/2019	144	92	50	50
04/25/19	343	182	160	160	06/15/19	209	90	117	117	8/5/2019	140	90	49	49
04/26/19	310	157	151	151	06/16/19	188	121	66	65	8/6/2019	146	93	51	51
04/27/19	285	143	141	142	06/17/19	196	126	69	68	8/7/2019	150	96	52	52
04/28/19	288	141	146	146	06/18/19	185	119	65	64	8/8/2019	149	95	52	52
04/29/19	280	136	143	143	06/19/19	162	104	57	56	8/9/2019	122	78	43	43
04/30/19	268	126	141	142	06/20/19	177	114	62	62	8/10/2019	132	85	46	46
05/01/19	258	117	139	140	06/21/19	200	129	70	70	8/11/2019	117	75	41	41
05/02/19	240	101	138	139	06/22/19	192	124	67	67	8/12/2019	115	73	40	40
05/03/19	244	105	138	139	06/23/19	153	98	54	53	8/13/2019	130	83	46	45
05/04/19	243	103	139	139	06/24/19	176	114	61	61	8/14/2019	147	94	51	51
05/05/19	226	89	136	137	06/25/19	169	109	59	59	8/15/2019	120	77	42	42
05/06/19	233	95	137	137	06/26/19	177	114	62	62	8/16/2019	115	74	40	40
05/07/19	235	97	137	138	06/27/19	171	110	59	59	8/17/2019	115	74	40	40
05/08/19	234	95	138	138	06/28/19	179	116	62	62	8/18/2019	106	68	37	37
05/09/19	247	104	141	142	06/29/19	160	103	56	56	8/19/2019	106	68	37	37
05/10/19	254	112	141	142	06/30/19	155	100	54	54	8/20/2019	124	79	43	43
05/11/19	278	139	138	138	07/01/19	164	105	57	57	8/21/2019	137	88	48	48
05/12/19	272	137	134	135	07/02/19	134	87	47	47	8/22/2019	139	89	49	49
05/13/19	275	138	135	136	07/03/19	136	87	48	48	8/23/2019	136	87	47	48
05/14/19	300	158	141	141	07/04/19	125	80	44	44	8/24/2019	111	71	39	39
05/15/19	333	184	148	149	07/05/19	137	88	47	48	8/25/2019	99	63	35	35
05/16/19	327	180	146	147	07/06/19	132	84	47	46	8/26/2019	106	68	37	37
05/17/19	318	173	144	144	07/07/19	135	87	47	47	8/27/2019	108	69	38	38
05/18/19	349	180	168	168	07/08/19	141	91	49	49	8/28/2019	120	77	42	42
05/19/19	354	201	151	151	07/09/19	133	86	47	47	8/29/2019	127	81	44	44
05/20/19	332	173	158	153	07/10/19	124	79	43	43	8/30/2019	118	76	41	41
05/21/19	303	154	147	147	07/11/19	140	90	49	49	8/31/2019	118	75	41	41

**Table K-6  
Daily Average FOP Spill at McNary**

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/19	141	136	0	0	05/22/19	294	116	173	174	7/12/2019	154	62	88	88
04/02/19	136	132	0	0	05/23/19	285	105	175	175	7/13/2019	165	66	94	94
04/03/19	128	123	0	0	05/24/19	264	75	184	185	7/14/2019	151	60	86	86
04/04/19	141	136	0	0	05/25/19	282	103	175	176	7/15/2019	153	61	87	87
04/05/19	151	146	0	0	05/26/19	273	96	173	173	7/16/2019	137	54	78	78
04/06/19	165	160	0	0	05/27/19	276	98	173	174	7/17/2019	149	59	85	85
04/07/19	174	169	0	0	05/28/19	298	116	177	178	7/18/2019	152	61	86	87
04/08/19	178	163	11	0	05/29/19	288	106	176	177	7/19/2019	160	64	91	91
04/09/19	231	160	66	6	05/30/19	297	115	177	177	7/20/2019	159	64	91	91
04/10/19	306	125	176	177	05/31/19	318	129	184	185	7/21/2019	140	56	80	80
04/11/19	286	110	172	172	06/01/19	340	145	190	190	7/22/2019	145	57	82	82
04/12/19	249	79	165	165	06/02/19	305	116	184	184	7/23/2019	146	58	83	83
04/13/19	216	68	143	145	06/03/19	309	126	178	178	7/24/2019	147	58	84	84
04/14/19	205	70	131	134	06/04/19	299	119	175	175	7/25/2019	154	61	88	88
04/15/19	204	69	131	133	06/05/19	290	111	175	175	7/26/2019	160	64	91	91
04/16/19	208	70	133	135	06/06/19	290	109	176	176	7/27/2019	134	53	77	76
04/17/19	200	68	127	129	06/07/19	265	89	172	172	7/28/2019	136	54	78	78
04/18/19	198	67	126	128	06/08/19	244	74	165	166	7/29/2019	149	59	85	85
04/19/19	221	69	147	148	06/09/19	238	71	163	163	7/30/2019	150	60	85	86
04/20/19	201	68	129	130	06/10/19	254	79	170	170	7/31/2019	158	63	90	90
04/21/19	245	79	162	163	06/11/19	231	72	154	154	8/1/2019	181	73	103	103
04/22/19	264	91	168	168	06/12/19	231	73	153	153	8/2/2019	171	69	97	97
04/23/19	278	102	171	171	06/13/19	230	72	153	153	8/3/2019	147	59	84	84
04/24/19	306	124	177	178	06/14/19	219	69	146	146	8/4/2019	151	61	86	86
04/25/19	322	136	181	182	06/15/19	217	71	142	142	8/5/2019	143	51	87	82
04/26/19	293	113	175	176	06/16/19	202	82	116	115	8/6/2019	154	62	88	88
04/27/19	280	104	171	172	06/17/19	203	82	116	115	8/7/2019	158	64	90	90
04/28/19	276	98	173	174	06/18/19	193	78	110	110	8/8/2019	161	64	91	91
04/29/19	269	92	172	173	06/19/19	178	72	102	102	8/9/2019	136	54	78	78
04/30/19	268	91	173	173	06/20/19	183	74	104	104	8/10/2019	143	57	82	82
05/01/19	254	82	167	167	06/21/19	217	88	124	123	8/11/2019	128	52	72	72
05/02/19	239	75	160	162	06/22/19	193	78	110	110	8/12/2019	120	51	64	65
05/03/19	240	75	160	162	06/23/19	167	67	95	95	8/13/2019	141	57	79	79
05/04/19	234	74	155	157	06/24/19	174	70	99	99	8/14/2019	154	62	88	88
05/05/19	221	71	145	146	06/25/19	186	75	106	106	8/15/2019	128	50	73	73
05/06/19	229	73	151	153	06/26/19	186	75	106	106	8/16/2019	137	54	78	78
05/07/19	240	75	160	162	06/27/19	178	71	102	101	8/17/2019	129	51	73	73
05/08/19	232	71	156	157	06/28/19	186	75	107	106	8/18/2019	118	51	62	62
05/09/19	242	81	157	158	06/29/19	169	67	97	97	8/19/2019	104	52	48	50
05/10/19	256	87	164	165	06/30/19	170	68	98	97	8/20/2019	140	56	79	79
05/11/19	281	108	169	169	07/01/19	166	66	96	95	8/21/2019	148	59	85	84
05/12/19	263	91	167	168	07/02/19	150	60	86	86	8/22/2019	148	60	83	84
05/13/19	277	101	171	172	07/03/19	145	58	82	83	8/23/2019	143	57	81	81
05/14/19	294	115	175	176	07/04/19	137	54	78	78	8/24/2019	128	53	70	70
05/15/19	328	142	181	181	07/05/19	146	58	83	83	8/25/2019	95	51	40	41
05/16/19	323	135	184	184	07/06/19	142	56	81	81	8/26/2019	109	51	53	54
05/17/19	325	136	184	184	07/07/19	144	57	82	82	8/27/2019	130	51	74	74
05/18/19	342	141	197	197	07/08/19	151	61	86	86	8/28/2019	129	51	74	74
05/19/19	347	154	188	188	07/09/19	147	59	84	84	8/29/2019	132	52	75	75
05/20/19	317	131	182	182	07/10/19	135	53	77	77	8/30/2019	133	52	76	76
05/21/19	310	126	179	179	07/11/19	148	59	84	84	8/31/2019	130	51	74	74

**Table K-7  
Daily Average FOP Spill at Ice Harbor**

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/19	76	53	22	0	05/22/19	121	35	86	86	7/12/2019	43	29	13	13
04/02/19	69	52	16	1	05/23/19	125	42	82	82	7/13/2019	43	29	13	13
04/03/19	62	21	40	41	05/24/19	116	30	85	85	7/14/2019	44	30	13	13
04/04/19	71	22	48	48	05/25/19	120	37	82	82	7/15/2019	36	24	11	11
04/05/19	77	24	52	52	05/26/19	116	36	80	80	7/16/2019	36	24	11	11
04/06/19	86	24	62	62	05/27/19	127	42	84	84	7/17/2019	40	27	12	12
04/07/19	88	24	63	63	05/28/19	126	41	85	85	7/18/2019	39	27	12	12
04/08/19	121	35	86	86	05/29/19	124	36	87	87	7/19/2019	39	26	12	12
04/09/19	159	53	105	91	05/30/19	132	43	88	88	7/20/2019	39	26	12	12
04/10/19	208	53	153	88	05/31/19	136	48	87	87	7/21/2019	35	24	10	10
04/11/19	173	52	120	88	06/01/19	145	50	94	88	7/22/2019	38	26	11	11
04/12/19	147	52	94	88	06/02/19	151	54	97	87	7/23/2019	38	26	11	11
04/13/19	130	44	85	85	06/03/19	152	54	97	87	7/24/2019	36	24	11	11
04/14/19	115	33	80	80	06/04/19	150	53	96	81	7/25/2019	36	23	11	11
04/15/19	121	37	83	83	06/05/19	151	54	96	87	7/26/2019	32	20	10	9
04/16/19	114	33	80	80	06/06/19	140	52	87	84	7/27/2019	35	23	11	11
04/17/19	110	29	81	81	06/07/19	135	50	84	82	7/28/2019	33	22	10	10
04/18/19	109	28	80	80	06/08/19	125	45	79	79	7/29/2019	31	21	10	9
04/19/19	111	31	80	80	06/09/19	105	33	72	72	7/30/2019	32	22	10	10
04/20/19	122	37	85	85	06/10/19	97	26	70	70	7/31/2019	33	22	10	10
04/21/19	157	53	103	92	06/11/19	86	25	61	60	8/1/2019	28	18	9	8
04/22/19	164	53	110	91	06/12/19	82	24	58	58	8/2/2019	32	21	10	10
04/23/19	161	53	107	91	06/13/19	87	24	62	62	8/3/2019	34	23	10	10
04/24/19	152	53	98	91	06/14/19	87	24	63	63	8/4/2019	35	24	10	11
04/25/19	167	53	113	91	06/15/19	89	24	64	64	8/5/2019	33	23	10	10
04/26/19	151	52	98	89	06/16/19	85	24	61	61	8/6/2019	34	23	10	10
04/27/19	159	53	105	91	06/17/19	78	24	54	54	8/7/2019	32	21	10	9
04/28/19	138	50	88	86	06/18/19	82	22	60	59	8/8/2019	31	20	10	9
04/29/19	140	50	88	89	06/19/19	67	22	45	44	8/9/2019	29	19	10	9
04/30/19	124	43	80	80	06/20/19	69	22	46	46	8/10/2019	28	18	9	8
05/01/19	116	40	75	75	06/21/19	64	44	19	19	8/11/2019	25	16	9	8
05/02/19	111	37	74	74	06/22/19	71	49	21	21	8/12/2019	29	20	9	9
05/03/19	106	28	77	77	06/23/19	60	41	18	18	8/13/2019	27	18	8	8
05/04/19	106	26	79	79	06/24/19	59	40	18	18	8/14/2019	31	21	9	9
05/05/19	105	26	79	79	06/25/19	52	36	16	15	8/15/2019	28	19	8	8
05/06/19	113	31	81	81	06/26/19	54	37	16	16	8/16/2019	28	19	8	8
05/07/19	105	27	76	77	06/27/19	54	37	16	16	8/17/2019	26	17	8	8
05/08/19	108	30	78	78	06/28/19	47	32	14	14	8/18/2019	24	16	7	7
05/09/19	114	35	78	78	06/29/19	45	31	13	13	8/19/2019	25	17	7	8
05/10/19	107	29	77	77	06/30/19	45	30	13	13	8/20/2019	28	19	8	8
05/11/19	113	31	81	81	07/01/19	38	26	11	11	8/21/2019	30	20	9	9
05/12/19	118	34	83	83	07/02/19	43	29	13	13	8/22/2019	30	20	9	9
05/13/19	122	38	83	84	07/03/19	39	27	12	12	8/23/2019	26	18	8	8
05/14/19	126	42	83	83	07/04/19	41	28	12	12	8/24/2019	24	16	7	7
05/15/19	138	44	94	89	07/05/19	42	29	13	13	8/25/2019	26	17	8	8
05/16/19	142	38	104	91	07/06/19	45	31	14	14	8/26/2019	27	18	8	8
05/17/19	141	40	100	91	07/07/19	43	29	13	13	8/27/2019	28	19	8	8
05/18/19	162	41	121	91	07/08/19	45	31	13	14	8/28/2019	28	19	8	8
05/19/19	147	41	105	91	07/09/19	42	29	13	13	8/29/2019	26	17	8	8
05/20/19	127	37	90	89	07/10/19	41	28	12	12	8/30/2019	23	15	7	7
05/21/19	127	38	89	89	07/11/19	47	32	14	14	8/31/2019	24	16	7	7

**Table K-8  
Daily Average FOP Spill at Lower Monumental**

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/19	72	71	0	0	05/22/19	116	78	37	37	7/12/2019	41	24	17	17
04/02/19	64	63	1	1	05/23/19	119	83	36	37	7/13/2019	41	23	17	17
04/03/19	61	17	43	43	05/24/19	110	70	39	39	7/14/2019	41	24	17	17
04/04/19	67	22	44	44	05/25/19	115	77	37	38	7/15/2019	35	18	17	17
04/05/19	73	29	44	44	05/26/19	112	74	38	38	7/16/2019	36	19	16	16
04/06/19	80	36	44	44	05/27/19	121	83	37	38	7/17/2019	38	20	17	17
04/07/19	85	40	44	44	05/28/19	120	81	38	38	7/18/2019	39	21	17	17
04/08/19	118	74	44	44	05/29/19	118	81	37	37	7/19/2019	38	20	17	17
04/09/19	155	100	54	47	05/30/19	127	86	40	40	7/20/2019	36	18	17	17
04/10/19	205	108	96	48	05/31/19	132	88	43	41	7/21/2019	33	15	17	17
04/11/19	165	108	56	48	06/01/19	142	89	52	42	7/22/2019	37	20	17	17
04/12/19	135	93	42	42	06/02/19	147	91	55	42	7/23/2019	38	20	17	17
04/13/19	123	81	41	42	06/03/19	147	91	55	42	7/24/2019	36	19	17	17
04/14/19	110	69	41	41	06/04/19	146	83	63	40	7/25/2019	33	14	18	14
04/15/19	113	72	41	41	06/05/19	146	83	62	42	7/26/2019	32	14	17	14
04/16/19	107	65	41	41	06/06/19	136	86	49	41	7/27/2019	34	16	17	13
04/17/19	103	61	41	41	06/07/19	128	74	53	42	7/28/2019	29	12	17	14
04/18/19	101	60	41	41	06/08/19	118	80	37	37	7/29/2019	32	14	17	13
04/19/19	107	66	41	41	06/09/19	98	59	38	38	7/30/2019	31	13	17	14
04/20/19	119	78	41	41	06/10/19	93	55	38	38	7/31/2019	31	13	17	14
04/21/19	150	106	43	42	06/11/19	82	42	39	39	8/1/2019	28	10	17	14
04/22/19	156	110	46	44	06/12/19	78	38	40	40	8/2/2019	30	11	17	13
04/23/19	152	108	43	43	06/13/19	83	41	41	41	8/3/2019	33	15	17	17
04/24/19	146	106	39	39	06/14/19	82	41	40	41	8/4/2019	35	17	17	17
04/25/19	160	108	51	41	06/15/19	85	43	42	42	8/5/2019	31	13	17	17
04/26/19	150	101	48	40	06/16/19	79	37	42	42	8/6/2019	33	15	17	17
04/27/19	150	108	41	41	06/17/19	78	35	42	42	8/7/2019	32	14	17	17
04/28/19	131	93	37	38	06/18/19	78	37	40	40	8/8/2019	30	13	17	16
04/29/19	131	93	36	36	06/19/19	65	22	43	43	8/9/2019	30	12	17	16
04/30/19	118	80	37	38	06/20/19	65	23	41	41	8/10/2019	26	12	13	13
05/01/19	110	72	37	36	06/21/19	61	43	17	17	8/11/2019	24	12	11	11
05/02/19	104	67	37	37	06/22/19	66	49	17	17	8/12/2019	25	11	13	12
05/03/19	101	62	38	39	06/23/19	57	39	17	17	8/13/2019	27	12	14	13
05/04/19	101	63	38	38	06/24/19	55	38	17	17	8/14/2019	27	13	13	13
05/05/19	102	64	37	38	06/25/19	49	32	17	17	8/15/2019	26	11	14	13
05/06/19	107	68	39	39	06/26/19	50	33	17	17	8/16/2019	25	11	13	12
05/07/19	101	61	39	39	06/27/19	50	32	17	17	8/17/2019	24	12	12	11
05/08/19	104	64	39	39	06/28/19	46	28	17	17	8/18/2019	21	12	8	8
05/09/19	110	71	38	39	06/29/19	42	25	17	17	8/19/2019	24	12	11	11
05/10/19	101	62	38	39	06/30/19	44	27	17	17	8/20/2019	27	12	14	14
05/11/19	108	69	39	39	07/01/19	37	19	17	17	8/21/2019	29	12	16	15
05/12/19	115	76	39	39	07/02/19	39	22	17	17	8/22/2019	26	12	13	13
05/13/19	116	76	39	40	07/03/19	40	22	17	17	8/23/2019	24	12	11	11
05/14/19	123	84	38	39	07/04/19	39	22	17	17	8/24/2019	23	12	10	10
05/15/19	130	92	37	38	07/05/19	40	22	17	17	8/25/2019	23	12	10	9
05/16/19	136	98	38	38	07/06/19	44	26	17	16	8/26/2019	25	12	12	11
05/17/19	138	97	41	38	07/07/19	43	25	17	17	8/27/2019	25	12	12	12
05/18/19	157	108	48	40	07/08/19	44	27	17	17	8/28/2019	24	12	11	11
05/19/19	136	99	37	37	07/09/19	39	21	17	17	8/29/2019	22	12	9	9
05/20/19	125	85	40	37	07/10/19	41	24	17	17	8/30/2019	22	12	10	9
05/21/19	120	83	36	37	07/11/19	45	27	17	17	8/31/2019	20	11	8	7

**Table K-9  
Daily Average FOP Spill at Little Goose**

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/19	64	64	0	0	05/22/19	120	72	48	48	7/12/2019	41	28	12	12
04/02/19	62	62	0	0	05/23/19	120	71	49	48	7/13/2019	42	29	13	13
04/03/19	59	25	34	35	05/24/19	113	64	48	48	7/14/2019	40	27	12	12
04/04/19	68	26	41	42	05/25/19	115	67	48	48	7/15/2019	37	25	11	11
04/05/19	73	30	42	42	05/26/19	115	66	48	48	7/16/2019	35	24	11	10
04/06/19	80	36	43	43	05/27/19	121	72	48	49	7/17/2019	37	26	11	11
04/07/19	84	40	43	44	05/28/19	123	75	48	49	7/18/2019	38	26	12	11
04/08/19	115	68	47	47	05/29/19	121	73	48	48	7/19/2019	38	26	11	11
04/09/19	153	89	63	51	05/30/19	129	80	48	49	7/20/2019	35	24	10	10
04/10/19	197	76	120	52	05/31/19	133	83	49	47	7/21/2019	33	23	10	10
04/11/19	159	90	69	52	06/01/19	143	88	55	49	7/22/2019	36	24	11	11
04/12/19	133	84	48	48	06/02/19	147	89	57	50	7/23/2019	39	27	12	12
04/13/19	121	74	47	47	06/03/19	148	89	59	50	7/24/2019	37	25	11	11
04/14/19	110	63	47	47	06/04/19	146	82	64	48	7/25/2019	37	25	11	11
04/15/19	111	62	48	48	06/05/19	146	89	57	50	7/26/2019	34	23	10	10
04/16/19	108	59	48	48	06/06/19	139	88	50	49	7/27/2019	34	23	10	10
04/17/19	104	55	48	48	06/07/19	131	81	49	49	7/28/2019	32	22	9	9
04/18/19	101	53	47	47	06/08/19	122	72	49	49	7/29/2019	32	21	11	11
04/19/19	106	57	49	48	06/09/19	101	54	47	47	7/30/2019	32	21	11	11
04/20/19	119	70	49	49	06/10/19	94	48	46	46	7/31/2019	32	21	10	11
04/21/19	151	88	62	56	06/11/19	86	41	44	44	8/1/2019	31	21	9	9
04/22/19	157	90	67	56	06/12/19	82	37	44	44	8/2/2019	32	21	11	11
04/23/19	154	90	63	56	06/13/19	84	39	44	44	8/3/2019	34	22	10	11
04/24/19	149	89	59	56	06/14/19	83	40	43	43	8/4/2019	36	25	11	11
04/25/19	163	89	74	56	06/15/19	84	40	43	43	8/5/2019	30	12	17	9
04/26/19	149	88	60	56	06/16/19	81	37	43	43	8/6/2019	33	11	22	11
04/27/19	151	88	62	56	06/17/19	80	37	43	43	8/7/2019	33	10	22	9
04/28/19	133	81	51	51	06/18/19	76	33	43	42	8/8/2019	31	12	18	9
04/29/19	133	81	52	52	06/19/19	67	26	41	40	8/9/2019	30	18	11	11
04/30/19	118	68	49	47	06/20/19	68	26	41	41	8/10/2019	28	17	10	11
05/01/19	112	63	49	48	06/21/19	63	43	19	19	8/11/2019	26	17	9	9
05/02/19	105	57	47	46	06/22/19	67	47	20	20	8/12/2019	26	17	8	9
05/03/19	101	54	46	46	06/23/19	61	42	18	18	8/13/2019	28	18	9	9
05/04/19	103	55	47	47	06/24/19	57	39	17	17	8/14/2019	28	19	9	9
05/05/19	101	55	46	46	06/25/19	52	36	16	15	8/15/2019	28	18	9	9
05/06/19	109	60	48	48	06/26/19	53	37	16	16	8/16/2019	27	18	9	9
05/07/19	101	54	46	46	06/27/19	52	36	15	15	8/17/2019	24	15	9	9
05/08/19	105	58	46	46	06/28/19	48	33	14	14	8/18/2019	24	15	9	9
05/09/19	110	63	46	46	06/29/19	43	30	13	13	8/19/2019	25	16	9	9
05/10/19	103	56	46	47	06/30/19	45	31	13	13	8/20/2019	28	19	9	9
05/11/19	107	59	47	47	07/01/19	37	26	11	11	8/21/2019	30	21	9	9
05/12/19	115	67	48	48	07/02/19	40	28	12	12	8/22/2019	26	15	10	11
05/13/19	118	68	49	49	07/03/19	40	28	12	12	8/23/2019	25	16	9	9
05/14/19	125	73	51	49	07/04/19	38	26	11	12	8/24/2019	25	16	9	9
05/15/19	131	77	53	51	07/05/19	40	28	12	12	8/25/2019	26	16	9	9
05/16/19	138	85	52	52	07/06/19	42	29	12	12	8/26/2019	26	16	9	9
05/17/19	140	86	54	53	07/07/19	43	30	13	13	8/27/2019	25	16	9	9
05/18/19	159	89	70	54	07/08/19	43	29	13	13	8/28/2019	26	17	9	9
05/19/19	142	85	56	51	07/09/19	40	28	12	12	8/29/2019	24	15	9	9
05/20/19	127	77	49	49	07/10/19	41	28	12	12	8/30/2019	22	12	9	9
05/21/19	120	71	48	48	07/11/19	45	31	14	14	8/31/2019	23	15	7	7

**Table K-10  
Daily Average FOP Spill at Lower Granite**

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/19	69	68	0	0	05/22/19	122	81	40	41	7/12/2019	42	23	19	18
04/02/19	62	59	0	0	05/23/19	125	84	40	41	7/13/2019	42	23	19	18
04/03/19	63	23	39	39	05/24/19	117	69	48	48	7/14/2019	39	20	19	18
04/04/19	66	26	40	41	05/25/19	120	78	41	42	7/15/2019	38	19	19	18
04/05/19	74	31	42	42	05/26/19	118	76	41	41	7/16/2019	38	19	19	18
04/06/19	80	38	42	42	05/27/19	126	85	41	41	7/17/2019	37	18	19	18
04/07/19	86	43	42	42	05/28/19	127	85	41	42	7/18/2019	40	21	18	18
04/08/19	120	75	45	45	05/29/19	126	84	41	41	7/19/2019	37	18	18	18
04/09/19	159	101	58	49	05/30/19	133	90	42	43	7/20/2019	35	16	18	18
04/10/19	195	109	86	53	05/31/19	140	93	46	46	7/21/2019	34	15	19	18
04/11/19	165	106	58	53	06/01/19	148	98	50	50	7/22/2019	35	16	18	18
04/12/19	135	91	46	44	06/02/19	152	102	49	49	7/23/2019	40	21	18	18
04/13/19	123	81	42	42	06/03/19	153	104	48	48	7/24/2019	35	17	18	18
04/14/19	115	72	42	42	06/04/19	155	106	49	49	7/25/2019	34	15	18	18
04/15/19	113	71	42	42	06/05/19	150	103	47	47	7/26/2019	34	15	18	18
04/16/19	110	68	42	42	06/06/19	141	95	46	46	7/27/2019	34	15	18	18
04/17/19	106	63	42	42	06/07/19	134	91	43	43	7/28/2019	31	12	18	17
04/18/19	102	60	42	42	06/08/19	125	84	40	40	7/29/2019	31	12	18	18
04/19/19	108	66	42	42	06/09/19	105	65	40	40	7/30/2019	31	12	18	17
04/20/19	126	75	50	49	06/10/19	96	56	40	40	7/31/2019	31	13	17	16
04/21/19	154	89	65	53	06/11/19	89	47	41	41	8/1/2019	33	14	19	18
04/22/19	161	89	71	53	06/12/19	85	43	41	41	8/2/2019	32	13	19	18
04/23/19	158	89	68	53	06/13/19	86	45	40	40	8/3/2019	33	13	19	18
04/24/19	156	89	67	53	06/14/19	87	45	41	41	8/4/2019	34	15	19	18
04/25/19	163	94	68	53	06/15/19	86	43	42	42	8/5/2019	33	13	19	18
04/26/19	157	105	52	52	06/16/19	82	40	41	41	8/6/2019	34	15	19	18
04/27/19	154	104	50	50	06/17/19	80	38	41	41	8/7/2019	32	13	18	18
04/28/19	139	93	46	46	06/18/19	76	34	41	41	8/8/2019	32	13	18	18
04/29/19	136	90	45	45	06/19/19	70	28	41	41	8/9/2019	31	13	18	18
04/30/19	122	80	42	42	06/20/19	67	25	42	42	8/10/2019	28	13	15	15
05/01/19	116	74	42	42	06/21/19	64	45	19	18	8/11/2019	26	12	13	13
05/02/19	109	67	41	42	06/22/19	68	50	18	18	8/12/2019	29	9	19	15
05/03/19	103	61	41	42	06/23/19	62	43	19	18	8/13/2019	31	10	21	16
05/04/19	104	62	42	42	06/24/19	57	38	18	18	8/14/2019	29	10	18	14
05/05/19	105	63	41	42	06/25/19	54	35	18	18	8/15/2019	30	11	18	14
05/06/19	110	68	41	42	06/26/19	54	35	18	18	8/16/2019	27	9	17	13
05/07/19	103	62	41	42	06/27/19	51	32	19	18	8/17/2019	26	12	13	13
05/08/19	110	68	41	42	06/28/19	48	28	19	18	8/18/2019	25	12	12	12
05/09/19	112	70	42	42	06/29/19	44	24	19	18	8/19/2019	25	12	13	13
05/10/19	107	64	42	42	06/30/19	45	26	19	17	8/20/2019	30	12	18	17
05/11/19	109	67	42	42	07/01/19	41	21	19	18	8/21/2019	31	12	19	18
05/12/19	116	74	42	42	07/02/19	42	23	19	18	8/22/2019	29	12	16	16
05/13/19	124	81	43	43	07/03/19	39	20	19	18	8/23/2019	25	12	12	12
05/14/19	127	85	41	42	07/04/19	41	22	19	18	8/24/2019	25	12	12	12
05/15/19	136	91	45	46	07/05/19	41	22	19	18	8/25/2019	27	12	14	14
05/16/19	142	95	46	47	07/06/19	43	24	19	18	8/26/2019	26	9	17	13
05/17/19	145	98	46	47	07/07/19	45	25	19	18	8/27/2019	27	12	14	14
05/18/19	164	107	57	51	07/08/19	43	24	19	18	8/28/2019	26	12	14	13
05/19/19	146	98	48	46	07/09/19	40	21	19	18	8/29/2019	24	12	12	12
05/20/19	131	88	42	43	07/10/19	42	23	19	18	8/30/2019	25	12	12	12
05/21/19	126	86	40	41	07/11/19	45	26	19	18	8/31/2019	25	12	12	12