

Appendix F: Cycle Time Evaluation
December 5, 2005

Time	Time between Readings (min)	Data screened for effective working times (min) ¹	Check if time is >0.75 and <5.5 min ²	Data screened for unrealistic cycle times (min)	Check if time is >1.5 and <3 min ³	Data screened for typical cycle times (min)
10:24						
10:51	27.10		FALSE			
11:00	8.53		FALSE			
11:49	48.80		FALSE			
11:49	0.15		FALSE			
11:50	1.42	1.42	TRUE	1.42	FALSE	
11:51	1.03	1.03	TRUE	1.03	FALSE	
11:56	5.05	5.05	TRUE	5.05	FALSE	
11:56	0.17	0.17	FALSE			
12:00	3.32	3.32	TRUE	3.32	FALSE	
12:03	2.90	2.90	TRUE	2.90	TRUE	2.90
12:03	0.17	0.17	FALSE			
12:04	1.77	1.77	TRUE	1.77	TRUE	1.77
12:05	0.05	0.05	FALSE			
12:05	0.93	0.93	TRUE	0.93	FALSE	
12:06	0.17	0.17	FALSE			
12:08	2.82	2.82	TRUE	2.82	TRUE	2.82
12:14	5.53	5.53	FALSE			
12:21	7.45		FALSE			
12:25	3.90	3.90	TRUE	3.90	FALSE	
12:28	2.75	2.75	TRUE	2.75	TRUE	2.75
12:30	2.17	2.17	TRUE	2.17	TRUE	2.17
12:30	0.08	0.08	FALSE			
12:32	1.93	1.93	TRUE	1.93	TRUE	1.93
12:35	2.78	2.78	TRUE	2.78	TRUE	2.78
13:02	27.30		FALSE			
13:12	9.15	9.15	FALSE			
13:23	11.38		FALSE			
13:27	3.67	3.67	TRUE	3.67	FALSE	
13:29	2.38	2.38	TRUE	2.38	TRUE	2.38
13:31	2.48	2.48	TRUE	2.48	TRUE	2.48
13:34	2.15	2.15	TRUE	2.15	TRUE	2.15
13:35	1.90	1.90	TRUE	1.90	TRUE	1.90
13:37	1.52	1.52	TRUE	1.52	TRUE	1.52
13:39	1.82	1.82	TRUE	1.82	TRUE	1.82
13:39	0.13	0.13	FALSE			
13:41	2.12	2.12	TRUE	2.12	TRUE	2.12
13:41	0.12	0.12	FALSE			
13:43	2.20	2.20	TRUE	2.20	TRUE	2.20
14:00	16.43		FALSE			
14:02	2.15	2.15	TRUE	2.15	TRUE	2.15
14:04	1.68	1.68	TRUE	1.68	TRUE	1.68
14:05	1.77	1.77	TRUE	1.77	TRUE	1.77
14:08	2.22	2.22	TRUE	2.22	TRUE	2.22
14:08	0.28	0.28	FALSE			
14:10	1.92	1.92	TRUE	1.92	TRUE	1.92
14:13	3.67	3.67	TRUE	3.67	FALSE	
14:14	0.25	0.25	FALSE			
14:15	1.65	1.65	TRUE	1.65	TRUE	1.65
14:17	1.92	1.92	TRUE	1.92	TRUE	1.92
14:24	6.58		FALSE			
14:26	1.88	1.88	TRUE	1.88	TRUE	1.88
14:28	1.90	1.90	TRUE	1.90	TRUE	1.90
14:30	2.08	2.08	TRUE	2.08	TRUE	2.08
14:32	1.97	1.97	TRUE	1.97	TRUE	1.97
14:33	1.15	1.15	TRUE	1.15	FALSE	
14:34	0.65	0.65	FALSE			
14:36	2.08	2.08	TRUE	2.08	TRUE	2.08
14:37	1.73	1.73	TRUE	1.73	TRUE	1.73
14:39	1.90	1.90	TRUE	1.90	TRUE	1.90
14:41	1.87	1.87	TRUE	1.87	TRUE	1.87
14:41	0.07	0.07	FALSE			
14:42	1.15	1.15	TRUE	1.15	FALSE	
14:47	4.38		TRUE	4.38	FALSE	
14:49	1.82	1.82	TRUE	1.82	TRUE	1.82
14:51	1.98	1.98	TRUE	1.98	TRUE	1.98
14:52	1.87	1.87	TRUE	1.87	TRUE	1.87
14:54	2.07	2.07	TRUE	2.07	TRUE	2.07
14:57	2.70	2.70	TRUE	2.70	TRUE	2.70
14:59	1.90	1.90	TRUE	1.90	TRUE	1.90
15:01	2.25	2.25	TRUE	2.25	TRUE	2.25
15:04	2.50	2.50	TRUE	2.50	TRUE	2.50
15:06	2.00	2.00	TRUE	2.00	TRUE	2.00
15:08	1.95	1.95	TRUE	1.95	TRUE	1.95
15:15	7.65		FALSE			
15:18	2.48	2.48	TRUE	2.48	TRUE	2.48
15:18	0.00	0.00	FALSE			
15:20	2.18	2.18	TRUE	2.18	TRUE	2.18
15:22	2.25	2.25	TRUE	2.25	TRUE	2.25
15:24	2.07	2.07	TRUE	2.07	TRUE	2.07
15:26	2.00	2.00	TRUE	2.00	TRUE	2.00
15:29	2.18	2.18	TRUE	2.18	TRUE	2.18
15:30	1.87	1.87	TRUE	1.87	TRUE	1.87
15:33	2.28	2.28	TRUE	2.28	TRUE	2.28
15:35	1.92	1.92	TRUE	1.92	TRUE	1.92
15:43	8.52		FALSE			
15:45	2.12	2.12	TRUE	2.12	TRUE	2.12
15:48	2.33	2.33	TRUE	2.33	TRUE	2.33
15:50	2.32	2.32	TRUE	2.32	TRUE	2.32
15:52	2.23	2.23	TRUE	2.23	TRUE	2.23
15:52	0.23	0.23	FALSE			
15:52	0.07	0.07	FALSE			
15:54	1.77	1.77	TRUE	1.77	TRUE	1.77
15:54	0.03	0.03	FALSE			

**Appendix F: Cycle Time Evaluation
December 5, 2005**

Time	Time between Readings (min)	Data screened for effective working times (min) ¹	Check if time is >0.75 and <5.5 min ²	Data screened for unrealistic cycle times (min)	Check if time is >1.5 and <3 min ³	Data screened for typical cycle times (min)
15:56	2.12	2.12	TRUE	2.12	TRUE	2.12
15:59	2.40	2.40	TRUE	2.40	TRUE	2.40
16:01	2.53	2.53	TRUE	2.53	TRUE	2.53
16:03	1.90	1.90	TRUE	1.90	TRUE	1.90
16:03	0.03	0.03	FALSE			
16:15	11.75		FALSE			
16:17	1.98	1.98	TRUE	1.98	TRUE	1.98
16:19	1.95	1.95	TRUE	1.95	TRUE	1.95
16:20	1.42	1.42	TRUE	1.42	FALSE	
16:21	0.87	0.87	TRUE	0.87	FALSE	
16:23	2.28	2.28	TRUE	2.28	TRUE	2.28
16:25	1.93	1.93	TRUE	1.93	TRUE	1.93
16:27	1.68	1.68	TRUE	1.68	TRUE	1.68
16:29	1.93	1.93	TRUE	1.93	TRUE	1.93
16:31	1.92	1.92	TRUE	1.92	TRUE	1.92
16:32	1.43	1.43	TRUE	1.43	FALSE	
16:33	0.33	0.33	FALSE			
16:34	1.73	1.73	TRUE	1.73	TRUE	1.73
16:40	5.60	5.60	FALSE			
16:42	2.33	2.33	TRUE	2.33	TRUE	2.33
16:49	7.12		FALSE			
16:52	2.38	2.38	TRUE	2.38	TRUE	2.38
16:54	2.08	2.08	TRUE	2.08	TRUE	2.08
17:03	8.57	8.57	FALSE			
17:05	1.98	1.98	TRUE	1.98	TRUE	1.98
17:06	1.73	1.73	TRUE	1.73	TRUE	1.73
17:08	1.93	1.93	TRUE	1.93	TRUE	1.93
17:10	1.85	1.85	TRUE	1.85	TRUE	1.85
17:12	2.10	2.10	TRUE	2.10	TRUE	2.10
17:21	8.55		FALSE			
17:23	2.05	2.05	TRUE	2.05	TRUE	2.05
17:25	2.15	2.15	TRUE	2.15	TRUE	2.15
17:27	2.12	2.12	TRUE	2.12	TRUE	2.12
17:29	2.02	2.02	TRUE	2.02	TRUE	2.02
17:31	1.90	1.90	TRUE	1.90	TRUE	1.90
17:33	2.03	2.03	TRUE	2.03	TRUE	2.03
17:33	0.03	0.03	FALSE			
17:35	2.20	2.20	TRUE	2.20	TRUE	2.20
17:37	2.23	2.23	TRUE	2.23	TRUE	2.23
17:40	2.23	2.23	TRUE	2.23	TRUE	2.23
17:45	5.82		FALSE			
17:48	2.87	2.87	TRUE	2.87	TRUE	2.87
17:50	2.02	2.02	TRUE	2.02	TRUE	2.02
17:52	1.82	1.82	TRUE	1.82	TRUE	1.82
17:54	1.88	1.88	TRUE	1.88	TRUE	1.88
17:56	1.88	1.88	TRUE	1.88	TRUE	1.88
17:58	1.68	1.68	TRUE	1.68	TRUE	1.68
18:00	2.07	2.07	TRUE	2.07	TRUE	2.07
18:02	1.98	1.98	TRUE	1.98	TRUE	1.98
18:04	2.05	2.05	TRUE	2.05	TRUE	2.05
18:09	5.55		FALSE			
18:11	1.78	1.78	TRUE	1.78	TRUE	1.78
18:13	2.40	2.40	TRUE	2.40	TRUE	2.40
18:16	2.18	2.18	TRUE	2.18	TRUE	2.18
18:18	1.90	1.90	TRUE	1.90	TRUE	1.90
18:20	2.00	2.00	TRUE	2.00	TRUE	2.00
18:22	2.12	2.12	TRUE	2.12	TRUE	2.12
18:24	1.97	1.97	TRUE	1.97	TRUE	1.97
18:26	2.30	2.30	TRUE	2.30	TRUE	2.30
18:28	2.33	2.33	TRUE	2.33	TRUE	2.33
18:35	7.12		FALSE			
18:37	2.13	2.13	TRUE	2.13	TRUE	2.13
18:40	2.43	2.43	TRUE	2.43	TRUE	2.43
19:02	22.15		FALSE			
19:03	0.90	0.90	TRUE	0.90	FALSE	

COUNT		158.00	139.00		118.00	103.00
AVERAGE		3.28	1.99		2.11	2.09
MEDIAN		2.04	1.98		2.03	2.05
MIN		0.00	0.00		0.87	1.52
MAX		48.80	9.15		5.05	2.90

TOTAL ADDITIONAL MOVEMENT TIME ⁵	108.30	min
	1.81	hrs

1. Jay Cashman, Inc. daily activity summary and daily movement logs were used to remove ClamVision© data that corresponded to non-dredge times.

2. Ranges selected based on Jay Cashman, Inc video logs and typical environmental dredging cycles.

3. Typical cycle time range on average includes 90% of the data. Refer to Figure F-1.

4. Non-effective working time and lost time as determined by Jay Cashman, Inc. daily activity logs.

5. Additional non-effective working time (equipment movement) as determined using Jay Cashman, Inc. daily movement logs.

hrs= hours
min= minutes

Appendix F: Cycle Time Evaluation
December 6, 2005 before 1735

Time	Time between Readings (min)	Data screened for effective working times (min) ¹	Check if time is >0.75 and <5.5 min ²	Data screened for unrealistic cycle times (min)	Check if time is >1.5 and <3 min ³	Data screened for typical cycle times (min)
9:17:28 AM						
9:17:45 AM	0.28	0.28	FALSE			
9:23:01 AM	5.27		TRUE	5.27	FALSE	
9:24:21 AM	1.33	1.33	TRUE	1.33	FALSE	
9:26:05 AM	1.73	1.73	TRUE	1.73	TRUE	1.73
9:29:04 AM	2.98	2.98	TRUE	2.98	TRUE	2.98
9:31:13 AM	2.15	2.15	TRUE	2.15	TRUE	2.15
9:33:44 AM	2.52	2.52	TRUE	2.52	TRUE	2.52
9:36:14 AM	2.50	2.50	TRUE	2.50	TRUE	2.50
9:38:29 AM	2.25	2.25	TRUE	2.25	TRUE	2.25
9:41:48 AM	3.32	3.32	TRUE	3.32	FALSE	
9:44:02 AM	2.23	2.23	TRUE	2.23	TRUE	2.23
9:50:14 AM	6.20	6.20	FALSE			
9:51:33 AM	1.32	1.32	TRUE	1.32	FALSE	
9:51:50 AM	0.28	0.28	FALSE			
9:52:07 AM	0.28	0.28	FALSE			
9:54:12 AM	2.08	2.08	TRUE	2.08	TRUE	2.08
9:57:09 AM	2.95	2.95	TRUE	2.95	TRUE	2.95
9:59:50 AM	2.68	2.68	TRUE	2.68	TRUE	2.68
10:01:56 AM	2.10	2.10	TRUE	2.10	TRUE	2.10
10:04:34 AM	2.63	2.63	TRUE	2.63	TRUE	2.63
10:04:51 AM	0.28	0.28	FALSE			
10:08:13 AM	3.37	3.37	TRUE	3.37	FALSE	
10:10:01 AM	1.80	1.80	TRUE	1.80	TRUE	1.80
10:12:24 AM	2.38	2.38	TRUE	2.38	TRUE	2.38
10:14:23 AM	1.98	1.98	TRUE	1.98	TRUE	1.98
10:16:17 AM	1.90	1.90	TRUE	1.90	TRUE	1.90
10:18:54 AM	2.62	2.62	TRUE	2.62	TRUE	2.62
10:22:09 AM	3.25	3.25	TRUE	3.25	FALSE	
12:09:42 PM	107.55		FALSE			
12:10:50 PM	1.13	1.13	TRUE	1.13	FALSE	
12:11:10 PM	0.33	0.33	FALSE			
12:11:19 PM	0.15	0.15	FALSE			
12:13:29 PM	2.17	2.17	TRUE	2.17	TRUE	2.17
12:23:53 PM	10.40		FALSE			
1:01:49 PM	37.93		FALSE			
1:04:14 PM	2.42	2.42	TRUE	2.42	TRUE	2.42
1:06:23 PM	2.15	2.15	TRUE	2.15	TRUE	2.15
1:08:22 PM	1.98	1.98	TRUE	1.98	TRUE	1.98
1:10:38 PM	2.27	2.27	TRUE	2.27	TRUE	2.27
1:12:44 PM	2.10	2.10	TRUE	2.10	TRUE	2.10
1:14:54 PM	2.17	2.17	TRUE	2.17	TRUE	2.17
1:22:35 PM	7.68		FALSE			
1:24:43 PM	2.13	2.13	TRUE	2.13	TRUE	2.13
1:27:07 PM	2.40	2.40	TRUE	2.40	TRUE	2.40
1:29:11 PM	2.07	2.07	TRUE	2.07	TRUE	2.07
1:31:13 PM	2.03	2.03	TRUE	2.03	TRUE	2.03
1:32:55 PM	1.70	1.70	TRUE	1.70	TRUE	1.70
1:35:28 PM	2.55	2.55	TRUE	2.55	TRUE	2.55
1:37:46 PM	2.30	2.30	TRUE	2.30	TRUE	2.30
1:42:17 PM	4.52	4.52	TRUE	4.52	FALSE	
1:44:34 PM	2.28	2.28	TRUE	2.28	TRUE	2.28
1:46:34 PM	2.00	2.00	TRUE	2.00	TRUE	2.00
1:48:34 PM	2.00	2.00	TRUE	2.00	TRUE	2.00
1:48:38 PM	0.07	0.07	FALSE			
1:55:56 PM	7.30		FALSE			
1:58:08 PM	2.20	2.20	TRUE	2.20	TRUE	2.20
2:00:37 PM	2.48	2.48	TRUE	2.48	TRUE	2.48
2:02:42 PM	2.08	2.08	TRUE	2.08	TRUE	2.08
2:04:52 PM	2.17	2.17	TRUE	2.17	TRUE	2.17
2:07:01 PM	2.15	2.15	TRUE	2.15	TRUE	2.15
2:09:43 PM	2.70	2.70	TRUE	2.70	TRUE	2.70
2:11:49 PM	2.10	2.10	TRUE	2.10	TRUE	2.10
2:13:53 PM	2.07	2.07	TRUE	2.07	TRUE	2.07
2:15:54 PM	2.02	2.02	TRUE	2.02	TRUE	2.02
2:22:14 PM	6.33		FALSE			
2:24:37 PM	2.38	2.38	TRUE	2.38	TRUE	2.38
2:26:54 PM	2.28	2.28	TRUE	2.28	TRUE	2.28
2:29:22 PM	2.47	2.47	TRUE	2.47	TRUE	2.47
2:31:24 PM	2.03	2.03	TRUE	2.03	TRUE	2.03
2:33:35 PM	2.18	2.18	TRUE	2.18	TRUE	2.18
2:35:11 PM	1.60	1.60	TRUE	1.60	TRUE	1.60
2:37:28 PM	2.28	2.28	TRUE	2.28	TRUE	2.28
2:39:21 PM	1.88	1.88	TRUE	1.88	TRUE	1.88
2:39:24 PM	0.05	0.05	FALSE			
2:41:22 PM	1.97	1.97	TRUE	1.97	TRUE	1.97
2:42:03 PM	0.68	0.68	FALSE			
2:42:06 PM	0.05	0.05	FALSE			
2:44:17 PM	2.18	2.18	TRUE	2.18	TRUE	2.18
2:46:35 PM	2.30	2.30	TRUE	2.30	TRUE	2.30
2:48:32 PM	1.95	1.95	TRUE	1.95	TRUE	1.95
2:50:29 PM	1.95	1.95	TRUE	1.95	TRUE	1.95
2:52:22 PM	1.88	1.88	TRUE	1.88	TRUE	1.88
2:59:40 PM	7.30		FALSE			
3:01:55 PM	2.25	2.25	TRUE	2.25	TRUE	2.25
3:04:07 PM	2.20	2.20	TRUE	2.20	TRUE	2.20
3:06:44 PM	2.62	2.62	TRUE	2.62	TRUE	2.62
3:08:50 PM	2.10	2.10	TRUE	2.10	TRUE	2.10
3:11:06 PM	2.27	2.27	TRUE	2.27	TRUE	2.27
3:13:05 PM	1.98	1.98	TRUE	1.98	TRUE	1.98
3:15:25 PM	2.33	2.33	TRUE	2.33	TRUE	2.33
3:17:29 PM	2.07	2.07	TRUE	2.07	TRUE	2.07

**Appendix F: Cycle Time Evaluation
December 6, 2005 before 1735**

Time	Time between Readings (min)	Data screened for effective working times (min) ¹	Check if time is >0.75 and <5.5 min ²	Data screened for unrealistic cycle times (min)	Check if time is >1.5 and <3 min ³	Data screened for typical cycle times (min)
3:19:57 PM	2.47	2.47	TRUE	2.47	TRUE	2.47
3:30:12 PM	10.25		FALSE			
3:32:30 PM	2.30	2.30	TRUE	2.30	TRUE	2.30
3:35:38 PM	3.13	3.13	TRUE	3.13	FALSE	
3:37:44 PM	2.10	2.10	TRUE	2.10	TRUE	2.10
3:40:55 PM	3.18	3.18	TRUE	3.18	FALSE	
3:43:09 PM	2.23	2.23	TRUE	2.23	TRUE	2.23
3:45:22 PM	2.22	2.22	TRUE	2.22	TRUE	2.22
3:45:30 PM	0.13	0.13	FALSE			
3:45:33 PM	0.05	0.05	FALSE			
3:47:32 PM	1.98	1.98	TRUE	1.98	TRUE	1.98
3:49:59 PM	2.45	2.45	TRUE	2.45	TRUE	2.45
3:52:17 PM	2.30	2.30	TRUE	2.30	TRUE	2.30
3:53:45 PM	1.47	1.47	TRUE	1.47	FALSE	
3:59:19 PM	5.57		FALSE			
4:01:47 PM	2.47	2.47	TRUE	2.47	TRUE	2.47
4:03:52 PM	2.08	2.08	TRUE	2.08	TRUE	2.08
4:05:50 PM	1.97	1.97	TRUE	1.97	TRUE	1.97
4:07:53 PM	2.05	2.05	TRUE	2.05	TRUE	2.05
4:09:42 PM	1.82	1.82	TRUE	1.82	TRUE	1.82
4:11:01 PM	1.32	1.32	TRUE	1.32	FALSE	
4:13:11 PM	2.17	2.17	TRUE	2.17	TRUE	2.17
4:15:09 PM	1.97	1.97	TRUE	1.97	TRUE	1.97
4:17:18 PM	2.15	2.15	TRUE	2.15	TRUE	2.15
4:19:17 PM	1.98	1.98	TRUE	1.98	TRUE	1.98

COUNT	116.00	106.00		94.00		82.00
AVERAGE	3.64	2.04		2.26		2.20
MEDIAN	2.17	2.14		2.17		2.17
MIN	0.05	0.05		1.13		1.60
MAX	107.55	6.20		5.27		2.98

TOTAL ADDITIONAL MOVEMENT TIME ⁵	49.70	min
	0.83	hrs

1. Jay Cashman, Inc. daily activity summary and daily movement logs were used to remove ClamVision© data that corresponded to non-dredge times.
2. Ranges selected based on Jay Cashman, Inc video logs and ty
3. Typical cycle time range on average includes 90% of the data. Refer to Figure F-2.
4. Non-effective working time and lost time as determined by Jay Cashman, Inc. daily activity logs.
5. Additional non-effective working time (equipment movement) as determined using Jay Cashman, Inc. daily movement logs.

hrs= hours
min= minutes

Appendix F: Cycle Time Evaluation
December 6, 2005 after 1735

Time	Time between Readings (min)	Data screened for effective working times (min) ¹	Check if time is >0.75 and <5.5 min ²	Data screened for unrealistic cycle times (min)	Check if time is >1.5 and <3 min ³	Data screened for typical cycle times (min)
5:37:47 PM						
5:39:19 PM	1.53	1.53	TRUE	1.53	TRUE	1.53
5:41:30 PM	2.18	2.18	TRUE	2.18	FALSE	
5:42:55 PM	1.42	1.42	TRUE	1.42	TRUE	1.42
5:43:33 PM	0.63	0.63	FALSE			
5:43:38 PM	0.08	0.08	FALSE			
5:44:34 PM	0.93	0.93	TRUE	0.93	TRUE	0.93
5:46:26 PM	1.87	1.87	TRUE	1.87	TRUE	1.87
5:48:11 PM	1.75	1.75	TRUE	1.75	TRUE	1.75
5:50:15 PM	2.07	2.07	TRUE	2.07	FALSE	
5:53:16 PM	3.02	3.02	TRUE	3.02	FALSE	
5:54:30 PM	1.23	1.23	TRUE	1.23	TRUE	1.23
5:55:27 PM	0.95	0.95	TRUE	0.95	TRUE	0.95
5:56:33 PM	1.10	1.10	TRUE	1.10	TRUE	1.10
6:06:45 PM	10.20		FALSE			
6:08:05 PM	1.33	1.33	TRUE	1.33	TRUE	1.33
6:09:08 PM	1.05	1.05	TRUE	1.05	TRUE	1.05
6:10:05 PM	0.95	0.95	TRUE	0.95	TRUE	0.95
6:11:11 PM	1.10	1.10	TRUE	1.10	TRUE	1.10
6:11:13 PM	0.03	0.03	FALSE			
6:12:15 PM	1.03	1.03	TRUE	1.03	TRUE	1.03
6:12:19 PM	0.07	0.07	FALSE			
6:12:30 PM	0.18	0.18	FALSE			
6:13:54 PM	1.40	1.40	TRUE	1.40	TRUE	1.40
6:13:55 PM	0.02	0.02	FALSE			
6:15:04 PM	1.15	1.15	TRUE	1.15	TRUE	1.15
6:16:07 PM	1.05	1.05	TRUE	1.05	TRUE	1.05
6:16:08 PM	0.02	0.02	FALSE			
6:17:22 PM	1.23	1.23	TRUE	1.23	TRUE	1.23
6:18:34 PM	1.20	1.20	TRUE	1.20	TRUE	1.20
6:27:59 PM	9.42		FALSE			
6:29:08 PM	1.15	1.15	TRUE	1.15	TRUE	1.15
6:30:00 PM	0.87	0.87	TRUE	0.87	TRUE	0.87
6:31:00 PM	1.00	1.00	TRUE	1.00	TRUE	1.00
6:31:58 PM	0.97	0.97	TRUE	0.97	TRUE	0.97
6:32:04 PM	0.10	0.10	FALSE			
6:33:30 PM	1.43	1.43	TRUE	1.43	TRUE	1.43
6:33:32 PM	0.03	0.03	FALSE			
6:34:32 PM	1.00	1.00	TRUE	1.00	TRUE	1.00
6:35:36 PM	1.07	1.07	TRUE	1.07	TRUE	1.07
6:36:29 PM	0.88	0.88	TRUE	0.88	TRUE	0.88
6:36:44 PM	0.25	0.25	FALSE			
6:37:37 PM	0.88	0.88	TRUE	0.88	TRUE	0.88
6:41:09 PM	3.53	3.53	TRUE	3.53	FALSE	
6:42:50 PM	1.68	1.68	TRUE	1.68	TRUE	1.68
6:44:03 PM	1.22	1.22	TRUE	1.22	TRUE	1.22
6:45:06 PM	1.05	1.05	TRUE	1.05	TRUE	1.05
6:46:43 PM	1.62	1.62	TRUE	1.62	TRUE	1.62
6:47:48 PM	1.08	1.08	TRUE	1.08	TRUE	1.08
6:47:50 PM	0.03	0.03	FALSE			
6:48:53 PM	1.05	1.05	TRUE	1.05	TRUE	1.05

COUNT	50.00	48.00	37.00
AVERAGE	1.42	1.07	1.35
MEDIAN	1.06	1.05	1.15
MIN	0.02	0.02	0.87
MAX	10.20	3.53	3.53

TOTAL ADDITIONAL MOVEMENT TIME ⁵	19.62	min
	0.33	hrs

1. Jay Cashman, Inc. daily activity summary and daily movement logs were used to remove ClamVision© data that corresponded to non-dredge times.
2. Ranges selected based on Jay Cashman, Inc video logs and typical environmental dredging cycles.
3. Typical cycle time range on average includes 90% of the data. Refer to Figure F-3.
4. Non-effective working time and lost time as determined by Jay Cashman, Inc. daily activity logs.
5. Additional non-effective working time (equipment movement) as determined using Jay Cashman, Inc. daily movement logs.

hrs= hours
min= minutes

**Appendix F: Cycle Time Evaluation
December 6- All Day**

Time	Time between Readings (min)	Data screened for effective working times (min) ¹	Check if time is >0.75 and <5.5 min ²	Data screened for unrealistic cycle times (min)	Check if time is >1.5 and <3 min ³	Data screened for typical cycle times (min)
9:17:28 AM						
9:17:45 AM	0.28	0.28	FALSE			
9:23:01 AM	5.27		TRUE	5.27	FALSE	
9:24:21 AM	1.33	1.33	TRUE	1.33	TRUE	1.33
9:26:05 AM	1.73	1.73	TRUE	1.73	TRUE	1.73
9:29:04 AM	2.98	2.98	TRUE	2.98	FALSE	
9:31:13 AM	2.15	2.15	TRUE	2.15	TRUE	2.15
9:33:44 AM	2.52	2.52	TRUE	2.52	TRUE	2.52
9:36:14 AM	2.50	2.50	TRUE	2.50	TRUE	2.50
9:38:29 AM	2.25	2.25	TRUE	2.25	TRUE	2.25
9:41:48 AM	3.32	3.32	TRUE	3.32	FALSE	
9:44:02 AM	2.23	2.23	TRUE	2.23	TRUE	2.23
9:50:14 AM	6.20	6.20	FALSE			
9:51:33 AM	1.32	1.32	TRUE	1.32	TRUE	1.32
9:51:50 AM	0.28	0.28	FALSE			
9:52:07 AM	0.28	0.28	FALSE			
9:54:12 AM	2.08	2.08	TRUE	2.08	TRUE	2.08
9:57:09 AM	2.95	2.95	TRUE	2.95	FALSE	
9:59:50 AM	2.68	2.68	TRUE	2.68	TRUE	2.68
10:01:56 AM	2.10	2.10	TRUE	2.10	TRUE	2.10
10:04:34 AM	2.63	2.63	TRUE	2.63	TRUE	2.63
10:04:51 AM	0.28	0.28	FALSE			
10:08:13 AM	3.37	3.37	TRUE	3.37	FALSE	
10:10:01 AM	1.80	1.80	TRUE	1.80	TRUE	1.80
10:12:24 AM	2.38	2.38	TRUE	2.38	TRUE	2.38
10:14:23 AM	1.98	1.98	TRUE	1.98	TRUE	1.98
10:16:17 AM	1.90	1.90	TRUE	1.90	TRUE	1.90
10:18:54 AM	2.62	2.62	TRUE	2.62	TRUE	2.62
10:22:09 AM	3.25	3.25	TRUE	3.25	FALSE	
12:09:42 PM	107.55		FALSE			
12:10:50 PM	1.13	1.13	TRUE	1.13	TRUE	1.13
12:11:10 PM	0.33	0.33	FALSE			
12:11:19 PM	0.15	0.15	FALSE			
12:13:29 PM	2.17	2.17	TRUE	2.17	TRUE	2.17
12:23:53 PM	10.40		FALSE			
1:01:49 PM	37.93		FALSE			
1:04:14 PM	2.42	2.42	TRUE	2.42	TRUE	2.42
1:06:23 PM	2.15	2.15	TRUE	2.15	TRUE	2.15
1:08:22 PM	1.98	1.98	TRUE	1.98	TRUE	1.98
1:10:38 PM	2.27	2.27	TRUE	2.27	TRUE	2.27
1:12:44 PM	2.10	2.10	TRUE	2.10	TRUE	2.10
1:14:54 PM	2.17	2.17	TRUE	2.17	TRUE	2.17
1:22:35 PM	7.68		FALSE			
1:24:43 PM	2.13	2.13	TRUE	2.13	TRUE	2.13
1:27:07 PM	2.40	2.40	TRUE	2.40	TRUE	2.40
1:29:11 PM	2.07	2.07	TRUE	2.07	TRUE	2.07
1:31:13 PM	2.03	2.03	TRUE	2.03	TRUE	2.03
1:32:55 PM	1.70	1.70	TRUE	1.70	TRUE	1.70
1:35:28 PM	2.55	2.55	TRUE	2.55	TRUE	2.55
1:37:46 PM	2.30	2.30	TRUE	2.30	TRUE	2.30
1:42:17 PM	4.52	4.52	TRUE	4.52	FALSE	
1:44:34 PM	2.28	2.28	TRUE	2.28	TRUE	2.28
1:46:34 PM	2.00	2.00	TRUE	2.00	TRUE	2.00
1:48:34 PM	2.00	2.00	TRUE	2.00	TRUE	2.00
1:48:38 PM	0.07	0.07	FALSE			
1:55:56 PM	7.30		FALSE			
1:58:08 PM	2.20	2.20	TRUE	2.20	TRUE	2.20
2:00:37 PM	2.48	2.48	TRUE	2.48	TRUE	2.48
2:02:42 PM	2.08	2.08	TRUE	2.08	TRUE	2.08
2:04:52 PM	2.17	2.17	TRUE	2.17	TRUE	2.17
2:07:01 PM	2.15	2.15	TRUE	2.15	TRUE	2.15
2:09:43 PM	2.70	2.70	TRUE	2.70	TRUE	2.70
2:11:49 PM	2.10	2.10	TRUE	2.10	TRUE	2.10
2:13:53 PM	2.07	2.07	TRUE	2.07	TRUE	2.07
2:15:54 PM	2.02	2.02	TRUE	2.02	TRUE	2.02
2:22:14 PM	6.33		FALSE			
2:24:37 PM	2.38	2.38	TRUE	2.38	TRUE	2.38
2:26:54 PM	2.28	2.28	TRUE	2.28	TRUE	2.28
2:29:22 PM	2.47	2.47	TRUE	2.47	TRUE	2.47
2:31:24 PM	2.03	2.03	TRUE	2.03	TRUE	2.03
2:33:35 PM	2.18	2.18	TRUE	2.18	TRUE	2.18
2:35:11 PM	1.60	1.60	TRUE	1.60	TRUE	1.60
2:37:28 PM	2.28	2.28	TRUE	2.28	TRUE	2.28
2:39:21 PM	1.88	1.88	TRUE	1.88	TRUE	1.88
2:39:24 PM	0.05	0.05	FALSE			
2:41:22 PM	1.97	1.97	TRUE	1.97	TRUE	1.97
2:42:03 PM	0.68	0.68	FALSE			
2:42:06 PM	0.05	0.05	FALSE			
2:44:17 PM	2.18	2.18	TRUE	2.18	TRUE	2.18
2:46:35 PM	2.30	2.30	TRUE	2.30	TRUE	2.30
2:48:32 PM	1.95	1.95	TRUE	1.95	TRUE	1.95
2:50:29 PM	1.95	1.95	TRUE	1.95	TRUE	1.95
2:52:22 PM	1.88	1.88	TRUE	1.88	TRUE	1.88

**Appendix F: Cycle Time Evaluation
December 6- All Day**

Time	Time between Readings (min)	Data screened for effective working times (min)¹	Check if time is >0.75 and <5.5 min²	Data screened for unrealistic cycle times (min)	Check if time is >1.5 and <3 min³	Data screened for typical cycle times (min)
2:59:40 PM	7.30		FALSE			
3:01:55 PM	2.25	2.25	TRUE	2.25	TRUE	2.25
3:04:07 PM	2.20	2.20	TRUE	2.20	TRUE	2.20
3:06:44 PM	2.62	2.62	TRUE	2.62	TRUE	2.62
3:08:50 PM	2.10	2.10	TRUE	2.10	TRUE	2.10
3:11:06 PM	2.27	2.27	TRUE	2.27	TRUE	2.27
3:13:05 PM	1.98	1.98	TRUE	1.98	TRUE	1.98
3:15:25 PM	2.33	2.33	TRUE	2.33	TRUE	2.33
3:17:29 PM	2.07	2.07	TRUE	2.07	TRUE	2.07
3:19:57 PM	2.47	2.47	TRUE	2.47	TRUE	2.47
3:30:12 PM	10.25		FALSE			
3:32:30 PM	2.30	2.30	TRUE	2.30	TRUE	2.30
3:35:38 PM	3.13	3.13	TRUE	3.13	FALSE	
3:37:44 PM	2.10	2.10	TRUE	2.10	TRUE	2.10
3:40:55 PM	3.18	3.18	TRUE	3.18	FALSE	
3:43:09 PM	2.23	2.23	TRUE	2.23	TRUE	2.23
3:45:22 PM	2.22	2.22	TRUE	2.22	TRUE	2.22
3:45:30 PM	0.13	0.13	FALSE			
3:45:33 PM	0.05	0.05	FALSE			
3:47:32 PM	1.98	1.98	TRUE	1.98	TRUE	1.98
3:49:59 PM	2.45	2.45	TRUE	2.45	TRUE	2.45
3:52:17 PM	2.30	2.30	TRUE	2.30	TRUE	2.30
3:53:45 PM	1.47	1.47	TRUE	1.47	TRUE	1.47
3:59:19 PM	5.57		FALSE			
4:01:47 PM	2.47	2.47	TRUE	2.47	TRUE	2.47
4:03:52 PM	2.08	2.08	TRUE	2.08	TRUE	2.08
4:05:50 PM	1.97	1.97	TRUE	1.97	TRUE	1.97
4:07:53 PM	2.05	2.05	TRUE	2.05	TRUE	2.05
4:09:42 PM	1.82	1.82	TRUE	1.82	TRUE	1.82
4:11:01 PM	1.32	1.32	TRUE	1.32	TRUE	1.32
4:13:11 PM	2.17	2.17	TRUE	2.17	TRUE	2.17
4:15:09 PM	1.97	1.97	TRUE	1.97	TRUE	1.97
4:17:18 PM	2.15	2.15	TRUE	2.15	TRUE	2.15
4:19:17 PM	1.98	1.98	TRUE	1.98	TRUE	1.98
5:37:47 PM	78.50		FALSE			
5:39:19 PM	1.53	1.53	TRUE	1.53	TRUE	1.53
5:41:30 PM	2.18	2.18	TRUE	2.18	TRUE	2.18
5:42:55 PM	1.42	1.42	TRUE	1.42	TRUE	1.42
5:43:33 PM	0.63	0.63	FALSE			
5:43:38 PM	0.08	0.08	FALSE			
5:44:34 PM	0.93	0.93	TRUE	0.93	TRUE	0.93
5:46:26 PM	1.87	1.87	TRUE	1.87	TRUE	1.87
5:48:11 PM	1.75	1.75	TRUE	1.75	TRUE	1.75
5:50:15 PM	2.07	2.07	TRUE	2.07	TRUE	2.07
5:53:16 PM	3.02	3.02	TRUE	3.02	FALSE	
5:54:30 PM	1.23	1.23	TRUE	1.23	TRUE	1.23
5:55:27 PM	0.95	0.95	TRUE	0.95	TRUE	0.95
5:56:33 PM	1.10	1.10	TRUE	1.10	TRUE	1.10
6:06:45 PM	10.20		FALSE			
6:08:05 PM	1.33	1.33	TRUE	1.33	TRUE	1.33
6:09:08 PM	1.05	1.05	TRUE	1.05	TRUE	1.05
6:10:05 PM	0.95	0.95	TRUE	0.95	TRUE	0.95
6:11:11 PM	1.10	1.10	TRUE	1.10	TRUE	1.10
6:11:13 PM	0.03	0.03	FALSE			
6:12:15 PM	1.03	1.03	TRUE	1.03	TRUE	1.03
6:12:19 PM	0.07	0.07	FALSE			
6:12:30 PM	0.18	0.18	FALSE			
6:13:54 PM	1.40	1.40	TRUE	1.40	TRUE	1.40
6:13:55 PM	0.02	0.02	FALSE			
6:15:04 PM	1.15	1.15	TRUE	1.15	TRUE	1.15
6:16:07 PM	1.05	1.05	TRUE	1.05	TRUE	1.05
6:16:08 PM	0.02	0.02	FALSE			
6:17:22 PM	1.23	1.23	TRUE	1.23	TRUE	1.23
6:18:34 PM	1.20	1.20	TRUE	1.20	TRUE	1.20
6:27:59 PM	9.42		FALSE			
6:29:08 PM	1.15	1.15	TRUE	1.15	TRUE	1.15
6:30:00 PM	0.87	0.87	TRUE	0.87	TRUE	0.87
6:31:00 PM	1.00	1.00	TRUE	1.00	TRUE	1.00
6:31:58 PM	0.97	0.97	TRUE	0.97	TRUE	0.97
6:32:04 PM	0.10	0.10	FALSE			
6:33:30 PM	1.43	1.43	TRUE	1.43	TRUE	1.43
6:33:32 PM	0.03	0.03	FALSE			
6:34:32 PM	1.00	1.00	TRUE	1.00	TRUE	1.00
6:35:36 PM	1.07	1.07	TRUE	1.07	TRUE	1.07
6:36:29 PM	0.88	0.88	TRUE	0.88	TRUE	0.88
6:36:44 PM	0.25	0.25	FALSE			
6:37:37 PM	0.88	0.88	TRUE	0.88	TRUE	0.88
6:41:09 PM	3.53	3.53	TRUE	3.53	FALSE	
6:42:50 PM	1.68	1.68	TRUE	1.68	TRUE	1.68
6:44:03 PM	1.22	1.22	TRUE	1.22	TRUE	1.22
6:45:06 PM	1.05	1.05	TRUE	1.05	TRUE	1.05

**Appendix F: Cycle Time Evaluation
December 6- All Day**

Time	Time between Readings (min)	Data screened for effective working times (min) ¹	Check if time is >0.75 and <5.5 min ²	Data screened for unrealistic cycle times (min)	Check if time is >1.5 and <3 min ³	Data screened for typical cycle times (min)
6:46:43 PM	1.62	1.62	TRUE	1.62	TRUE	1.62
6:47:48 PM	1.08	1.08	TRUE	1.08	TRUE	1.08
6:47:50 PM	0.03	0.03	FALSE			
6:48:53 PM	1.05	1.05	TRUE	1.05	TRUE	1.05
COUNT		167.00	154.00		131.00	120.00
AVERAGE		3.42	1.74		2.01	1.87
MEDIAN		2.03	1.98		2.07	2.03
MIN		0.02	0.02		0.87	0.87
MAX		107.55	6.20		5.27	2.70

TOTAL ADDITIONAL MOVEMENT TIME ⁵	69.32	min
	1.16	hrs

1. Jay Cashman, Inc. daily activity summary and daily movement logs were used to remove ClamVision© data that corresponded to non-dredge times.

2. Ranges selected based on Jay Cashman, Inc video logs and typical environmental dredging cycles.

3. Typical cycle time range on average includes 90% of the data. Refer to Figure F-4.

4. Non-effective working time and lost time as determined by Jay Cashman, Inc. daily activity logs.

5. Additional non-effective working time (equipment movement) as determined using Jay Cashman, Inc. daily movement logs.

hrs= hours
min= minutes

Appendix F: Cycle Time Evaluation
December 7, 2005

Time	Time between Readings (min)	Data screened for effective working times (min) ¹	Check if time is >0.75 and <5.5 min ²	Data screened for unrealistic cycle times (min)	Check if time is >1.5 and <3 min ³	Data screened for typical cycle times (min)
7:44:32 AM						
7:44:33 AM	0.02		FALSE			
7:44:34 AM	0.02		FALSE			
7:44:35 AM	0.02		FALSE			
8:37:31 AM	52.93		FALSE			
8:41:11 AM	3.67	3.67	TRUE	3.67	FALSE	
8:44:43 AM	3.53	3.53	TRUE	3.53	FALSE	
8:47:29 AM	2.77	2.77	TRUE	2.77	TRUE	2.77
8:50:20 AM	2.85	2.85	TRUE	2.85	TRUE	2.85
8:54:10 AM	3.83	3.83	TRUE	3.83	FALSE	
8:57:51 AM	3.68	3.68	TRUE	3.68	FALSE	
9:00:29 AM	2.63	2.63	TRUE	2.63	TRUE	2.63
9:04:07 AM	3.63	3.63	TRUE	3.63	FALSE	
9:07:13 AM	3.10	3.10	TRUE	3.10	TRUE	3.10
9:09:51 AM	2.63	2.63	TRUE	2.63	TRUE	2.63
9:13:19 AM	3.47	3.47	TRUE	3.47	TRUE	3.47
9:17:18 AM	3.98	3.98	TRUE	3.98	FALSE	
9:20:36 AM	3.30	3.30	TRUE	3.30	TRUE	3.30
9:24:32 AM	3.93	3.93	TRUE	3.93	FALSE	
9:27:27 AM	2.92	2.92	TRUE	2.92	TRUE	2.92
9:30:37 AM	3.17	3.17	TRUE	3.17	TRUE	3.17
9:33:39 AM	3.03	3.03	TRUE	3.03	TRUE	3.03
9:36:20 AM	2.68	2.68	TRUE	2.68	TRUE	2.68
9:39:30 AM	3.17	3.17	TRUE	3.17	TRUE	3.17
9:42:38 AM	3.13	3.13	TRUE	3.13	TRUE	3.13
9:45:25 AM	2.78	2.78	TRUE	2.78	TRUE	2.78
9:48:27 AM	3.03	3.03	TRUE	3.03	TRUE	3.03
9:48:31 AM	0.07	0.07	FALSE			
9:51:32 AM	3.02	3.02	TRUE	3.02	TRUE	3.02
9:51:58 AM	0.43	0.43	FALSE			
9:54:28 AM	2.50	2.50	TRUE	2.50	TRUE	2.50
9:57:51 AM	3.38	3.38	TRUE	3.38	TRUE	3.38
10:02:34 AM	4.72	4.72	TRUE	4.72	FALSE	
10:03:02 AM	0.47	0.47	FALSE			
10:06:12 AM	3.17	3.17	TRUE	3.17	TRUE	3.17
10:06:45 AM	0.55	0.55	FALSE			
10:09:33 AM	2.80	2.80	TRUE	2.80	TRUE	2.80
10:12:10 AM	2.62	2.62	TRUE	2.62	TRUE	2.62
10:14:13 AM	2.05	2.05	TRUE	2.05	TRUE	2.05
10:17:11 AM	2.97	2.97	TRUE	2.97	TRUE	2.97
10:19:42 AM	2.52	2.52	TRUE	2.52	TRUE	2.52
10:22:08 AM	2.43	2.43	TRUE	2.43	TRUE	2.43
10:24:44 AM	2.60	2.60	TRUE	2.60	TRUE	2.60
10:47:18 AM	22.57		FALSE			
10:50:12 AM	2.90	2.90	TRUE	2.90	TRUE	2.90
10:50:13 AM	0.02	0.02	FALSE			
10:53:36 AM	3.38	3.38	TRUE	3.38	TRUE	3.38
10:56:18 AM	2.70	2.70	TRUE	2.70	TRUE	2.70
10:58:49 AM	2.52	2.52	TRUE	2.52	TRUE	2.52
11:01:16 AM	2.45	2.45	TRUE	2.45	TRUE	2.45
11:04:18 AM	3.03	3.03	TRUE	3.03	TRUE	3.03
11:06:49 AM	2.52	2.52	TRUE	2.52	TRUE	2.52
11:09:48 AM	2.98	2.98	TRUE	2.98	TRUE	2.98
11:12:34 AM	2.77	2.77	TRUE	2.77	TRUE	2.77
11:15:23 AM	2.82	2.82	TRUE	2.82	TRUE	2.82
11:18:32 AM	3.15	3.15	TRUE	3.15	TRUE	3.15
11:20:58 AM	2.43	2.43	TRUE	2.43	TRUE	2.43
11:24:05 AM	3.12	3.12	TRUE	3.12	TRUE	3.12
11:27:58 AM	3.88	3.88	TRUE	3.88	FALSE	
11:30:49 AM	2.85	2.85	TRUE	2.85	TRUE	2.85
11:34:10 AM	3.35	3.35	TRUE	3.35	TRUE	3.35
11:36:52 AM	2.70	2.70	TRUE	2.70	TRUE	2.70
11:39:55 AM	3.05	3.05	TRUE	3.05	TRUE	3.05
11:42:51 AM	2.93	2.93	TRUE	2.93	TRUE	2.93
11:45:41 AM	2.83	2.83	TRUE	2.83	TRUE	2.83
11:49:08 AM	3.45	3.45	TRUE	3.45	TRUE	3.45
11:49:12 AM	0.07	0.07	FALSE			
11:51:55 AM	2.72	2.72	TRUE	2.72	TRUE	2.72
11:54:39 AM	2.73	2.73	TRUE	2.73	TRUE	2.73
11:57:01 AM	2.37	2.37	TRUE	2.37	TRUE	2.37
12:00:24 PM	3.38	3.38	TRUE	3.38	TRUE	3.38
12:05:10 PM	4.77	4.77	TRUE	4.77	FALSE	
12:05:41 PM	0.52	0.52	FALSE			
12:05:42 PM	0.02	0.02	FALSE			
12:05:43 PM	0.02	0.02	FALSE			
12:05:45 PM	0.03	0.03	FALSE			
12:14:22 PM	8.62	8.62	FALSE			
12:28:41 PM	14.32		FALSE			
12:31:36 PM	2.92	2.92	TRUE	2.92	TRUE	2.92
12:34:02 PM	2.43	2.43	TRUE	2.43	TRUE	2.43
12:36:19 PM	2.28	2.28	TRUE	2.28	TRUE	2.28
12:39:14 PM	2.92	2.92	TRUE	2.92	TRUE	2.92
12:42:10 PM	2.93	2.93	TRUE	2.93	TRUE	2.93
12:44:42 PM	2.53	2.53	TRUE	2.53	TRUE	2.53
12:47:22 PM	2.67	2.67	TRUE	2.67	TRUE	2.67
12:47:24 PM	0.03	0.03	FALSE			
12:49:33 PM	2.15	2.15	TRUE	2.15	TRUE	2.15
12:53:39 PM	4.10	4.10	TRUE	4.10	FALSE	
12:53:50 PM	0.18	0.18	FALSE			
1:00:06 PM	6.27	6.27	FALSE			
1:02:45 PM	2.65	2.65	TRUE	2.65	TRUE	2.65
1:04:54 PM	2.15	2.15	TRUE	2.15	TRUE	2.15
1:07:45 PM	2.85	2.85	TRUE	2.85	TRUE	2.85
1:09:21 PM	1.60	1.60	TRUE	1.60	FALSE	
1:11:34 PM	2.22	2.22	TRUE	2.22	TRUE	2.22
1:13:47 PM	2.22	2.22	TRUE	2.22	TRUE	2.22
1:13:48 PM	0.02	0.02	FALSE			
1:16:15 PM	2.45	2.45	TRUE	2.45	TRUE	2.45
1:18:41 PM	2.43	2.43	TRUE	2.43	TRUE	2.43
1:20:50 PM	2.15	2.15	TRUE	2.15	TRUE	2.15

**Appendix F: Cycle Time Evaluation
December 7, 2005**

Time	Time between Readings (min)	Data screened for effective working times (min)¹	Check if time is >0.75 and <5.5 min²	Data screened for unrealistic cycle times (min)	Check if time is >1.5 and <3 min³	Data screened for typical cycle times (min)
1:23:22 PM	2.53	2.53	TRUE	2.53	TRUE	2.53
1:25:40 PM	2.30	2.30	TRUE	2.30	TRUE	2.30
1:28:03 PM	2.38	2.38	TRUE	2.38	TRUE	2.38
1:30:44 PM	2.68	2.68	TRUE	2.68	TRUE	2.68
1:33:51 PM	3.12	3.12	TRUE	3.12	TRUE	3.12
1:36:14 PM	2.38	2.38	TRUE	2.38	TRUE	2.38
1:38:38 PM	2.40	2.40	TRUE	2.40	TRUE	2.40
1:41:17 PM	2.65	2.65	TRUE	2.65	TRUE	2.65
1:41:18 PM	0.02	0.02	FALSE			
2:18:31 PM	37.22		FALSE			
2:18:41 PM	0.17	0.17	FALSE			
2:21:50 PM	3.15	3.15	TRUE	3.15	TRUE	3.15
2:24:37 PM	2.78	2.78	TRUE	2.78	TRUE	2.78
2:26:52 PM	2.25	2.25	TRUE	2.25	TRUE	2.25
2:29:30 PM	2.63	2.63	TRUE	2.63	TRUE	2.63
2:31:42 PM	2.20	2.20	TRUE	2.20	TRUE	2.20
2:34:10 PM	2.47	2.47	TRUE	2.47	TRUE	2.47
2:36:13 PM	2.05	2.05	TRUE	2.05	TRUE	2.05
2:38:25 PM	2.20	2.20	TRUE	2.20	TRUE	2.20
2:41:39 PM	3.23	3.23	TRUE	3.23	TRUE	3.23
2:44:02 PM	2.38	2.38	TRUE	2.38	TRUE	2.38
2:45:55 PM	1.88	1.88	TRUE	1.88	FALSE	
2:48:07 PM	2.20	2.20	TRUE	2.20	TRUE	2.20
2:50:18 PM	2.18	2.18	TRUE	2.18	TRUE	2.18
2:51:21 PM	1.05	1.05	TRUE	1.05	FALSE	
2:53:29 PM	2.13	2.13	TRUE	2.13	TRUE	2.13
3:03:46 PM	10.28		FALSE			
3:06:55 PM	3.15	3.15	TRUE	3.15	TRUE	3.15
3:08:12 PM	1.28	1.28	TRUE	1.28	FALSE	
3:09:51 PM	1.65	1.65	TRUE	1.65	FALSE	
3:12:27 PM	2.60	2.60	TRUE	2.60	TRUE	2.60
3:15:07 PM	2.67	2.67	TRUE	2.67	TRUE	2.67
3:17:05 PM	1.97	1.97	TRUE	1.97	FALSE	
3:19:43 PM	2.63	2.63	TRUE	2.63	TRUE	2.63
3:21:15 PM	1.53	1.53	TRUE	1.53	FALSE	
3:23:21 PM	2.10	2.10	TRUE	2.10	TRUE	2.10
3:25:24 PM	2.05	2.05	TRUE	2.05	TRUE	2.05
3:27:11 PM	1.78	1.78	TRUE	1.78	FALSE	
3:29:18 PM	2.12	2.12	TRUE	2.12	TRUE	2.12
3:31:43 PM	2.42	2.42	TRUE	2.42	TRUE	2.42
3:34:13 PM	2.50	2.50	TRUE	2.50	TRUE	2.50
3:36:27 PM	2.23	2.23	TRUE	2.23	TRUE	2.23
3:38:29 PM	2.03	2.03	TRUE	2.03	TRUE	2.03

COUNT		142.00	134.00		117.00	98.00
AVERAGE		3.34	2.51		2.73	2.68
MEDIAN		2.63	2.63		2.67	2.66
MIN		0.02	0.02		1.05	2.03
MAX		52.93	8.62		4.77	3.47

TOTAL ADDITIONAL MOVEMENT TIME ⁵	84.38	min
	1.41	hrs

- Jay Cashman, Inc. daily activity summary and daily movement logs were used to remove ClamVision® data that corresponded to non-dredge times.
- Ranges selected based on Jay Cashman, Inc video logs and typical environmental dredging cycles.
- Typical cycle time range on average includes 90% of the data. Refer to Figure F-5.
- Non-effective working time and lost time as determined by Jay Cashman, Inc. daily activity logs.
- Additional non-effective working time (equipment movement) as determined using Jay Cashman, Inc. daily movement logs.

hrs= hours
min= minutes

Appendix F: Cycle Time Evaluation
December 8, 2005

Time	Time between Readings (min)	Data screened for effective working times (min) ¹	Check if time is >0.75 and <5.5 min ²	Data screened for unrealistic cycle times (min)	Check if time is >1.5 and <3 min ³	Data screened for typical cycle times (min)
6:44:58 AM						
6:44:58 AM	0.00		FALSE			
9:20:55 AM	155.95		FALSE			
9:21:05 AM	0.17	0.17	FALSE			
9:28:56 AM	7.85	7.85	FALSE			
9:32:09 AM	3.22	3.22	TRUE	3.22	TRUE	3.22
9:37:10 AM	5.02	5.02	TRUE	5.02	FALSE	
9:40:35 AM	3.42	3.42	TRUE	3.42	TRUE	3.42
9:43:53 AM	3.30	3.30	TRUE	3.30	TRUE	3.30
9:45:59 AM	2.10	2.10	TRUE	2.10	TRUE	2.10
9:48:55 AM	2.93	2.93	TRUE	2.93	TRUE	2.93
9:51:30 AM	2.58	2.58	TRUE	2.58	TRUE	2.58
9:54:00 AM	2.50	2.50	TRUE	2.50	TRUE	2.50
9:56:20 AM	2.33	2.33	TRUE	2.33	TRUE	2.33
9:58:29 AM	2.15	2.15	TRUE	2.15	TRUE	2.15
10:01:41 AM	3.20	3.20	TRUE	3.20	TRUE	3.20
10:04:37 AM	2.93	2.93	TRUE	2.93	TRUE	2.93
10:06:40 AM	2.05	2.05	TRUE	2.05	TRUE	2.05
10:08:57 AM	2.28	2.28	TRUE	2.28	TRUE	2.28
10:11:48 AM	2.85	2.85	TRUE	2.85	TRUE	2.85
10:14:45 AM	2.95	2.95	TRUE	2.95	TRUE	2.95
10:17:16 AM	2.52	2.52	TRUE	2.52	TRUE	2.52
10:19:41 AM	2.42	2.42	TRUE	2.42	TRUE	2.42
10:21:47 AM	2.10	2.10	TRUE	2.10	TRUE	2.10
10:25:23 AM	3.60	3.60	TRUE	3.60	FALSE	
10:28:11 AM	2.80	2.80	TRUE	2.80	TRUE	2.80
10:29:22 AM	1.18	1.18	TRUE	1.18	FALSE	
10:30:24 AM	1.03	1.03	TRUE	1.03	FALSE	
10:33:22 AM	2.97	2.97	TRUE	2.97	TRUE	2.97
10:36:40 AM	3.30	3.30	TRUE	3.30	TRUE	3.30
10:39:42 AM	3.03	3.03	TRUE	3.03	TRUE	3.03
10:42:43 AM	3.02	3.02	TRUE	3.02	TRUE	3.02
10:45:11 AM	2.47	2.47	TRUE	2.47	TRUE	2.47
10:48:34 AM	3.38	3.38	TRUE	3.38	TRUE	3.38
10:52:31 AM	3.95	3.95	TRUE	3.95	FALSE	
10:52:32 AM	0.02	0.02	FALSE			
10:55:34 AM	3.03	3.03	TRUE	3.03	TRUE	3.03
10:59:19 AM	3.75	3.75	TRUE	3.75	FALSE	
11:02:39 AM	3.33	3.33	TRUE	3.33	TRUE	3.33
11:06:00 AM	3.35	3.35	TRUE	3.35	TRUE	3.35
11:07:51 AM	1.85	1.85	TRUE	1.85	FALSE	
11:21:10 AM	13.32		FALSE			
11:23:58 AM	2.80	2.80	TRUE	2.80	TRUE	2.80
11:26:16 AM	2.30	2.30	TRUE	2.30	TRUE	2.30
11:28:55 AM	2.65	2.65	TRUE	2.65	TRUE	2.65
11:32:12 AM	3.28	3.28	TRUE	3.28	TRUE	3.28
11:35:19 AM	3.12	3.12	TRUE	3.12	TRUE	3.12
11:37:42 AM	2.38	2.38	TRUE	2.38	TRUE	2.38
11:40:42 AM	3.00	3.00	TRUE	3.00	TRUE	3.00
11:40:46 AM	0.07	0.07	FALSE			
11:43:21 AM	2.58	2.58	TRUE	2.58	TRUE	2.58
11:46:14 AM	2.88	2.88	TRUE	2.88	TRUE	2.88
11:48:54 AM	2.67	2.67	TRUE	2.67	TRUE	2.67
11:51:51 AM	2.95	2.95	TRUE	2.95	TRUE	2.95
11:54:47 AM	2.93	2.93	TRUE	2.93	TRUE	2.93
12:05:21 PM	10.57	10.57	FALSE			
12:08:01 PM	2.67	2.67	TRUE	2.67	TRUE	2.67
12:11:10 PM	3.15	3.15	TRUE	3.15	TRUE	3.15
12:14:19 PM	3.15	3.15	TRUE	3.15	TRUE	3.15
12:17:18 PM	2.98	2.98	TRUE	2.98	TRUE	2.98
12:21:34 PM	4.27	4.27	TRUE	4.27	FALSE	
12:21:36 PM	0.03	0.03	FALSE			
12:24:43 PM	3.12	3.12	TRUE	3.12	TRUE	3.12
12:28:05 PM	3.37	3.37	TRUE	3.37	TRUE	3.37
12:28:07 PM	0.03	0.03	FALSE			
12:31:17 PM	3.17	3.17	TRUE	3.17	TRUE	3.17
12:34:04 PM	2.78	2.78	TRUE	2.78	TRUE	2.78
12:37:04 PM	3.00	3.00	TRUE	3.00	TRUE	3.00
12:39:52 PM	2.80	2.80	TRUE	2.80	TRUE	2.80
12:40:46 PM	0.90	0.90	TRUE	0.90	FALSE	
12:43:19 PM	2.55	2.55	TRUE	2.55	TRUE	2.55
12:52:24 PM	9.08		FALSE			
12:57:42 PM	5.30	5.30	TRUE	5.30	FALSE	
12:57:57 PM	0.25	0.25	FALSE			
1:01:32 PM	3.58	3.58	TRUE	3.58	FALSE	
1:04:12 PM	2.67	2.67	TRUE	2.67	TRUE	2.67
1:06:41 PM	2.48	2.48	TRUE	2.48	TRUE	2.48
1:09:56 PM	3.25	3.25	TRUE	3.25	TRUE	3.25

**Appendix F: Cycle Time Evaluation
December 8, 2005**

Time	Time between Readings (min)	Data screened for effective working times (min)¹	Check if time is >0.75 and <5.5 min²	Data screened for unrealistic cycle times (min)	Check if time is >1.5 and <3 min³	Data screened for typical cycle times (min)
1:13:12 PM	3.27	3.27	TRUE	3.27	TRUE	3.27
1:15:54 PM	2.70	2.70	TRUE	2.70	TRUE	2.70
1:18:49 PM	2.92	2.92	TRUE	2.92	TRUE	2.92
1:22:01 PM	3.20	3.20	TRUE	3.20	TRUE	3.20
1:24:49 PM	2.80	2.80	TRUE	2.80	TRUE	2.80
1:24:51 PM	0.03	0.03	FALSE			
1:27:30 PM	2.65	2.65	TRUE	2.65	TRUE	2.65

COUNT		84.00	80.00		71.00	60.00
AVERAGE		4.79	2.80		2.89	2.85
MEDIAN		2.92	2.90		2.93	2.92
MIN		0.00	0.02		0.90	2.05
MAX		155.95	10.57		5.30	3.42

TOTAL ADDITIONAL MOVEMENT TIME ⁵	22.40	min
	0.37	hrs

1. Jay Cashman, Inc. daily activity summary and daily movement logs were used to remove ClamVision© data that corresponded to non-dredge times.
2. Ranges selected based on Jay Cashman, Inc video logs and typical environmental dredging cycles.
3. Typical cycle time range on average includes 90% of the data. Refer to Figure F-6.
4. Non-effective working time and lost time as determined by Jay Cashman, Inc. daily activity logs.
5. Additional non-effective working time (equipment movement) as determined using Jay Cashman, Inc. daily movement logs.

hrs= hours
min= minutes

Appendix F: Cycle Time Evaluation
December 10, 2005

Time	Time between Readings (min)	Data screened for effective working times (min) ¹	Check if time is >0.75 and <5.5 min ²	Data screened for unrealistic cycle times (min)	Check if time is >1.5 and <3 min ³	Data screened for typical cycle times (min)
12:51:04 PM	1.78	1.78	TRUE	1.78	TRUE	1.78
12:52:46 PM	1.70	1.70	TRUE	1.70	TRUE	1.70
12:54:38 PM	1.87	1.87	TRUE	1.87	TRUE	1.87
12:56:23 PM	1.75	1.75	TRUE	1.75	TRUE	1.75
12:58:06 PM	1.72	1.72	TRUE	1.72	TRUE	1.72
1:00:02 PM	1.93	1.93	TRUE	1.93	TRUE	1.93
1:01:48 PM	1.77	1.77	TRUE	1.77	TRUE	1.77
1:04:01 PM	2.22	2.22	TRUE	2.22	TRUE	2.22
1:04:04 PM	0.05	0.05	FALSE			
1:06:07 PM	2.05	2.05	TRUE	2.05	TRUE	2.05
1:07:57 PM	1.83	1.83	TRUE	1.83	TRUE	1.83
1:09:59 PM	2.03	2.03	TRUE	2.03	TRUE	2.03
1:21:31 PM	11.53		FALSE			
1:36:49 PM	15.30		FALSE			
1:39:04 PM	2.25	2.25	TRUE	2.25	TRUE	2.25
1:41:22 PM	2.30	2.30	TRUE	2.30	TRUE	2.30
1:43:28 PM	2.10	2.10	TRUE	2.10	TRUE	2.10
1:45:51 PM	2.38	2.38	TRUE	2.38	TRUE	2.38
1:47:56 PM	2.08	2.08	TRUE	2.08	TRUE	2.08
1:50:42 PM	2.77	2.77	TRUE	2.77	TRUE	2.77
1:53:05 PM	2.38	2.38	TRUE	2.38	TRUE	2.38
1:57:28 PM	4.38	4.38	TRUE	4.38	FALSE	
1:59:36 PM	2.13	2.13	TRUE	2.13	TRUE	2.13
2:01:44 PM	2.13	2.13	TRUE	2.13	TRUE	2.13
2:03:47 PM	2.05	2.05	TRUE	2.05	TRUE	2.05
2:06:51 PM	3.07	3.07	TRUE	3.07	TRUE	3.07
2:10:20 PM	3.48	3.48	TRUE	3.48	FALSE	
2:12:48 PM	2.47	2.47	TRUE	2.47	TRUE	2.47
2:12:49 PM	0.02	0.02	FALSE			
2:15:47 PM	2.97	2.97	TRUE	2.97	TRUE	2.97
2:18:38 PM	2.85	2.85	TRUE	2.85	TRUE	2.85
2:21:25 PM	2.78	2.78	TRUE	2.78	TRUE	2.78
2:23:46 PM	2.35	2.35	TRUE	2.35	TRUE	2.35
2:26:01 PM	2.25	2.25	TRUE	2.25	TRUE	2.25
2:28:02 PM	2.02	2.02	TRUE	2.02	TRUE	2.02
2:30:10 PM	2.13	2.13	TRUE	2.13	TRUE	2.13
2:33:53 PM	3.72	3.72	TRUE	3.72	FALSE	
2:36:12 PM	2.32	2.32	TRUE	2.32	TRUE	2.32
2:39:06 PM	2.90	2.90	TRUE	2.90	TRUE	2.90
2:40:51 PM	1.75	1.75	TRUE	1.75	TRUE	1.75
2:42:11 PM	1.33	1.33	TRUE	1.33	FALSE	
2:42:16 PM	0.08	0.08	FALSE			
2:44:03 PM	1.78	1.78	TRUE	1.78	TRUE	1.78
2:45:38 PM	1.58	1.58	TRUE	1.58	TRUE	1.58
2:47:34 PM	1.93	1.93	TRUE	1.93	TRUE	1.93
2:50:12 PM	2.63	2.63	TRUE	2.63	TRUE	2.63
2:52:31 PM	2.32	2.32	TRUE	2.32	TRUE	2.32
2:54:50 PM	2.32	2.32	TRUE	2.32	TRUE	2.32
2:56:59 PM	2.15	2.15	TRUE	2.15	TRUE	2.15
2:58:46 PM	1.78	1.78	TRUE	1.78	TRUE	1.78
3:01:30 PM	2.73	2.73	TRUE	2.73	TRUE	2.73
3:18:58 PM	17.47		FALSE			

COUNT		145.00	101.00		95.00	77.00
AVERAGE		3.13	2.64		2.57	2.38
MEDIAN		2.22	2.48		2.55	2.38
MIN		0.00	0.02		0.83	1.57
MAX		121.28	15.80		5.00	3.22

TOTAL ADDITIONAL MOVEMENT TIME ⁵	37.68	min
	0.63	hrs

1. Jay Cashman, Inc. daily activity summary and daily movement logs were used to remove ClamVision© data that corresponded to non-dredge times.

2. Ranges selected based on Jay Cashman, Inc video logs and typical environmental dredging cycles.

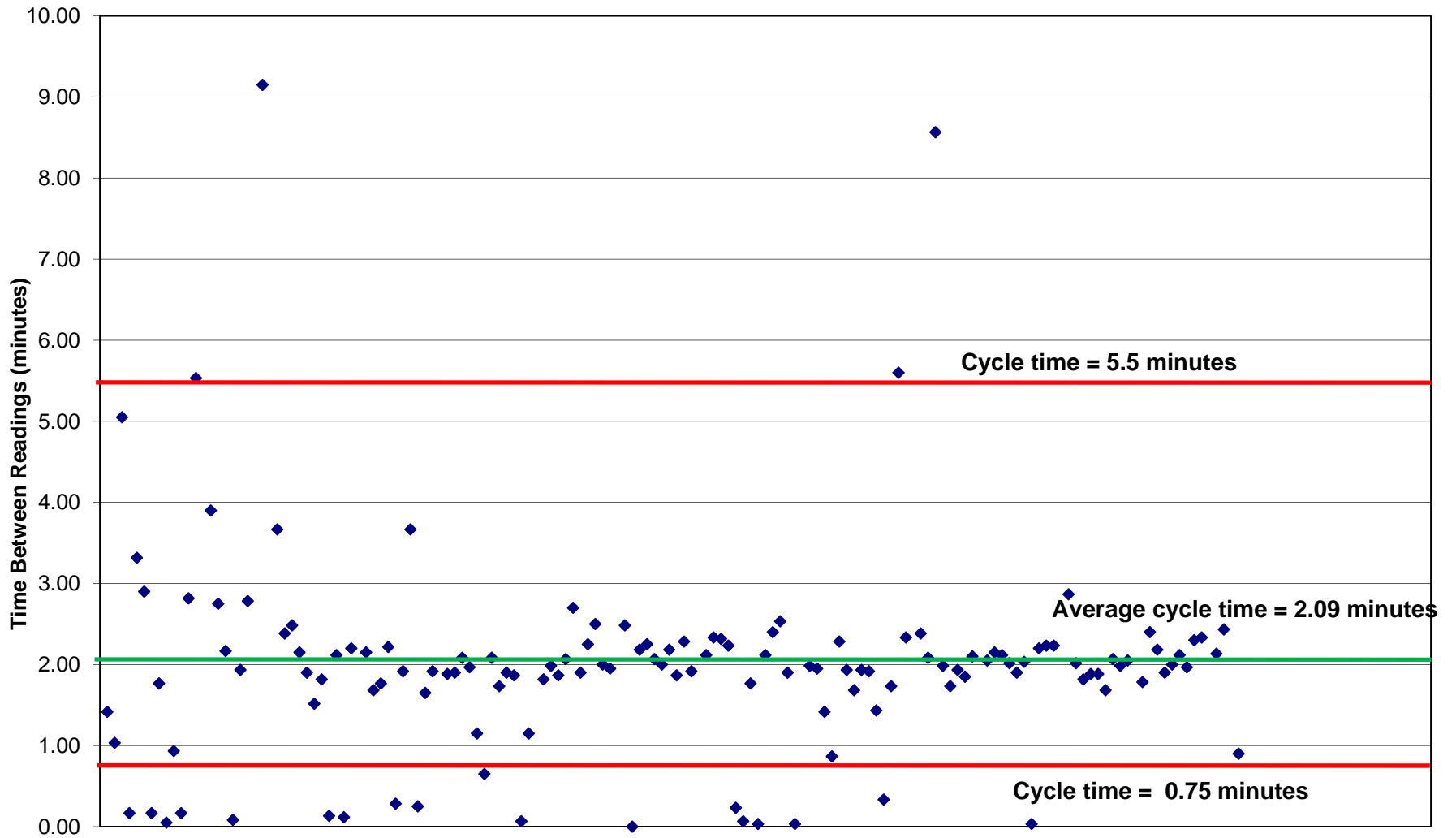
3. Typical cycle time range on average includes 90% of the data. Refer to Figure F-7.

4. Non-effective working time and lost time as determined by Jay Cashman, Inc. daily activity logs.

5. Additional non-effective working time (equipment movement) as determined using Jay Cashman, Inc. daily movement logs.

hrs= hours
min= minutes

December 5, 2005

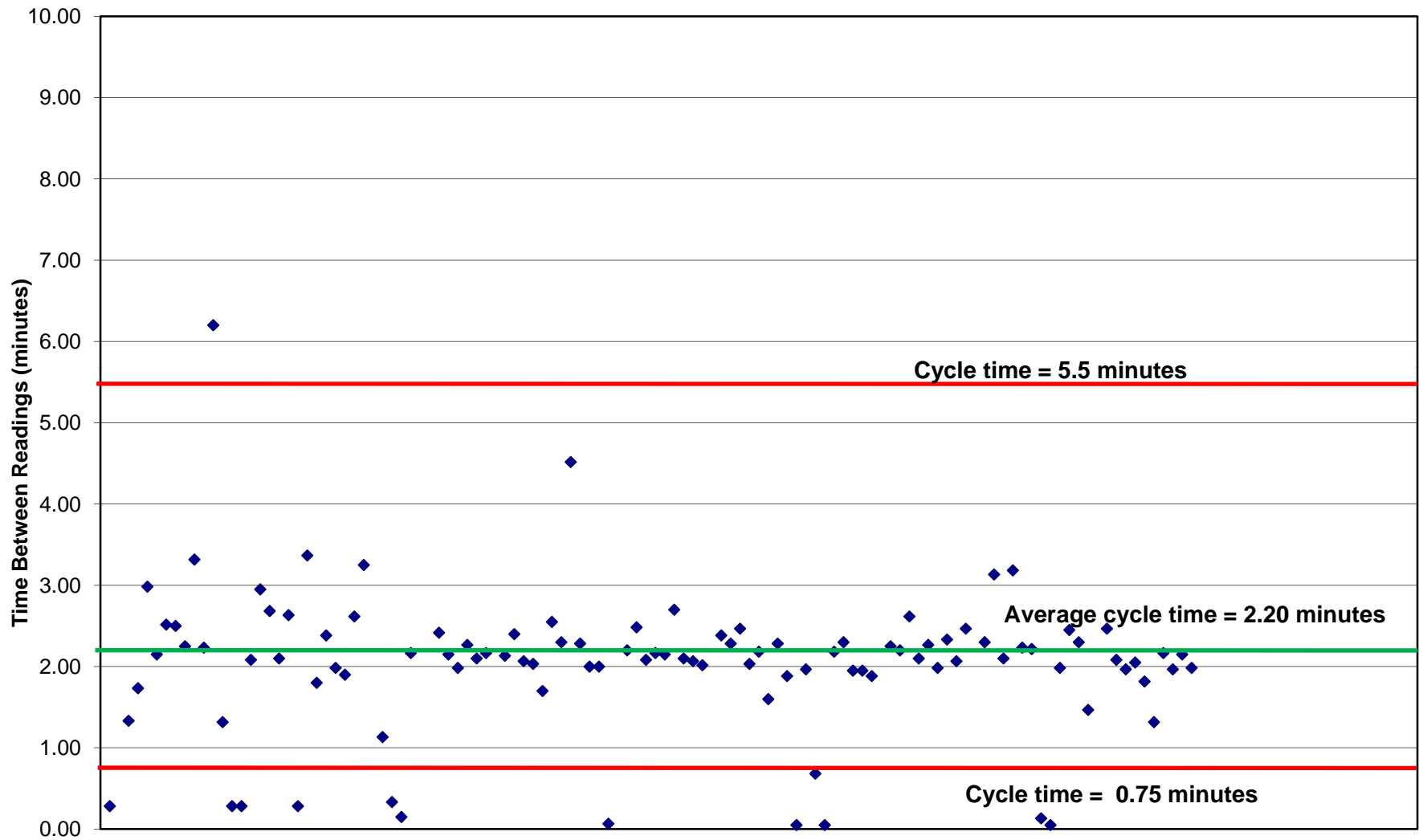


December 5, 2005 Cycle Time Data Range

Lower Passaic River Restoration Project

Figure F-1

December 6, 2005 before 1735

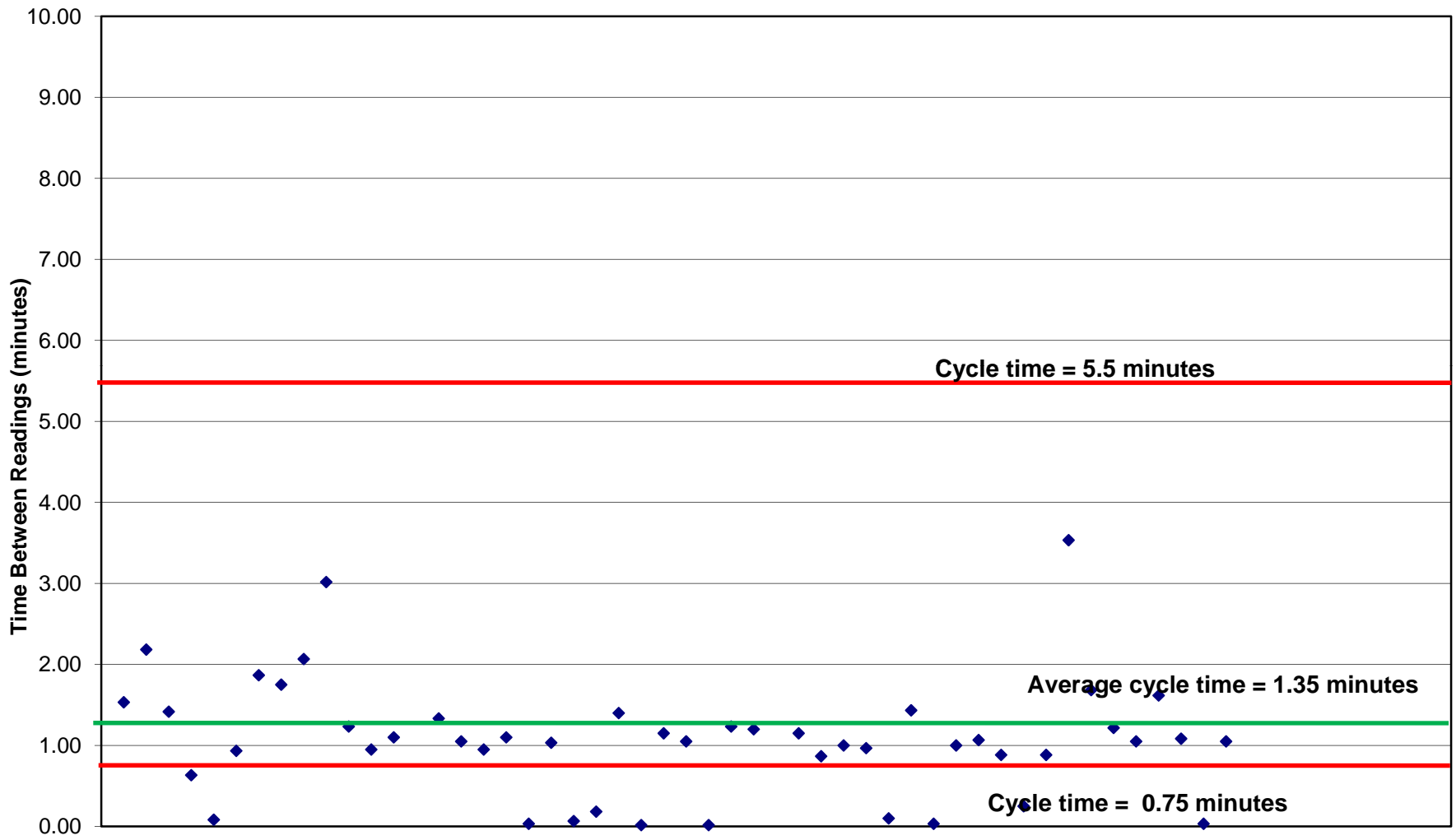


December 6, 2005 before 1735, Cycle Time Data Range

Lower Passaic River Restoration Project

Figure F-2

December 6, 2005 after 1735

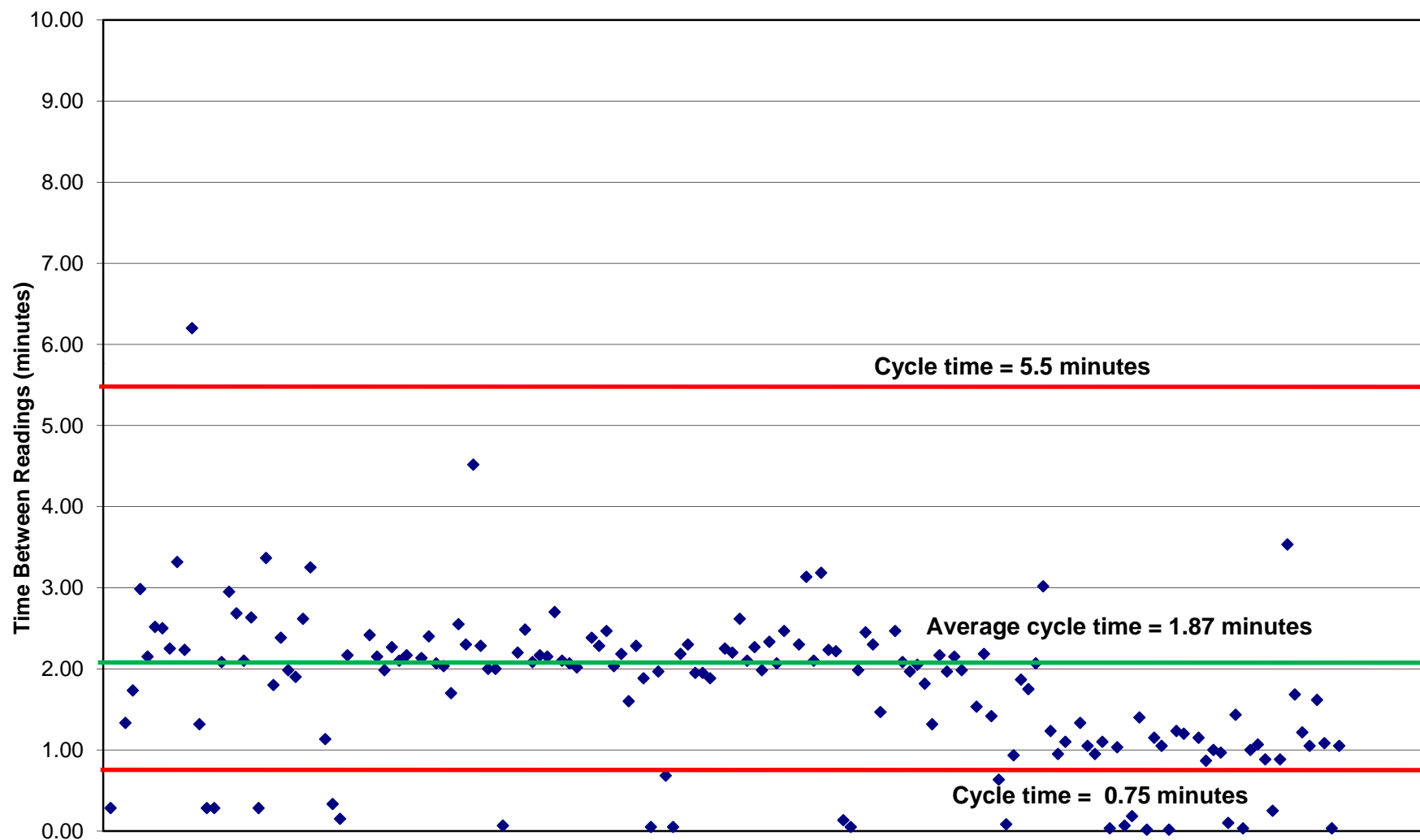


December 6, 2005 after 1735, Cycle Time Data Range

Lower Passaic River Restoration Project

Figure F-3

December 6, 2005 All Day

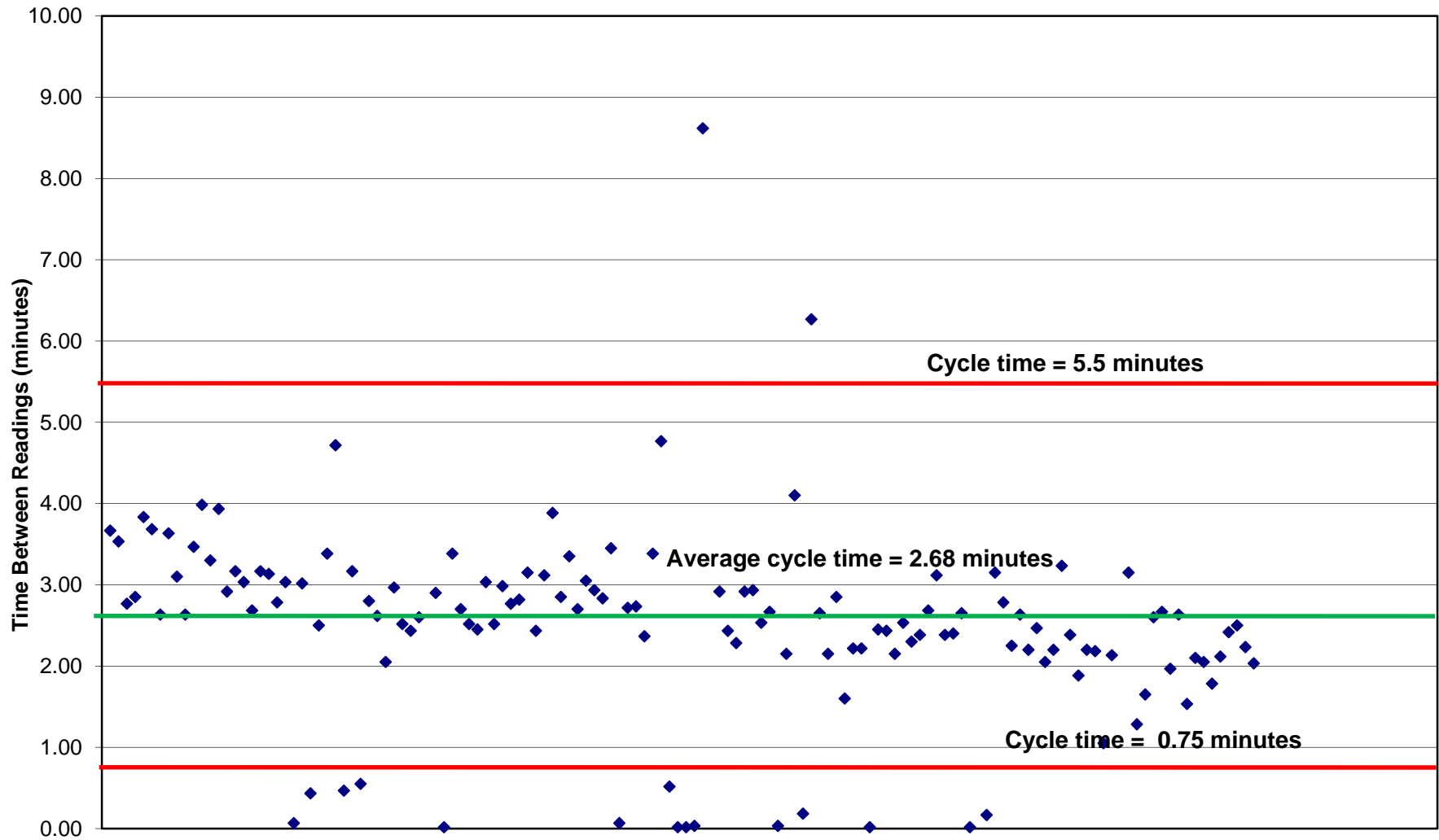


December 6, 2005 all day, Cycle Time Data Range

Lower Passaic River Restoration Project

Figure F-4

December 7, 2005



December 7, 2005, Cycle Time Data Range

Lower Passaic River Restoration Project

Figure F-5

December 8, 2005

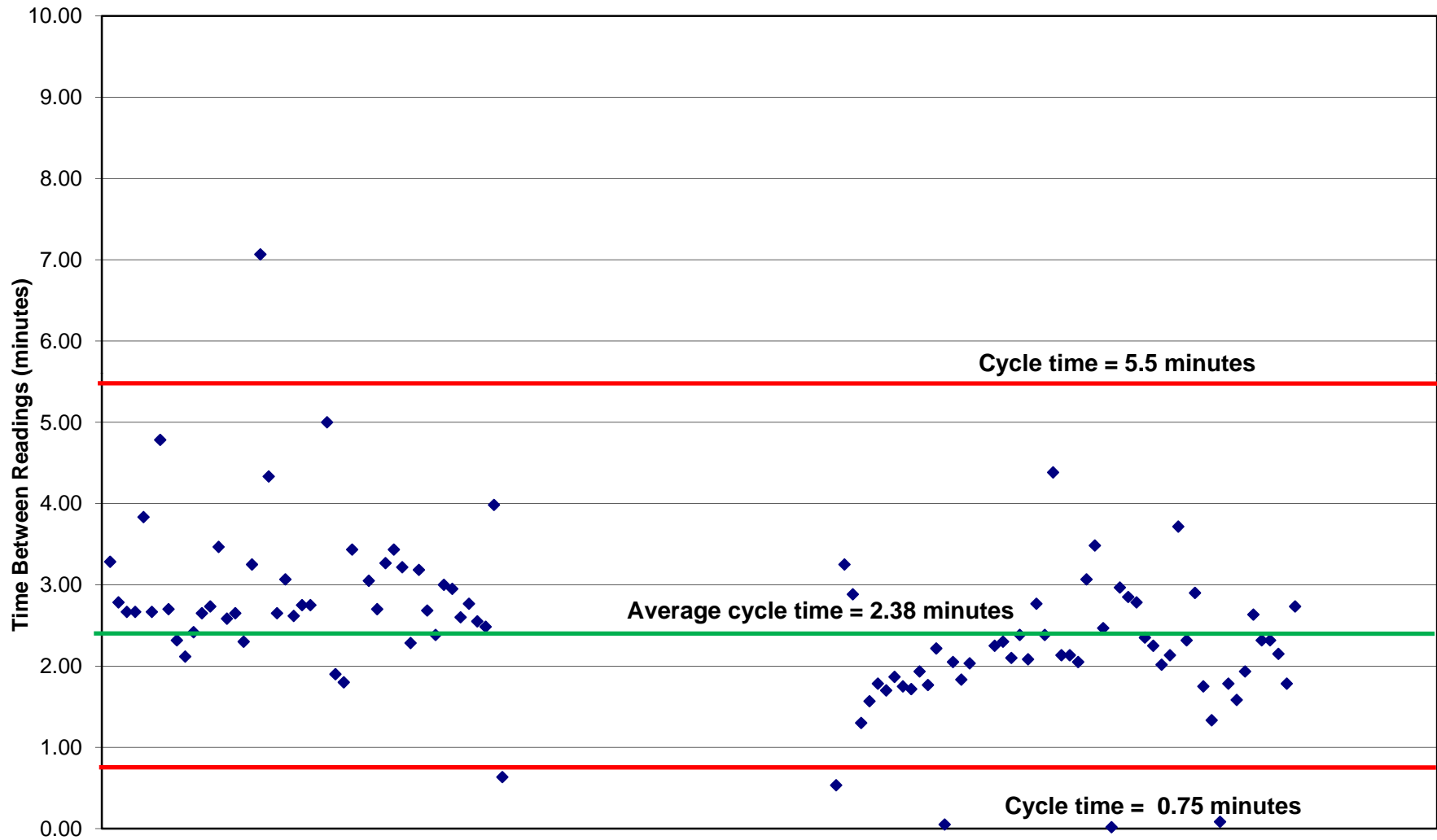


December 8, 2005, Cycle Time Data Range

Lower Passaic River Restoration Project

Figure F-6

December 10, 2005



December 10, 2005, Cycle Time Data Range

Lower Passaic River Restoration Project

Figure F-7