

December 20, 2017

Tim Luke
Idaho Department of Water Resources
PO Box 83720
Boise, ID 83720-0098

Subject: Sandy Pond Recharge 2017 Annual Report

Dear Tim,

Enclosed are daily data and calculations for recharge at Sandy Ponds during this year. SCADA data for the pond's W-26 inflow weir show that inflow to Sandy Ponds began on April 2. Per SPF's observations on April 12, the upper pond was full and spilling into the overflow recharge pond and the downstream ponds were filling. SCADA data for W-26 flow stopped on October 16 due to power being shut down at Morris Pond where the data is relayed out to SPF. Butch Morris said that the canal flow stopped very soon after October 16, so a few days of inflow and subsequent recharge are missing from the record. The W-26 measurement record for 2017 was much improved over 2016 and we are pleased with its operation.

Outflows from the ponds include 1) Morris's pond pump measured with a magnetic flowmeter, 2) Morris's pond overflow weir, 3) flow into the Sandy Pipe Vault measured with an ultrasonic meter, 4) evaporation estimated based on average ETIdaho information, and 5) recharge to the aquifer.

Morris's pond pump's magnetic flowmeter indicated an annual volume of 303.1 acre-feet. SCADA readings for this site indicated an annual volume of 220.2 acre-feet. The cause of the discrepancy is unclear and the direct flowmeter readings are used for this report.

Total volume measured at the Morris Pond Overflow Weir is 11.7 acre-feet.

The ultrasonic flowmeter installed on the Sandy Pipe Outflow (inflow to the Vault) indicated a year-end total volume of 2077.6 acre-feet. Corbin Knowles had reset the volume reading to zero on May 5 when flow first started for the season. The raw SCADA data for this meter indicates a total annual volume of 3065 acre-feet. Both volumes are incorrect, as the ultrasonic flowmeter transmitted erroneous flows to the SCADA logger system at numerous times throughout the season as observed by SPF, Corbin Knowles, and Butch Morris. These values ranged from a few cfs to nearly 40 cfs. When we were able to confirm these logged flows were in error, adjustments were made to the daily record. This attached record includes both the raw recorded and adjusted values for Sandy Pipeline flows into the vault. The adjusted Sandy Pipe Outflow is 1103.6 acre-feet.

Flowmeters indicated 691 acre feet was pumped from the vault while 46.6 acre feet was injected into the vault from the Farmers Box (see table below). The difference between Sandy Pipe inflows, pumping, and Farmers Box inflow is $1103.6 - 644.4 = 459.2$ acre feet. The operating season this year, from first to last pumping from the vault, lasted 142 days. Therefore, the calculated average spill from the vault to Curren Ditch is 1.6 cfs ($459.2 \text{ af} / 142 \text{ days} / 1.9835 \text{ af per cfs-day} = 1.6 \text{ cfs}$). This spill rate seems to be high compared to SPF's observations this year, but is more reasonable when contrasted to the raw recorded SCADA data or the flowmeter volume. Conversations with Butch Morris also confirmed the 1.6 cfs average flow is about right.

Pumping from Sandy Vault and injection from Farmers Box:

Morris Vault Pump	76.0
Musser Vault Pump	523.5
Candy Vault Pump	91.5
Farmers Box Inflow	<u>-46.6</u>

Pumped – Curren Inflow: 644.4 acre feet

Evaporation from the ponds is calculated based on ETIdaho's Hagerman station for 243 days (April 2 through November 30) for the full 44-acre surface area and totals 122.29 acre-feet.

Total computed recharge is:

W-26 Inflow	8830.41
Morris Pond Pump	- 303.10
Morris Pond Weir	- 11.73
Sandy Pipe Outflow	-1103.59
Evaporation	<u>- 122.29</u>
Total Recharge	7289.70 acre-feet

Please let me know if you have any questions.

Sincerely,

Scott N. King, P.E.
Supervising Engineer



cc: T.J. Budge

File: 535.0240

Sandy Ponds Recharge
2017

Date	Inflow - NSCC W-26 Weir (24-hr cfs) ¹	Outflow 1 - Sandy Pipeline (24-hr cfs) ²	Outflow 2 - Morris Pond Pump (24-hr cfs) ³	Outflow 3 - Morris Pond Weir (24-hr cfs) ⁴	Evaporation rate (mm/day) ⁵	Pond Surface Area (Acres) ⁶	Daily Evaporation (24-hr cfs) ⁷	Daily Recharge (24-hr cfs) ⁸	Daily Recharge (Ac-Ft)	Cumulative Recharge (Ac-Ft)	Note	RAW RECORDED: Outflow 1 - Sandy Pipeline (24-hr cfs) ²
1/1/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/2/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/3/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/4/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/5/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/6/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/7/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/8/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/9/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/10/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/11/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/12/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/13/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/14/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/15/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/16/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/17/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/18/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/19/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/20/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/21/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/22/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/23/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/24/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/25/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/26/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/27/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/28/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/29/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/30/2017					0.00	0.0	0.00	0.00	0.00	0.00		
1/31/2017					0.00	0.0	0.00	0.00	0.00	0.00		
2/1/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/2/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/3/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/4/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/5/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/6/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/7/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/8/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/9/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/10/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/11/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/12/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/13/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/14/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/15/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/16/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/17/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/18/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/19/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/20/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/21/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/22/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/23/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/24/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/25/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/26/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/27/2017					0.27	0.0	0.00	0.00	0.00	0.00		
2/28/2017					0.27	0.0	0.00	0.00	0.00	0.00		
3/1/2017					1.54	0.0	0.00	0.00	0.00	0.00		
3/2/2017					1.54	0.0	0.00	0.00	0.00	0.00		
3/3/2017					1.54	0.0	0.00	0.00	0.00	0.00		
3/4/2017					1.54	0.0	0.00	0.00	0.00	0.00		
3/5/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/6/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/7/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/8/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/9/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/10/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/11/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/12/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/13/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/14/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/15/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/16/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/17/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/18/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/19/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/20/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/21/2017			0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		
3/22/2017	0.00	0.00	0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00		0.00

Sandy Ponds Recharge
2017

Date	Inflow - NSCC W-26 Weir (24-hr cfs) ¹	Outflow 1 - Sandy Pipeline (24-hr cfs) ²	Outflow 2 - Morris Pond Pump (24-hr cfs) ³	Outflow 3 - Morris Pond Weir (24-hr cfs) ⁴	Evaporation rate (mm/day) ⁵	Pond Surface Area (Acres) ⁶	Daily Evaporation (24-hr cfs) ⁷	Daily Recharge (24-hr cfs) ⁸	Daily Recharge (Ac-Ft)	Cumulative Recharge (Ac-Ft)	Note	RAW RECORDED: Outflow 1 - Sandy Pipeline (24-hr cfs) ²
3/23/2017	0.00	0.00	0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00	Invalid Outflow 1; flowmeter error, no water in ponds. Set Outflow 1 to zero	6.00
3/24/2017	0.00	0.00	0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00	"	8.27
3/25/2017	0.00	0.00	0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00	"	8.32
3/26/2017	0.00	0.00	0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00	"	4.90
3/27/2017	0.00	0.00	0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00	"	5.97
3/28/2017	0.00	0.00	0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00	"	0.00
3/29/2017	0.00	0.00	0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00	"	0.00
3/30/2017	0.00	0.00	0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00	"	0.00
3/31/2017	0.00	0.00	0.00	0.00	1.54	0.0	0.00	0.00	0.00	0.00	"	0.99
4/1/2017	0.00	0.00	0.00	0.00	2.74	0.0	0.00	0.00	0.00	0.00	"	3.18
4/2/2017	17.23	0.00	0.00	0.00	2.74	44.0	0.20	17.03	33.79	33.78	" (see above for Outflow 1). W-26 inflow from 15-minute data. Set pond area to 44 acres.	3.18
4/3/2017	20.16	0.00	0.00	0.00	2.74	44.0	0.20	19.96	39.59	73.37	" (see above for Outflow 1). W-26 inflow from 15-minute data	3.18
4/4/2017	15.13	0.00	0.00	0.00	2.74	44.0	0.20	14.93	29.62	102.99	"	3.18
4/5/2017	17.23	0.00	0.00	0.00	2.74	44.0	0.20	17.03	33.78	136.77	"	3.18
4/6/2017	28.31	0.00	0.00	0.00	2.74	44.0	0.20	28.12	55.77	192.53	"	3.18
4/7/2017	13.89	0.00	0.00	0.00	2.74	44.0	0.20	13.69	27.16	219.69	"	0.00
4/8/2017	13.48	0.00	0.00	0.00	2.74	44.0	0.20	13.28	26.34	246.04	"	0.00
4/9/2017	14.81	0.00	0.00	0.00	2.74	44.0	0.20	14.62	28.99	275.03	"	0.00
4/10/2017	11.99	0.00	0.00	0.00	2.74	44.0	0.20	11.79	23.39	298.42	"	0.00
4/11/2017	8.25	0.00	0.00	0.00	2.74	44.0	0.20	8.05	15.98	314.40	"	0.40
4/12/2017	14.56	0.00	0.00	0.00	2.74	44.0	0.20	14.36	28.48	342.88	S.King & B.Hardgrove visit, install batteries, turn on panels. Pond 3 spilling to recharge pond. Pond 1 not yet full. No water at Morris Pond pump & weir. Sandy vault dry. No outflow to Sandy Pipe until Candy & Morris pumps on, May 5.	10.75
4/13/2017	17.12	0.00	0.00	0.00	2.74	44.0	0.20	16.92	33.56	376.44	No outflow to Sandy Pipe until Candy & Morris pumps on, May 5.	26.86
4/14/2017	25.31	0.00	0.00	0.00	2.74	44.0	0.20	25.11	49.81	426.25	"	29.85
4/15/2017	30.68	0.00	0.00	0.00	2.74	44.0	0.20	30.48	60.46	486.71	"	30.99
4/16/2017	29.01	0.00	0.00	0.002	2.74	44.0	0.20	28.81	57.14	543.85	"	30.99
4/17/2017	23.56	0.00	0.00	0.000	2.74	44.0	0.20	23.36	46.34	590.18	"	30.99
4/18/2017	19.09	0.00	0.00	0.000	2.74	44.0	0.20	18.89	37.47	627.65	"	30.99
4/19/2017	17.83	0.00	0.00	0.000	2.74	44.0	0.20	17.63	34.97	662.62	"	30.99
4/20/2017	14.37	0.00	0.00	0.000	2.74	44.0	0.20	14.17	28.11	690.73	"	30.99
4/21/2017	13.85	0.00	0.00	0.000	2.74	44.0	0.20	13.65	27.08	717.81	"	30.99
4/22/2017	19.20	0.00	0.00	0.000	2.74	44.0	0.20	19.00	37.69	755.49	"	30.97
4/23/2017	26.52	0.00	0.00	0.000	2.74	44.0	0.20	26.32	52.21	807.70	"	31.58
4/24/2017	23.93	0.00	0.56	0.000	2.74	44.0	0.20	23.17	45.95	853.65	"	31.65
4/25/2017	24.27	0.00	0.65	0.000	2.74	44.0	0.20	23.42	46.46	900.11	"	27.78
4/26/2017	16.43	0.00	1.61	0.000	2.74	44.0	0.20	14.62	29.00	929.12	"	26.28
4/27/2017	29.01	0.00	0.00	0.000	2.74	44.0	0.20	28.81	57.15	986.26	"	26.28
4/28/2017	30.95	0.00	0.00	0.000	2.74	44.0	0.20	30.75	60.99	1047.25	"	26.28
4/29/2017	25.54	0.00	0.00	0.000	2.74	44.0	0.20	25.34	50.26	1097.52	"	25.50
4/30/2017	26.65	0.00	0.00	0.000	2.74	44.0	0.20	26.45	52.46	1149.98	"	34.13
5/1/2017	24.75	0.00	0.49	0.000	3.71	44.0	0.27	23.99	47.59	1197.58	"	35.11
5/2/2017	19.74	0.00	0.78	0.000	3.71	44.0	0.27	18.69	37.07	1234.65	"	31.63
5/3/2017	21.06	0.00	1.07	0.005	3.71	44.0	0.27	19.72	39.11	1273.76	"	34.30
5/4/2017	20.55	0.00	0.00	0.000	3.71	44.0	0.27	20.28	40.23	1313.98	BH on site. Morris pond pump data ok. Current ditch 37.9 cfs. No water sent to vault before May 4.	37.86
5/5/2017	22.97	3.09	0.00	0.000	3.71	44.0	0.27	19.61	38.89	1352.87	Sandy Pipeline flowmeter reset by C.Knowles. Assumed Outflow 1 same as May 6	28.40
5/6/2017	30.62	3.09	0.00	0.000	3.71	44.0	0.27	27.26	54.06	1406.93	"	3.09
5/7/2017	38.11	2.76	0.00	0.000	3.71	44.0	0.27	35.08	69.59	1476.52	"	2.76
5/8/2017	33.23	2.74	0.00	0.005	3.71	44.0	0.27	30.22	59.93	1536.46	"	2.74
5/9/2017	30.89	2.73	0.00	0.009	3.71	44.0	0.27	27.89	55.31	1591.77	"	2.73
5/10/2017	26.25	2.72	0.19	0.001	3.71	44.0	0.27	23.08	45.77	1637.54	"	2.72
5/11/2017	25.02	2.72	0.83	0.001	3.71	44.0	0.27	21.20	42.04	1679.58	"	2.72
5/12/2017	31.65	2.72	0.00	0.015	3.71	44.0	0.27	28.64	56.81	1736.39	"	2.72
5/13/2017	33.76	2.72	0.00	0.000	3.71	44.0	0.27	30.77	61.03	1797.42	"	2.72
5/14/2017	35.91	2.72	0.00	0.000	3.71	44.0	0.27	32.92	65.30	1862.72	"	2.72
5/15/2017	35.32	2.72	0.00	0.000	3.71	44.0	0.27	32.33	64.13	1926.85	"	2.72
5/16/2017	32.95	2.72	0.00	0.000	3.71	44.0	0.27	29.96	59.43	1986.28	"	2.72
5/17/2017	40.78	2.72	0.00	0.000	3.71	44.0	0.27	37.79	74.95	2061.23	"	2.72
5/18/2017	40.41	2.73	0.87	0.000	3.71	44.0	0.27	36.54	72.49	2133.71	"	2.73
5/19/2017	27.69	2.73	0.60	0.001	3.71	44.0	0.27	24.09	47.79	2181.50	"	2.73

Sandy Ponds Recharge
2017

Date	Inflow - NSCC W-26 Weir (24-hr cfs) ¹	Outflow 1 - Sandy Pipeline (24-hr cfs) ²	Outflow 2 - Morris Pond Pump (24-hr cfs) ³	Outflow 3 - Morris Pond Weir (24-hr cfs) ⁴	Evaporation rate (mm/day) ⁵	Pond Surface Area (Acres) ⁶	Daily Evaporation (24-hr cfs) ⁷	Daily Recharge (24-hr cfs) ⁸	Daily Recharge (Ac-Ft)	Cumulative Recharge (Ac-Ft)	Note	RAW RECORDED: Outflow 1 - Sandy Pipeline (24-hr cfs) ²
5/20/2017	31.56	2.73	1.28	0.000	3.71	44.0	0.27	27.29	54.12	2235.62		2.73
5/21/2017	32.83	2.72	0.00	0.000	3.71	44.0	0.27	29.84	59.18	2294.81		2.72
5/22/2017	30.41	2.72	0.00	0.000	3.71	44.0	0.27	27.42	54.39	2349.20		2.72
5/23/2017	29.63	2.73	0.00	0.000	3.71	44.0	0.27	26.63	52.83	2402.03		2.73
5/24/2017	24.09	2.73	0.58	0.005	3.71	44.0	0.27	20.51	40.69	2442.71		2.73
5/25/2017	24.11	2.72	1.18	0.000	3.71	44.0	0.27	19.94	39.55	2482.26		2.72
5/26/2017	32.73	2.72	1.17	0.000	3.71	44.0	0.27	28.57	56.66	2538.92		2.72
5/27/2017	29.06	2.72	0.00	0.000	3.71	44.0	0.27	26.07	51.70	2590.63		2.72
5/28/2017	36.06	2.72	0.34	0.000	3.71	44.0	0.27	32.72	64.91	2655.53		2.72
5/29/2017	35.74	2.72	0.81	0.013	3.71	44.0	0.27	31.93	63.33	2718.86		2.72
5/30/2017	26.20	2.72	1.71	0.018	3.71	44.0	0.27	21.48	42.61	2761.47		2.72
5/31/2017	22.85	2.72	1.58	0.000	3.71	44.0	0.27	18.27	36.24	2797.71		2.72
6/1/2017	25.38	3.71	0.00	0.002	4.74	44.0	0.34	21.32	42.29	2840.00		3.71
6/2/2017	24.61	4.28	0.00	0.002	4.74	44.0	0.34	19.98	39.64	2879.64		4.28
6/3/2017	19.68	4.05	0.56	0.000	4.74	44.0	0.34	14.72	29.19	2908.83		4.05
6/4/2017	27.33	4.50	0.29	0.000	4.74	44.0	0.34	22.20	44.03	2952.86		4.50
6/5/2017	24.62	6.02	0.11	0.000	4.74	44.0	0.34	18.14	35.99	2988.85		6.02
6/6/2017	16.91	5.71	0.53	0.000	4.74	44.0	0.34	10.32	20.47	3009.32		5.71
6/7/2017	10.24	5.66	1.46	0.000	4.74	44.0	0.34	2.77	5.49	3014.82		5.66
6/8/2017	14.90	5.72	1.55	0.003	4.74	44.0	0.34	7.28	14.44	3029.26		5.72
6/9/2017	23.84	5.73	0.76	0.488	4.74	44.0	0.34	16.52	32.78	3062.03		5.73
6/10/2017	26.78	4.88	0.00	0.008	4.74	44.0	0.34	21.55	42.75	3104.78		4.88
6/11/2017	37.61	3.86	0.00	0.015	4.74	44.0	0.34	33.39	66.23	3171.01		3.86
6/12/2017	40.39	3.84	0.00	0.000	4.74	44.0	0.34	36.21	71.82	3242.83		3.84
6/13/2017	42.73	4.03	0.00	0.000	4.74	44.0	0.34	38.36	76.08	3318.91		4.03
6/14/2017	42.83	4.07	0.68	0.000	4.74	44.0	0.34	37.73	74.85	3393.75		4.07
6/15/2017	35.66	4.03	0.98	0.000	4.74	44.0	0.34	30.30	60.10	3453.86		4.03
6/16/2017	24.70	4.06	1.35	0.000	4.74	44.0	0.34	18.95	37.58	3491.44	snk called Butch. Outflows to Sandy this week are accurate.	4.06
6/17/2017	16.65	4.68	0.89	0.000	4.74	44.0	0.34	10.73	21.29	3512.73		4.68
6/18/2017	21.09	5.98	0.00	0.000	4.74	44.0	0.34	14.76	29.28	3542.01		5.98
6/19/2017	13.68	6.13	0.51	0.000	4.74	44.0	0.34	6.70	13.28	3555.29		6.13
6/20/2017	14.87	7.03	0.54	0.001	4.74	44.0	0.34	6.95	13.79	3569.08		7.03
6/21/2017	15.14	7.02	1.37	0.000	4.74	44.0	0.34	6.40	12.69	3581.78	6/21 W-26 data missing; used average of 6/20 & 6/22	7.02
6/22/2017	15.40	7.08	1.15	0.000	4.74	44.0	0.34	6.83	13.54	3595.32		7.08
6/23/2017	17.10	6.75	0.60	0.000	4.74	44.0	0.34	9.41	18.65	3613.97		6.75
6/24/2017	17.81	6.03	0.59	0.000	4.74	44.0	0.34	10.85	21.51	3635.48		6.03
6/25/2017	18.46	6.18	1.50	0.001	4.74	44.0	0.34	10.43	20.70	3656.18		6.18
6/26/2017	13.41	6.18	0.96	0.000	4.74	44.0	0.34	5.93	11.75	3667.93	S.King on site reading flowmeters.	6.18
6/27/2017	13.72	6.24	0.94	0.000	4.74	44.0	0.34	6.19	12.28	3680.21	6/27 W-26 data missing; used average of 6/26 & 6/28	6.24
6/28/2017	14.02	6.30	1.14	0.000	4.74	44.0	0.34	6.23	12.37	3692.58		6.30
6/29/2017	16.01	6.33	0.00	0.000	4.74	44.0	0.34	9.33	18.51	3711.09		6.33
6/30/2017	11.34	5.88	0.00	0.000	4.74	44.0	0.34	5.12	10.15	3721.24		5.88
7/1/2017	13.69	5.48	0.00	0.000	5.42	44.0	0.39	7.81	15.49	3736.74		5.48
7/2/2017	14.21	5.29	0.00	0.000	5.42	44.0	0.39	8.53	16.91	3753.65		5.29
7/3/2017	14.34	5.00	0.11	0.000	5.42	44.0	0.39	8.83	17.52	3771.17		5.00
7/4/2017	21.08	4.02	1.11	0.181	5.42	44.0	0.39	15.37	30.49	3801.66		4.02
7/5/2017	15.27	4.05	1.24	0.462	5.42	44.0	0.39	9.13	18.10	3819.77		4.05
7/6/2017	13.88	4.40	1.71	0.000	5.42	44.0	0.39	7.38	14.63	3834.40		4.40
7/7/2017	11.12	4.63	1.75	0.000	5.42	44.0	0.39	4.35	8.62	3843.02		4.63
7/8/2017	8.86	4.93	1.50	0.000	5.42	44.0	0.39	2.03	4.04	3847.05		4.93
7/9/2017	14.05	4.88	1.04	0.432	5.42	44.0	0.39	7.31	14.49	3861.55		4.88
7/10/2017	10.55	4.84	1.63	0.012	5.42	44.0	0.39	3.68	7.29	3868.84		4.84
7/11/2017	12.93	5.08	1.77	0.000	5.42	44.0	0.39	5.68	11.27	3880.11		5.08
7/12/2017	14.09	5.80	1.86	0.000	5.42	44.0	0.39	6.03	11.96	3892.07		5.80
7/13/2017	16.60	5.04	1.55	0.324	5.42	44.0	0.39	9.29	18.44	3910.50		5.04
7/14/2017	14.72	4.69	1.70	0.000	5.42	44.0	0.39	7.94	15.75	3926.25		4.69
7/15/2017	19.33	3.81	1.62	0.000	5.42	44.0	0.39	13.51	26.80	3953.05		3.81
7/16/2017	18.57	4.18	1.34	0.060	5.42	44.0	0.39	12.60	24.99	3978.04	S.King checking data while C.Jensen on vac. Outflow 1,2,3 all good, but w26 file last updated 7/12. Kody pulled data and provided in a zip file.	4.18
7/17/2017	18.13	5.07	1.23	0.00	5.42	44.0	0.39	11.44	22.69	4000.73		5.07
7/18/2017	16.03	5.00	1.43	0.00	5.42	44.0	0.39	9.20	18.25	4018.98		5.00
7/19/2017	13.43	4.96	1.39	0.00	5.42	44.0	0.39	6.69	13.26	4032.24		4.96
7/20/2017	20.13	4.91	1.39	0.00	5.42	44.0	0.39	13.44	26.65	4058.89		4.91
7/21/2017	22.36	4.88	1.71	0.00	5.42	44.0	0.39	15.38	30.51	4089.41		4.88
7/22/2017	20.24	4.75	1.46	0.00	5.42	44.0	0.39	13.63	27.04	4116.45		4.75
7/23/2017	17.58	4.46	1.48	0.00	5.42	44.0	0.39	11.24	22.30	4138.75		4.46
7/24/2017	20.16	4.64	1.50	0.00	5.42	44.0	0.39	13.63	27.04	4165.79		4.64
7/25/2017	20.69	4.75	1.62	0.00	5.42	44.0	0.39	13.93	27.64	4193.42		4.75
7/26/2017	22.61	4.78	1.41	0.00	5.42	44.0	0.39	16.03	31.80	4225.22		4.78
7/27/2017	24.23	4.83	1.35	0.00	5.42	44.0	0.39	17.66	35.03	4260.25		4.83
7/28/2017	14.60	4.85	1.41	0.00	5.42	44.0	0.39	7.95	15.77	4276.02		4.85

Sandy Ponds Recharge
2017

Date	Inflow - NSCC W-26 Weir (24-hr cfs) ¹	Outflow 1 - Sandy Pipeline (24-hr cfs) ²	Outflow 2 - Morris Pond Pump (24-hr cfs) ³	Outflow 3 - Morris Pond Weir (24-hr cfs) ⁴	Evaporation rate (mm/day) ⁵	Pond Surface Area (Acres) ⁶	Daily Evaporation (24-hr cfs) ⁷	Daily Recharge (24-hr cfs) ⁸	Daily Recharge (Ac-Ft)	Cumulative Recharge (Ac-Ft)	Note	RAW RECORDED: Outflow 1 - Sandy Pipeline (24-hr cfs) ²
7/29/2017	13.56	4.78	1.67	0.00	5.42	44.0	0.39	6.72	13.32	4289.34	Modem worked after a week+ out and provided data. S.King check - looks okay.	4.78
7/30/2017	15.51	4.68	1.61	0.00	5.42	44.0	0.39	8.83	17.51	4306.85		4.68
7/31/2017	20.35	4.64	1.87	0.00	5.42	44.0	0.39	13.45	26.68	4333.52		4.64
8/1/2017	17.38	4.65	1.51	0.00	4.75	44.0	0.35	10.88	21.59	4355.11		4.65
8/2/2017	20.18	4.66	1.79	0.00	4.75	44.0	0.35	13.38	26.54	4381.65		4.66
8/3/2017	14.39	4.71	1.19	0.00	4.75	44.0	0.35	8.15	16.16	4397.81		4.71
8/4/2017	12.23	4.66	1.58	0.00	4.75	44.0	0.35	5.64	11.19	4409.00		4.66
8/5/2017	13.01	4.61	1.38	0.00	4.75	44.0	0.35	6.67	13.23	4422.23		4.61
8/6/2017	16.01	4.58	1.43	0.00	4.75	44.0	0.35	9.65	19.15	4441.38		4.58
8/7/2017	13.79	4.58	1.33	0.00	4.75	44.0	0.35	7.53	14.94	4456.32	S.King data review okay. From SandyVault 15 minute data total 2017 vol to date (af) (since May 6 for Sandy & Current): Sandy Inlet=815; Current Ditch=307; Musser=396; Morris=76; Candy=59; CurrentIn=20.	4.58
8/8/2017	11.11	4.58	1.60	0.00	4.75	44.0	0.35	4.59	9.10	4465.42		4.58
8/9/2017	11.64	4.61	1.45	0.00	4.75	44.0	0.35	5.23	10.37	4475.80		4.61
8/10/2017	13.00	4.13	1.21	0.00	4.75	44.0	0.35	7.31	14.50	4490.30		4.13
8/11/2017	23.21	3.91	0.93	0.00	4.75	44.0	0.35	18.03	35.76	4526.06		3.91
8/12/2017	28.88	3.96	1.30	0.00	4.75	44.0	0.35	23.27	46.16	4572.22		3.96
8/13/2017	18.94	4.04	1.70	0.00	4.75	44.0	0.35	12.85	25.49	4597.77		4.04
8/14/2017	11.57	4.11	1.75	0.00	4.75	44.0	0.35	5.37	10.65	4608.36		4.11
8/15/2017	13.94	4.15	1.40	0.00	4.75	44.0	0.35	8.04	15.94	4624.30		4.15
8/16/2017	11.34	4.16	1.55	0.00	4.75	44.0	0.35	5.29	10.49	4634.79		4.16
8/17/2017	11.57	4.04	1.57	0.00	4.75	44.0	0.35	5.61	11.13	4645.92		4.04
8/18/2017	14.14	3.85	1.07	0.00	4.75	44.0	0.35	8.88	17.60	4663.53		3.85
8/19/2017	15.04	3.69	0.00	0.00	4.75	44.0	0.35	11.00	21.82	4685.35		3.69
8/20/2017	21.36	3.70	0.00	0.00	4.75	44.0	0.35	17.31	34.34	4719.69		3.70
8/21/2017	19.59	3.60	0.00	0.00	4.75	44.0	0.35	15.65	31.04	4750.73		3.60
8/22/2017	9.42	2.91	0.00	0.00	4.75	44.0	0.35	6.17	12.23	4762.96		2.91
8/23/2017	15.99	2.95	0.00	0.00	4.75	44.0	0.35	12.70	25.19	4788.15		2.95
8/24/2017	18.11	2.97	0.00	0.00	4.75	44.0	0.35	14.80	29.35	4817.50		2.97
8/25/2017	23.24	3.00	0.00	0.00	4.75	44.0	0.35	19.89	39.46	4856.96		3.00
8/26/2017	19.86	2.95	0.00	0.00	4.75	44.0	0.35	16.56	32.85	4889.80		2.95
8/27/2017	22.83	2.90	0.00	0.00	4.75	44.0	0.35	19.59	38.85	4928.65		2.90
8/28/2017	12.04	2.85	0.00	0.00	4.75	44.0	0.35	8.84	17.54	4946.19	data check, okay. S.King.	2.85
8/29/2017	19.11	2.80	0.00	0.00	4.75	44.0	0.35	15.97	31.67	4977.86		2.80
8/30/2017	21.24	2.75	0.00	0.00	4.75	44.0	0.35	18.14	35.99	5013.85		2.75
8/31/2017	19.55	4.20	0.00	0.00	4.75	44.0	0.35	15.00	29.76	5043.61		4.20
9/1/2017	14.72	3.86	0.00	0.00	3.93	44.0	0.29	10.58	20.98	5064.59		3.86
9/2/2017	11.18	3.31	0.00	0.00	3.93	44.0	0.29	7.58	15.04	5079.63		3.31
9/3/2017	14.37	4.56	0.00	0.00	3.93	44.0	0.29	9.52	18.88	5098.51		4.56
9/4/2017	20.89	4.95	0.00	0.00	3.93	44.0	0.29	15.65	31.05	5129.56		4.95
9/5/2017	20.82	2.81	0.00	0.00	3.93	44.0	0.29	17.72	35.15	5164.71		2.81
9/6/2017	20.03	2.79	0.00	0.00	3.93	44.0	0.29	16.95	33.62	5198.34		2.79
9/7/2017	24.55	2.80	0.00	0.00	3.93	44.0	0.29	21.46	42.57	5240.91		2.80
9/8/2017	20.61	2.80	0.61	0.00	3.93	44.0	0.29	16.91	33.55	5274.46		2.80
9/9/2017	28.62	3.42	1.21	0.00	3.93	44.0	0.29	23.70	47.01	5321.47		3.42
9/10/2017	35.14	0.00	1.15	0.00	3.93	44.0	0.29	33.71	66.86	5388.32	Invalid Outflow 1 per 9/17 call with Butch; flowmeter error. Zero flow into Sandy pipeline. Set Outflow 1 to zero	11.43
9/11/2017	27.74	0.00	1.46	0.00	3.93	44.0	0.29	26.00	51.56	5439.89	"	11.43
9/12/2017	27.22	0.00	1.15	0.00	3.93	44.0	0.29	25.78	51.14	5491.03	"	11.43
9/13/2017	29.90	0.00	1.47	0.00	3.93	44.0	0.29	28.15	55.83	5546.86	"	11.43
9/14/2017	33.54	0.00	0.98	0.00	3.93	44.0	0.29	32.28	64.02	5610.88	"	11.43
9/15/2017	37.84	0.00	0.09	0.00	3.93	44.0	0.29	37.46	74.30	5685.18	"	11.43
9/16/2017	32.24	0.00	0.00	0.00	3.93	44.0	0.29	31.95	63.38	5748.56	"	11.43
9/17/2017	32.24	0.00	0.00	0.00	3.93	44.0	0.29	31.95	63.38	5811.94	"	11.43
9/18/2017	31.00	6.24	0.00	0.00	3.93	44.0	0.29	24.47	48.54	5860.48		6.24
9/19/2017	32.92	3.63	0.00	0.00	3.93	44.0	0.29	29.01	57.54	5918.02		3.63
9/20/2017	35.22	4.37	0.00	0.00	3.93	44.0	0.29	30.57	60.63	5978.65		4.37
9/21/2017	35.66	4.06	0.00	0.00	3.93	44.0	0.29	31.31	62.11	6040.76		4.06
9/22/2017	30.92	3.13	0.00	0.00	3.93	44.0	0.29	27.51	54.56	6095.32		3.13
9/23/2017	27.13	0.00	0.00	0.00	3.93	44.0	0.29	26.84	53.25	6148.57	Sandy Outflow 1 went erratic (37.8 cfs) on 9/23 at 13:15. Corbin checked on 9/26 and flow was zero but meter showing high flow. Corbin adjusted meter settings for low velocity cutoff. Replaced 9/23 to 9/26 with 0 flow.	18.88
9/24/2017	29.34	0.00	0.00	0.00	3.93	44.0	0.29	29.05	57.63	6206.20	Adjusted Outflow 1 to zero	37.86
9/25/2017	28.40	0.00	0.00	0.00	3.93	44.0	0.29	28.11	55.76	6261.96	"	37.86
9/26/2017	22.94	0.00	0.00	0.00	3.93	44.0	0.29	22.65	44.93	6306.89	"	26.54

Sandy Ponds Recharge
2017

Date	Inflow - NSCC W-26 Weir (24-hr cfs) ¹	Outflow 1 - Sandy Pipeline (24-hr cfs) ²	Outflow 2 - Morris Pond Pump (24-hr cfs) ³	Outflow 3 - Morris Pond Weir (24-hr cfs) ⁴	Evaporation rate (mm/day) ⁵	Pond Surface Area (Acres) ⁶	Daily Evaporation (24-hr cfs) ⁷	Daily Recharge (24-hr cfs) ⁸	Daily Recharge (Ac-Ft)	Cumulative Recharge (Ac-Ft)	Note	RAW RECORDED: Outflow 1 - Sandy Pipeline (24-hr cfs) ²
9/27/2017	22.26	0.00	0.00	0.00	3.93	44.0	0.29	21.97	43.58	6350.47		0.00
9/28/2017	24.61	0.00	0.00	0.00	3.93	44.0	0.29	24.32	48.24	6398.71		0.00
9/29/2017	25.01	0.00	0.00	0.00	3.93	44.0	0.29	24.72	49.04	6447.75		0.00
9/30/2017	24.14	0.00	0.00	0.02	3.93	44.0	0.29	23.83	47.27	6495.03		0.00
10/1/2017	27.03	0.00	0.00	0.00	2.29	44.0	0.17	26.86	53.27	6548.30		0.00
10/2/2017	28.68	0.00	0.00	0.00	2.29	44.0	0.17	28.51	56.55	6604.85		0.00
10/3/2017	29.70	0.00	0.00	0.00	2.29	44.0	0.17	29.53	58.58	6663.42		0.00
10/4/2017	33.27	0.00	0.00	0.00	2.29	44.0	0.17	33.10	65.66	6729.08		0.00
10/5/2017	32.61	0.00	0.00	0.01	2.29	44.0	0.17	32.43	64.32	6793.40		0.00
10/6/2017	26.92	0.00	0.00	0.00	2.29	44.0	0.17	26.75	53.06	6846.47		0.00
10/7/2017	25.72	0.00	0.00	0.00	2.29	44.0	0.17	25.55	50.68	6897.15		0.00
10/8/2017	27.12	0.00	0.00	0.00	2.29	44.0	0.17	26.95	53.46	6950.60		0.00
10/9/2017	27.05	0.00	0.00	0.00	2.29	44.0	0.17	26.88	53.32	7003.92		0.00
10/10/2017	33.44	0.00	0.00	0.00	2.29	44.0	0.17	33.27	65.99	7069.91		0.00
10/11/2017	34.52	0.00	0.00	0.01	2.29	44.0	0.17	34.35	68.13	7138.04	Adjusted Outflow 1 to zero	1.52
10/12/2017	32.66	0.00	0.00	0.00	2.29	44.0	0.17	32.49	64.45	7202.49	"	2.97
10/13/2017	30.01	0.00	0.00	0.00	2.29	44.0	0.17	29.84	59.19	7261.68	"	2.97
10/14/2017	30.70	0.00	0.00	2.92	2.29	44.0	0.17	27.62	54.78	7316.46	"	2.97
10/15/2017	32.48	0.00	0.00	0.88	2.29	44.0	0.17	31.43	62.35	7378.81	"	2.97
10/16/2017					2.29	44.0	0.17	-0.17	-0.33	7378.48	S.King noted logger link showed 3 cfs into vault and out to curren ditch. Called Butch and he's had it off for over a week now and expects to be done for the season. Butch said there was recent spill out of his pond which is consistent with 10/14-15 data.	
10/17/2017					2.29	44.0	0.17	-0.17	-0.33	7378.15	S.King called Butch 12/8/2017. Morris pond system was leased in 2017 and power likely turned off on 10/16 (as discovered by CE later). W-26 flowed for only a few days after 10/15 so very little Inflow W-26 data missing.	
10/18/2017					2.29	44.0	0.17	-0.17	-0.33	7377.82		
10/19/2017					2.29	44.0	0.17	-0.17	-0.33	7377.49		
10/20/2017					2.29	44.0	0.17	-0.17	-0.33	7377.15		
10/21/2017					2.29	44.0	0.17	-0.17	-0.33	7376.82		
10/22/2017					2.29	44.0	0.17	-0.17	-0.33	7376.49		
10/23/2017					2.29	44.0	0.17	-0.17	-0.33	7376.16		
10/24/2017					2.29	44.0	0.17	-0.17	-0.33	7375.83		
10/25/2017					2.29	44.0	0.17	-0.17	-0.33	7375.50		
10/26/2017					2.29	44.0	0.17	-0.17	-0.33	7375.17		
10/27/2017					2.29	44.0	0.17	-0.17	-0.33	7374.84		
10/28/2017					2.29	44.0	0.17	-0.17	-0.33	7374.51		
10/29/2017					2.29	44.0	0.17	-0.17	-0.33	7374.18		
10/30/2017					2.29	44.0	0.17	-0.17	-0.33	7373.85		
10/31/2017					2.29	44.0	0.17	-0.17	-0.33	7373.52		
11/1/2017					0.21	44.0	0.02	-0.02	-0.03	7373.49		
11/2/2017					0.21	44.0	0.02	-0.02	-0.03	7373.46		
11/3/2017					0.21	44.0	0.02	-0.02	-0.03	7373.43		
11/4/2017					0.21	44.0	0.02	-0.02	-0.03	7373.40		
11/5/2017					0.21	44.0	0.02	-0.02	-0.03	7373.37		
11/6/2017					0.21	44.0	0.02	-0.02	-0.03	7373.34		
11/7/2017					0.21	44.0	0.02	-0.02	-0.03	7373.31		
11/8/2017					0.21	44.0	0.02	-0.02	-0.03	7373.28		
11/9/2017					0.21	44.0	0.02	-0.02	-0.03	7373.25		
11/10/2017					0.21	44.0	0.02	-0.02	-0.03	7373.21		
11/11/2017					0.21	44.0	0.02	-0.02	-0.03	7373.18		
11/12/2017					0.21	44.0	0.02	-0.02	-0.03	7373.15		
11/13/2017					0.21	44.0	0.02	-0.02	-0.03	7373.12		
11/14/2017					0.21	44.0	0.02	-0.02	-0.03	7373.09		
11/15/2017					0.21	44.0	0.02	-0.02	-0.03	7373.06		
11/16/2017					0.21	44.0	0.02	-0.02	-0.03	7373.03		
11/17/2017					0.21	44.0	0.02	-0.02	-0.03	7373.00		
11/18/2017					0.21	44.0	0.02	-0.02	-0.03	7372.97		
11/19/2017					0.21	44.0	0.02	-0.02	-0.03	7372.94		
11/20/2017					0.21	44.0	0.02	-0.02	-0.03	7372.91		
11/21/2017					0.21	44.0	0.02	-0.02	-0.03	7372.88		
11/22/2017					0.21	44.0	0.02	-0.02	-0.03	7372.85		
11/23/2017					0.21	44.0	0.02	-0.02	-0.03	7372.82		
11/24/2017					0.21	44.0	0.02	-0.02	-0.03	7372.79		
11/25/2017					0.21	44.0	0.02	-0.02	-0.03	7372.76		
11/26/2017					0.21	44.0	0.02	-0.02	-0.03	7372.73		
11/27/2017					0.21	44.0	0.02	-0.02	-0.03	7372.70		
11/28/2017					0.21	44.0	0.02	-0.02	-0.03	7372.67		
11/29/2017					0.21	44.0	0.02	-0.02	-0.03	7372.64		

**Sandy Ponds Recharge
2017**

Date	Inflow - NSCC W-26 Weir (24-hr cfs) ¹	Outflow 1 - Sandy Pipeline (24-hr cfs) ²	Outflow 2 - Morris Pond Pump (24-hr cfs) ³	Outflow 3 - Morris Pond Weir (24-hr cfs) ⁴	Evaporation rate (mm/day) ⁵	Pond Surface Area (Acres) ⁶	Daily Evaporation (24-hr cfs) ⁷	Daily Recharge (24-hr cfs) ⁸	Daily Recharge (Ac-Ft)	Cumulative Recharge (Ac-Ft)	Note	RAW RECORDED: Outflow 1 - Sandy Pipeline (24-hr cfs) ²
11/30/2017					0.21	44.0	0.02	-0.02	-0.03	7372.61		
12/1/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/2/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/3/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/4/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/5/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/6/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/7/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/8/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/9/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/10/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/11/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/12/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/13/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/14/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/15/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/16/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/17/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/18/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/19/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/20/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/21/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/22/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/23/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/24/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/25/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/26/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/27/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/28/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/29/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/30/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
12/31/2017					0.00	44.0	0.00	0.00	0.00	7372.61		
1/1/2018					0.00	44.0	0.00	0.00	0.00	7372.61		
Total 24-hr cfs	4451.9	556.4	111.0	5.9			61.7	3717.0				1545.4
Total acre feet	8830.4	1103.6	220.2	11.7			122.3	7372.6				3065.2
Adjustment	0.0	0.0	82.9	0.0			0.0	0.0			Adjusted Outflow 2 per flowmeter readings	
Final acre feet	8830.41	1103.59	303.10	11.73			122.29	7289.69				

¹ Sandy Pond Inflow measured at North Side Canal Company W-26 Lateral Broad Crested Weir (found in SPF Files S:\PROJECTS\ thru L Projects\ Projects\IGWA_535\0110_Sandy Pond Measurement\PROJECT\Data\Dataloggers\CR6-CP02_W26_DailyData - Column D - W26_CFS_Avg). Value is daily average of 15-minute readings.

² Sandy Ponds Outflow 1 measured at the Sandy Pipe immediately upstream of the Sandy Vault (found in SPF Files S:\PROJECTS\ thru L Projects\ Projects\IGWA_535\0110_Sandy Pond Measurement\PROJECT\Data\Dataloggers\CR6-CP03_SandyVault_DailyData - Column E - Sandy Inlet_CFS_Avg). Value is daily average of 15-minute readings

³ Sandy Ponds Outflow 2 measured at the Butch Morris' pump out of the Morris Pond (found in SPF Files S:\PROJECTS\ thru L Projects\ Projects\IGWA_535\0110_Sandy Pond Measurement\PROJECT\Data\Dataloggers\CR6-CP01_MorrisPond_DailyData - Column F - MorrisPump_CFS_Avg). Value is daily average of 15-minute readings

Adjusted annual volume based on flowmeter readings.

⁴ Sandy Ponds Outflow 3 measured at the Morris Pond outlet weir (found in SPF Files S:\PROJECTS\ thru L Projects\ Projects\IGWA_535\0110_Sandy Pond Measurement\PROJECT\Data\Dataloggers\CR6-CP01_MorrisPond_DailyData - Column D - MorrisWeir_CFS_Avg). Value is daily average of 15-minute readings

⁵ Evaporation is based on the average monthly Precipitation Deficit for the Hagerman 2 SW (NWS 103932) Station for Open Water - Shallow Systems (ponds, streams). The monthly average has been assumed for each day of the month.

⁶ No gauges are present for calculation of pond area. When water is present, pond area has been assumed to be 44 acres as described in 3rd Mitigation Plan report prepared by SPF. When water is not present, pond area is assumed as 0 acres.

⁷ Evaporation is calculated as (mm/day evaporation x 0.00328084 ft/mm x Pond Surface Area x 43,560 ft²/acre) / (86,400 sec/day)

⁸ Recharge is calculated as Inflow - Outflow 1 - Outflow 2 - Outflow 3 - Evaporation

Adjusted Value
From 15-minute data
Interpolated Values

Total Amount Recharged: 7289.69 Ac-Ft

Hagerman

Open water - shallow systems (ponds, streams)

[Precipitation Deficit \(Click here for a graph\)](#)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Growing Season ^a	Non Growing Season ^b	Annual
Mean	mm/day												mm		
Monthly	-0.17	0.27	1.54	2.74	3.71	4.74	5.42	4.75	3.93	2.29	0.21	-0.94	871	0	871
Days	0	0	0	29	31	30	31	31	30	31	30	0			243
Monthly Total mm	0	0	0	79.5	115.0	142.2	168.0	147.3	117.9	71.0	6.3	0			847.13
Monthly Total af	0	0	0	11.5	16.6	20.5	24.3	21.3	17.0	10.2	0.9	0			122.29