

Monthly Report: January 2016

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To:
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04 February 2016

By:
Jamie Duberstein

Bill and Mary:

Please see the bulleted list below for the major actions and accomplishments associated with Cooperative Agreement Number W912HZ-14-2-0002 (Modification Number P00002) for the month of January 2016. Please let me know if you would like me to elaborate on the details of any items I've listed below, or if there are any status updates you'd like on unlisted topics.

Best Regards,

Jamie

Marsh Vegetation

- No new activity to report.

Water Data

- Salinity and water depth data for all monitoring areas were downloaded on 13 and 14 January 2016.
 - Six (6) aboveground salinity sensors were found to have failed since the previous download:
 - Back 2
 - Middle 1
 - Middle 2
 - Middle 3
 - Middle 4
 - Middle 5
 - Replacement sensors for the six (6) sensors discovered faulty on 13 and 14 January were deployed in the field on 22 January 2016.
 - Two (2) of these sensors are on loan from the manufacturer and will be replaced after the manufacturer determines cause of failure for the six (6) failed sensors, then ships us permanent replacements. We already had four (4) aboveground sensors as backup back at the lab in Georgetown, SC.
 - As a reminder, previous downloads were on 30 November and 01 December 2015, and at that time two (2) sensors were found to have failed and the two (2) sensors at Back 4 were removed because hogs damaged the entire well array. A new well array at Back 4 was installed and all four (4) sensors were replaced 11 December 2015 (see December monthly report).
- **We now download data from all sensors monthly (previously every two months) due to the recent mass sensor failure. We've also begun carrying backup sensors of each type (above- and below-ground) with us on the field missions for immediate replacement of faulty sensors;** we were already carrying backup belowground sensors.
- Updated 2015 salinity averages for each area are provided in Table 1 at the end of this report.
- A synopsis of sensor malfunction incidents and other data loss (due to hog damage) is provided in Table 2.

Forest monitoring

- Monthly measurements of baldcypress tree growth were last taken on 14 January at Swamp 1, Swamp 2, and Swamp 3.
- Average basal area increase since last measurement:
 - Swamp 1: 0.0 cm² (15 Dec. – 14 Jan.)
 - Swamp 2: 0.0 cm² (15 Dec. – 14 Jan.)
 - Swamp 3: 0.0 cm² (15 Dec. – 14 Jan.)

Table 1. Average, maximum, and minimum salinity (psu: practical salinity units) measured via sensors at above- and below-ground locations at (12) marsh monitoring areas and (3) tidal forest areas. Summaries are based on hourly measurements starting 01 January through 31 December 2015 for all monitoring areas unless noted by superscript; details of data loss provided in Table 2. Measurements taken during dry well conditions were removed from calculations of summary

Area	Month	Aboveground Salinity (psu)			Belowground Salinity (psu)		
		Avg. (std. err)	Max	Min	Avg (std. err)	Max	Min
Back 1	January	0.11 (0.01)	0.17	0.03	0.17 (0.00)	0.20	0.12
	February	0.13 (0.01)	0.17	0.02	0.17 (0.00)	0.19	0.15
	March	0.06 (0.00)	0.10	0.00	0.15 (0.00)	0.16	0.13
	April	0.02 (0.00)	0.19	0.00	0.13 (0.00)	0.16	0.08
	May	0.02 (0.00)	0.14	0.00	0.12 (0.00)	0.15	0.10
	June	0.01 (0.00)	0.19	0.00	0.13 (0.00)	0.16	0.12
	July	0.09 (0.03)	0.34	0.00	0.14 (0.00)	0.28	0.11
	August	0.07 (0.02)	0.24	0.00	0.18 (0.00)	0.27	0.14
	September	0.05 (0.01)	0.59	0.00	0.21 (0.00)	0.54	0.13
	October	0.06 (0.01)	0.32	0.00	0.19 (0.00)	0.48	0.13
	November	0.04 (0.00)	0.06	0.00	0.14 (0.00)	0.25	0.08
	December	0.03 (0.00)	0.05	0.00	0.09 (0.00)	0.10	0.07
	Annual	0.04 (0.00)	0.59	0.00	0.15 (0.00)	0.54	0.07
Back 2	January	0.09 (0.01)	0.23	0.00	0.24 (0.00)	0.37	0.15
	February	0.15 (0.01)	0.41	0.00	0.23 (0.00)	0.30	0.14
	March	0.10 (0.01)	0.27	0.00	0.19 (0.00)	0.23	0.12
	April	0.18 (0.02)	0.42	0.00	0.21 (0.00)	0.29	0.12
	May	0.14 (0.01)	0.43	0.00	0.19 (0.00)	0.25	0.17
	June	0.17 (0.02)	0.55	0.00	0.25 (0.00)	0.75	0.18
	July	0.14 (0.02)	1.08	0.00	0.34 (0.00)	0.86	0.24
	August	0.13 (0.01)	0.72	0.00	0.33 (0.00)	0.39	0.30
	September	0.25 (0.02)	2.28	0.00	0.40 (0.01)	1.17	0.29
	October	0.20 (0.01)	1.23	0.00	0.31 (0.00)	0.58	0.10
	November	0.06 (0.00)	0.34	0.00	0.11 (0.00)	0.35	0.06
	December	0.01 (0.00) ^a	0.05 ^a	0.00 ^a	0.07 (0.00)	0.10	0.06
	Annual	0.14 (0.01)	2.28	0.00	0.24 (0.00)	1.17	0.06

^a Incomplete data record. See Table 2 for details.

Table 1 (cont'd). Average, maximum, and minimum salinity at above- and below-ground locations in marsh and tidal freshwater forest monitoring areas.

Area	Month	Aboveground Salinity (psu)			Belowground Salinity (psu)		
		Avg. (std. err)	Max	Min	Avg (std. err)	Max	Min
Back 3	January	0.13 (0.02)	0.90	0.00	0.76 (0.01)	1.19	0.29
	February	0.17 (0.03)	1.23	0.00	0.77 (0.01)	1.01	0.33
	March	0.17 (0.02)	0.56	0.00	0.77 (0.01)	1.02	0.29
	April	0.12 (0.02)	1.47	0.00	0.47 (0.01)	0.95	0.21
	May	0.07 (0.01)	1.29	0.00	0.46 (0.01)	1.15	0.16
	June	0.10 (0.02)	1.48	0.00	0.64 (0.01)	1.84	0.19
	July	0.23 (0.04)	3.36	0.00	0.95 (0.01)	2.29	0.54
	August	0.22 (0.03)	2.40	0.00	1.49 (0.01)	2.14	0.92
	September	0.58 (0.07)	4.58	0.00	1.62 (0.02)	3.64	0.87
	October	0.29 (0.02)	1.86	0.00	1.86 (0.01)	2.41	1.28
	November	0.07 (0.01)	0.75	0.00	1.65 (0.01)	2.05	0.68
	December	0.05 (0.00)	0.08	0.00	1.72 (0.01)	1.91	0.77
	Annual	0.23 (0.01)	4.58	0.00	1.10 (0.01)	3.64	0.16
Back 3.5	January	0.17 (0.02)	1.36	0.00	2.09 (0.00)	2.33	1.85
	February	0.27 (0.03)	2.17	0.00	2.10 (0.00)	2.25	1.92
	March	0.19 (0.02)	1.28	0.00	2.06 (0.00)	2.34	1.75
	April	0.27 (0.03)	2.22	0.00	1.99 (0.01)	2.26	1.52
	May	0.18 (0.02)	1.64	0.00	1.83 (0.01)	2.29	1.09
	June	0.17 (0.02)	2.00	0.00	1.58 (0.01)	2.59	0.90
	July	0.34 (0.04)	4.76	0.00	2.16 (0.01)	3.17	1.46
	August	0.42 (0.04)	4.52	0.00	2.19 (0.01)	2.91	1.81
	September	0.70 (0.06)	6.25	0.00	2.06 (0.02) ^a	2.36 ^a	1.44 ^a
	October	0.64 (0.04)	3.39	0.00	2.37 (0.01) ^a	2.63 ^a	1.35 ^a
	November	0.08 (0.01)	1.25	0.00	2.37 (0.00)	2.56	2.22
	December	0.03 (0.00)	0.27	0.00	2.44 (0.00)	2.63	2.34
	Annual	0.34 (0.01)	6.25	0.00	2.10 (0.00)	3.17	0.90

^a Incomplete data record. See Table 2 for details.

Table 1 (cont'd). Average, maximum, and minimum salinity at above- and below-ground locations in marsh and tidal freshwater forest monitoring areas.

Area	Month	Aboveground Salinity (psu)			Belowground Salinity (psu)		
		Avg. (std. err)	Max	Min	Avg (std. err)	Max	Min
Back 4	January	0.47 (0.05)	5.01	0.00	3.13 (0.01)	3.63	2.75
	February	0.58 (0.07)	5.77	0.00	2.95 (0.01)	3.30	0.03
	March	0.43 (0.05)	3.27	0.00	2.98 (0.01)	3.23	2.13
	April	0.38 (0.05)	4.29	0.00	2.80 (0.01)	3.23	0.02
	May	0.42 (0.04)	4.15	0.00	2.64 (0.01)	2.92	1.96
	June	0.42 (0.05)	5.84	0.00	3.14 (0.01)	3.77	2.78
	July	0.86 (0.09)	9.26	0.00	3.92 (0.03)	5.81	0.05
	August	0.92 (0.08)	6.68	0.00	3.91 (0.02)	5.05	3.02
	September	1.26 (0.10)	9.72	0.00	4.40 (0.08)	10.01	0.16
	October	1.23 (0.07)	6.25	0.00	3.87 (0.05)	6.56	0.22
	November	0.27 (0.02)	3.68	0.00	2.77 (0.02)	3.55	1.94
	December	0.09 (0.01) ^a	0.66 ^a	0.00 ^a	1.92 (0.01) ^a	2.37 ^a	0.74 ^a
	Annual	0.66 (0.02)	9.72	0.00	3.24 (0.01)	10.01	0.02
Front 1	January	0.06 (0.01)	0.17	0.00	0.34 (0.00)	0.42	0.24
	February	0.11 (0.01)	0.33	0.00	0.30 (0.00)	0.36	0.18
	March	0.06 (0.00)	0.15	0.00	0.24 (0.00)	0.33	0.12
	April	0.08 (0.01)	0.48	0.00	0.20 (0.00)	0.28	0.12
	May	0.11 (0.01)	0.52	0.00	0.17 (0.00)	0.29	0.12
	June	0.07 (0.01)	0.56	0.00	0.22 (0.00)	0.38	0.13
	July	0.59 (0.01)	1.23	0.00	0.35 (0.01)	0.84	0.18
	August	0.59 (0.01)	0.84	0.00	0.35 (0.00)	0.58	0.17
	September	0.16 (0.02)	1.75	0.00	0.50 (0.01)	1.24	0.14
	October	0.06 (0.01)	0.65	0.00	0.22 (0.00)	0.45	0.08
	November	0.02 (0.00)	0.25	0.00	0.15 (0.00)	0.29	0.07
	December	0.03 (0.00)	0.09	0.00	0.10 (0.00)	0.11	0.07
	Annual	0.07 (0.00)	1.75	0.00	0.26 (0.00)	1.24	0.07

^a Incomplete data record. See Table 2 for details.

Table 1 (cont'd). Average, maximum, and minimum salinity at above- and below-ground locations in marsh and tidal freshwater forest monitoring areas.

Area	Month	Aboveground Salinity (psu)			Belowground Salinity (psu)		
		Avg. (std. err)	Max	Min	Avg (std. err)	Max	Min
Front 2	January	0.21 (0.03)	2.55	0.00	0.80 (0.00)	1.07	0.59
	February	0.38 (0.06)	4.75	0.00	0.83 (0.01)	1.28	0.58
	March	0.09 (0.02)	1.33	0.00	0.56 (0.00)	0.87	0.37
	April	0.20 (0.03)	4.06	0.00	0.65 (0.01)	0.94	0.32
	May	0.15 (0.02)	4.90	0.00	0.50 (0.00)	0.81	0.34
	June	0.20 (0.03)	4.83	0.00	0.95 (0.03)	4.11	0.01
	July	0.53 (0.06)	9.01	0.00	1.52 (0.03)	3.28	0.41
	August	0.46 (0.05)	5.44	0.00	1.50 (0.02)	2.81	0.74
	September	0.57 (0.60)	9.39	0.00	1.61 (0.03)	4.70	0.73
	October	0.38 (0.03)	4.14	0.00	1.11 (0.02)	2.18	0.31
	November	0.05 (0.01)	1.09	0.00	0.40 (0.01)	0.94	0.16
	December	0.04 (0.00)	0.05	0.00	0.21 (0.00)	0.39	0.06
	Annual	0.32 (0.01)	9.39	0.00	0.89 (0.01)	4.70	0.01
Middle 1	January	0.11 (0.01)	0.50	0.00	0.51 (0.00)	0.60	0.36
	February	0.15 (0.02)	0.93	0.00	0.50 (0.00)	0.65	0.22
	March	0.15 (0.02)	0.72	0.00	0.40 (0.00)	0.57	0.24
	April	0.11 (0.02)	0.83	0.00	0.39 (0.00)	0.46	0.34
	May	0.06 (0.01)	1.22	0.00	0.34 (0.00)	0.41	0.24
	June	0.07 (0.01)	1.44	0.00	0.31 (0.00)	0.48	0.19
	July	0.13 (0.04)	3.84	0.00	0.51 (0.00)	1.25	0.33
	August	0.04 (0.01)	1.70	0.00	0.55 (0.00)	0.87	0.37
	September	0.37 (0.05)	4.20	0.00	0.54 (0.01)	1.36	0.25
	October	0.20 (0.02)	3.13	0.00	0.56 (0.01)	1.22	0.32
	November	0.04 (0.00)	0.33	0.00	0.35 (0.00)	0.54	0.17
	December	0.02 (0.00) ^a	0.12 ^a	0.00 ^a	0.27 (0.00)	0.35	0.14
	Annual	0.11 (0.01)	4.20	0.00	0.44 (0.00)	1.36	0.14

^a Incomplete data record. See Table 2 for details.

Table 1 (cont'd). Average, maximum, and minimum salinity at above- and below-ground locations in marsh and tidal freshwater forest monitoring areas.

Area	Month	Aboveground Salinity (psu)			Belowground Salinity (psu)		
		Avg. (std. err)	Max	Min	Avg (std. err)	Max	Min
Middle 2	January	0.28 (0.05)	1.95	0.00	0.60 (0.01)	1.25	0.37
	February	0.30 (0.08)	3.19	0.00	1.00 (0.02)	2.08	0.46
	March	0.24 (0.03)	0.96	0.00	0.71 (0.01)	1.08	0.31
	April	0.09 (0.02)	1.53	0.00	0.45 (0.00)	0.82	0.26
	May	0.08 (0.01)	1.37	0.00	0.35 (0.00)	0.57	0.21
	June	0.06 (0.01)	1.78	0.00	0.56 (0.01)	1.40	0.23
	July	0.08 (0.03)	4.07	0.00	1.09 (0.03)	4.70	0.02
	August	0.07 (0.02)	3.04	0.00	0.84 (0.01)	2.71	0.37
	September	0.24 (0.05)	6.40	0.00	1.11 (0.04)	5.80	0.20
	October	0.13 (0.03)	3.80	0.00	0.73 (0.02)	2.53	0.16
	November	0.01 (0.00)	0.07	0.00	0.25 (0.01)	0.64	0.05
	December	0.04 (0.00) ^a	0.08 ^a	0.00 ^a	0.07 (0.00)	0.10	0.05
	Annual	0.12 (0.01)	6.10	0.00	0.65 (0.01)	5.80	0.02
Middle 3	January	0.17 (0.05)	2.05	0.00	1.44 (0.01)	2.15	0.93
	February	0.23 (0.11)	2.34	0.00	1.76 (0.02)	3.40	1.23
	March	0.11 (0.02)	1.13	0.00	1.05 (0.02)	1.64	0.30
	April	0.06 (0.02)	1.64	0.00	0.84 (0.01)	1.50	0.53
	May	0.00 (0.00)	0.00	0.00	0.53 (0.01)	1.10	0.14
	June	0.00 (0.00)	0.00	0.00	0.73 (0.01)	1.73	0.44
	July	0.00 (0.00)	0.04	0.00	1.61 (0.04)	6.00	0.64
	August	0.01 (0.00)	0.01	0.00	1.59 (0.02)	3.45	0.75
	September	0.06 (0.02)	6.37	0.00	1.68 (0.06)	7.20	0.49
	October	0.07 (0.02)	4.04	0.00	1.27 (0.04) ^a	4.04 ^a	0.31 ^a
	November	0.01 (0.00)	0.34	0.00	n/a ^a	n/a ^a	n/a ^a
	December	0.01 (0.00) ^a	0.07 ^a	0.00 ^a	0.40 (0.00) ^a	0.57 ^a	0.28 ^a
	Annual	0.04 (0.01)	6.37	0.00	1.19 (0.01)	7.20	0.14

^a Incomplete data record. See Table 2 for details.

Table 1 (cont'd). Average, maximum, and minimum salinity at above- and below-ground locations in marsh and tidal freshwater forest monitoring areas.

Area	Month	Aboveground Salinity (psu)			Belowground Salinity (psu)		
		Avg. (std. err)	Max	Min	Avg (std. err)	Max	Min
Middle 4	January	0.28 (0.05)	3.59	0.00	2.84 (0.01)	3.47	2.22
	February	0.26 (0.06)	5.55	0.00	2.73 (0.01)	3.22	2.20
	March	0.11 (0.02)	1.30	0.00	2.74 (0.01)	3.35	2.16
	April	0.11 (0.02)	2.42	0.00	2.52 (0.01)	3.26	1.52
	May	0.10 (0.01)	2.49	0.00	2.22 (0.02)	5.66	1.48
	June	0.22 (0.04) ^a	3.62 ^a	0.00 ^a	2.15 (0.04)	6.86	0.77
	July	n/a ^a	n/a ^a	n/a ^a	3.33 (0.02)	5.23	1.38
	August	0.84 (0.14) ^a	5.10 ^a	0.00 ^a	3.73 (0.01)	4.18	2.60
	September	1.14 (0.14)	11.26	0.00	3.54 (0.02)	5.15	2.50
	October	0.73 (0.06)	6.43	0.00	3.91 (0.01) ^a	4.26 ^a	3.70 ^a
	November	0.14 (0.02)	2.07	0.00	n/a ^a	n/a ^a	n/a ^a
	December	n/a ^a	n/a ^a	n/a ^a	1.17 (0.01) ^a	1.68 ^a	0.56 ^a
	Annual	0.41 (0.02)	11.26	0.00	2.81 (0.01)	6.86	0.56
Middle 5	January	0.21 (0.02)	1.93	0.00	1.12 (0.01)	1.79	0.58
	February	0.29 (0.03)	2.36	0.00	1.15 (0.01)	1.80	0.48
	March	0.13 (0.01)	1.18	0.00	0.63 (0.01)	1.01	0.36
	April	0.18 (0.02)	3.28	0.00	0.83 (0.01)	1.19	0.51
	May	0.14 (0.01)	4.00	0.00	0.82 (0.02)	4.46	0.55
	June	0.18 (0.03)	4.84	0.00	1.04 (0.03)	5.51	0.51
	July	0.44 (0.05)	7.80	0.00	1.74 (0.02)	3.11	1.08
	August	0.36 (0.03)	4.73	0.00	1.80 (0.01)	2.43	1.43
	September	0.71 (0.06)	9.52	0.00	2.02 (0.04)	5.54	1.11
	October	0.54 (0.03)	4.53	0.00	1.50 (0.02)	2.56	0.87
	November	0.07 (0.01)	1.25	0.00	1.03 (0.01)	1.48	0.49
	December	0.02 (0.00) ^a	0.15 ^a	0.00 ^a	0.38 (0.00)	0.75	0.19
	Annual	0.29 (0.01)	9.52	0.00	1.17 (0.01)	5.54	0.19

^a Incomplete data record. See Table 2 for details.

Table 1 (cont'd). Average, maximum, and minimum salinity at above- and below-ground locations in marsh and tidal freshwater forest monitoring areas.

Area	Month	Aboveground Salinity (psu)			Belowground Salinity (psu)		
		Avg. (std. err)	Max	Min	Avg (std. err)	Max	Min
Swamp 1	January	0.04 (0.00)	0.06	0.01	0.07 (0.00)	0.08	0.06
	February	0.04 (0.00)	0.05	0.01	0.06 (0.00)	0.07	0.05
	March	0.04 (0.00)	0.05	0.00	0.07 (0.00)	0.07	0.05
	April	0.04 (0.00)	0.05	0.03	0.07 (0.00)	0.10	0.05
	May	0.04 (0.00)	0.05	0.00	0.07 (0.00)	0.08	0.01
	June	0.04 (0.00)	0.05	0.00	0.07 (0.00)	0.08	0.00
	July	0.04 (0.00)	0.05	0.00	0.06 (0.00)	0.09	0.00
	August	0.04 (0.00)	0.05	0.00	0.07 (0.00)	0.09	0.03
	September	0.05 (0.00)	0.06	0.00	0.07 (0.00)	0.09	0.05
	October	0.05 (0.00)	0.10	0.00	0.09 (0.00)	0.10	0.06
	November	0.04 (0.00)	0.07	0.00	0.10 (0.00)	0.10	0.09
	December	0.04 (0.00)	0.06	0.00	0.09 (0.00)	0.11	0.07
	Annual	0.04 (0.00)	0.10	0.00	0.07 (0.00)	0.11	0.00
Swamp 2	January	0.06 (0.00)	0.13	0.00	0.17 (0.00)	0.18	0.15
	February	0.06 (0.00)	0.10	0.00	0.14 (0.00)	0.16	0.09
	March	0.05 (0.00)	0.09	0.01	0.12 (0.00)	0.15	0.09
	April	0.06 (0.00)	0.10	0.00	0.13 (0.00)	0.16	0.06
	May	0.07 (0.00)	0.10	0.03	0.16 (0.00)	0.21	0.07
	June	0.07 (0.00)	0.11	0.00	0.15 (0.00)	0.16	0.09
	July	0.11 (0.02)	0.86	0.00	0.16 (0.00)	0.24	0.04
	August	0.15 (0.01)	0.44	0.00	0.19 (0.00)	0.21	0.17
	September	0.32 (0.04)	1.95	0.00	0.17 (0.00)	0.19	0.14
	October	0.28 (0.02)	1.46	0.00	0.17 (0.00)	0.18	0.15
	November	0.14 (0.01)	0.53	0.00	0.18 (0.00)	0.20	0.17
	December	0.05 (0.00)	0.10	0.00	0.20 (0.00)	0.22	0.18
	Annual	0.16 (0.01)	1.95	0.00	0.16 (0.00)	0.24	0.04

^a Incomplete data record. See Table 2 for details.

Table 1 (cont'd). Average, maximum, and minimum salinity at above- and below-ground locations in marsh and tidal freshwater forest monitoring areas.

Area	Month	Aboveground Salinity (psu)			Belowground Salinity (psu)		
		Avg. (std. err)	Max	Min	Avg (std. err)	Max	Min
Swamp 3	January	0.03 (0.00) ^a	0.20 ^a	0.00 ^a	0.14 (0.00)	0.29	0.07
	February	0.05 (0.00)	0.58	0.00	0.30 (0.01)	1.11	0.00
	March	0.02 (0.00)	0.15	0.00	0.18 (0.00)	0.22	0.14
	April	0.04 (0.00)	0.66	0.00	0.17 (0.00)	0.19	0.13
	May	0.02 (0.00)	0.53	0.00	0.17 (0.00)	0.30	0.06
	June	0.03 (0.00)	0.66	0.00	0.20 (0.00)	0.66	0.03
	July	0.14 (0.02)	4.34	0.00	0.40 (0.01)	1.14	0.15
	August	0.13 (0.02)	2.59	0.00	0.38 (0.00)	0.70	0.17
	September	0.29 (0.04)	6.11	0.00	0.42 (0.01)	0.95	0.22
	October	0.10 (0.01)	1.98	0.00	0.44 (0.01)	0.87	0.24
	November	0.02 (0.00)	0.10	0.00	0.23 (0.00)	0.35	0.16
	December	0.02 (0.00)	0.09	0.00	0.15 (0.00)	0.21	0.13
	Annual	0.07 (0.00)	6.11	0.00	0.27 (0.00)	1.14	0.00

^a Incomplete data record. See Table 2 for details.

Table 2. Synopsis of all water monitoring data loss including failed equipment, damage by wildlife, and user caused data loss. Aboveground sensors collect salinity whereas belowground sensors collect salinity and water depth.

Site	Device	Position	Data loss period		Discovered	Replaced	Cause of Data Loss
			Beginning	End			
Swamp 3	Aquatroll 200	Belowground	12/16/2014 9:00	1/13/2015 12:00	12/16/2014	1/13/2015	Well array siltation leading to incorrect depth values.
Middle 4	Aquatroll 100	Aboveground	6/22/2015 18:23	8/20/2015 0:00	7/21/2015	8/20/2015	Circuit board failure.
Back 3.5	Aquatroll 200	Belowground	9/7/2015 2:05	10/11/2015 0:00	9/21/2015	10/10/2015	Circuit board failure.
Back 4	Aquatroll 100	Aboveground	11/30/2015 14:06	12/11/2015 12:00	11/30/2015	12/11/2015	Well array heavily damaged by hogs.
Back 4	Aquatroll 200	Belowground	11/30/2015 13:20	12/11/2015 12:00	11/30/2015	12/11/2015	Well array heavily damaged by hogs.
Middle 3	Aquatroll 200	Belowground	10/15/2015 4:33	12/11/2015 12:00	11/30/2015	12/11/2015	Circuit board failure.
Middle 4	Aquatroll 200	Belowground	10/16/2015 4:16	12/11/2015 12:00	11/30/2015	12/11/2015	Circuit board failure.
Back 4	Aquatroll 200	Belowground	9/21/2015 9:33	9/21/2015 11:20	N/A	N/A	Sensor datalog reset by Duberstein.
Back 4	Aquatroll 100	Aboveground	9/21/2015 9:39	9/21/2015 12:06	N/A	N/A	Sensor datalog reset by Duberstein.
Back 2	Aquatroll 100	Aboveground	1/5/2016 0:20	1/23/2016 0:00	1/13/2016	1/22/2016	Unknown. Analysis by manufacturer is currently pending.
Middle 1	Aquatroll 100	Aboveground	1/5/2016 2:53	1/23/2016 0:00	1/13/2016	1/22/2016	Unknown. Analysis by manufacturer is currently pending.
Middle 2	Aquatroll 100	Aboveground	12/19/2015 5:24	1/23/2016 0:00	1/13/2016	1/22/2016	Unknown. Analysis by manufacturer is currently pending.
Middle 3	Aquatroll 100	Aboveground	12/19/2015 4:41	1/23/2016 0:00	1/13/2016	1/22/2016	Unknown. Analysis by manufacturer is currently pending.
Middle 4	Aquatroll 100	Aboveground	11/30/2015 10:00	1/23/2016 0:00	1/13/2016	1/22/2016	Unknown. Analysis by manufacturer is currently pending.
Middle 5	Aquatroll 100	Aboveground	1/5/2016 0:47	1/23/2016 0:00	1/13/2016	1/22/2016	Unknown. Analysis by manufacturer is currently pending.