INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

10/25 Pump Run

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

Date / Time	EVENT LOG BOOK	Page 1 of _
10/26 / 1252	Started North Pumps	
10/26 / 1257	Started South Pumps	
/ 0400	North Station Pumped	4,306,848
/ 0400	South Station Pumped	4,111,128
/ 0500	North Station Pumped	3,739,260
/ 0500	South Station Pumped	3,928,960
/ 0600	North Station Pumped	3,790,890
/ 0600	South Station Pumped	3,944,940
/ 0700	North Station Pumped	3,816,480
/ 0700	South Station Pumped	3,922,170
/ 0800	North Station Pumped	3,833,280
/ 0800	South Station Pumped	3,888,420
/ 0900	North Station Pumped	3,853,230
/ 0900	South Station Pumped	3,875,190
/ 1000	North Station Pumped	3,862,260
/ 1000	South Station Pumped	3,891,060
/ 1100	North Station Pumped	3,874,320
/ 1100	South Station Pumped	3,912,540
/ 1155	North Station Pumped	3,559,792
/ 1145	South Station Pumped	2,947,002
/ 1200	Total Gallons Pumped North Station =	34,636,360
10/26 / 1200	Total Gallons Pumped South Station INTO CCS =	34,421,130

ERIC CASH 10/26/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: _____ **Date:** 10/1/15

Approved: _____ **Date:** 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps

South
Station
10/25 Pump Run

Night - Nan Sweeney
Day - Eric Cash

10/25 Pump Run

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month 10 Day 24 Year 15

Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
13:00	Flow:	Flow:				
13:00	Total:	Total:				
14:00	Flow:	Flow:				
14:00	Total:	Total:				
15:00	Flow:	Flow:				
15:00	Total:	Total:				
16:00	Flow:	Flow:				
16:00	Total:	Total:				
17:00	Flow:	Flow:				
17:00	Total:	Total:				
18:00	Flow:	Flow:				
18:00	Total:	Total:				
19:00	Flow:	Flow:				
19:00	Total:	Total:				
20:00	Flow:	Flow:				
20:00	Total:	Total:				
21:00	Flow:	Flow:				
21:00	Total:	Total:				
22:00	Flow:	Flow:				
22:00	Total:	Total:				
23:00	Flow:	Flow:				
23:00	Total:	Total:				
24:00	Flow:	Flow:				
24: 00	Total:	Total:				

PUMP OPERATOR_____

Date_____

VERIFIED BY PUMP COORDINATOR_____

Date_____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

10/25 Pump Run

SOUTH PUMP STATION HOURLY LOG SHEET	Month 10	Day 26	Year 15			
Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
00:00	Flow:	Flow:				
00:00	Total:	Total:				
1:00	Flow:	Flow:				
100	Total:	Total:				
~~2:00~~ 257	Flow:	Flow:				
~~2:00~~ 259	Total:	Total:				
3:00	Flow: 33960	Flow: 31073				
3:00	Total: 7472407	Total: 64074985				
4:00	Flow: 34262	Flow: 31216				
4:00	Total: 95 65561	Total: 66006275				
5:00	Flow: 34262	Flow: 31216				
5:00	Total: —	Total: —				
6:00	Flow: 33963	Flow: 32057	596	596		✓
6:00	Total: 13541791	Total: 69731456				
7:00	Flow: 33434	Flow: 31285	588	588		✓
7:00	Total: 15574412	Total: 71680677				
8:00	Flow: 33762	Flow: 31133	588	586		✓
8:00	Total: 19120462	Total: 73497247				
9:00	Flow: 33664	Flow: 30614	588	588		✓
9:00	Total: 19144632	Total: 75359455				
10:00	Flow: 33689	Flow: 31735	586	588		✓
10:00	Total: 21127653	Total: 77226147				
11:00	Flow: 33294	Flow: 31700	586	586		✓
11:00	Total: 23138739	Total: 79120483				
12:00	Flow: ~~33956~~ 33294	Flow: 31939	586	588		✓
12:00	Total: 24567338	Total: 80401160				

PUMP OPERATOR ERIC CASH Date 10/26/15

VERIFIED BY PUMP COORDINATOR

10-25-15 - 10-26-15

Rev 8, 10/01/2015

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: [signature] **Date:** 10/1/15

Approved: [signature] **Date:** 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps

10/25 Pump Run

Deb Cooper

Bryan Ingram

North Pumping Station

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

Bryan Trogdon

NORTH PUMPING STATION HOURLY LOG SHEET Month 10 Day 26 Year 15

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
00:00	Flow:	Flow:	Flow:						
00:00	Total:	Total:	Total:						
1:00	Flow:	Flow:	Flow:						
1:00	Total:	Total:	Total:						
2:00 0252	Flow: 24248	Flow: 20970	Flow: 19492	576	576	576	.1	.90	✓
2:00	Total: 679963374	Total: 37171370	Total: 29240968						
3:00	Flow:	Flow:	Flow:						
3:00	Total:	Total:	Total:						
4:00	Flow: 21568	Flow: ERROR	Flow: 19423	576	576	576	-.35	.90	✓
4:00	Total: 69389601	Total: ERROR	Total: 30513823						
5:00	Flow: 21525	Flow: ERROR	Flow: 20184	576	576	576	-.40	.90	✓
5:00	Total: 70670906	Total: ERROR	Total: 31716971						
6:00	Flow: 21955	Flow: ERROR	Flow: 20499	576	576	576	.0	.9	✓ BC
6:00	Total: 71989418	Total: ERROR	Total: 32920742						
7:00	Flow: 21962	Flow: ERROR	Flow: 20600	576	576	576	.1	.9	✓
7:00	Total: 73294676	Total: ERROR	Total: 34141990						
8:00	Flow: 22060	Flow: ERROR	Flow: 20951	576	576	576	.2	.9	✓
8:00	Total: 74646453	Total: ERROR	Total: 35418522						
9:00	Flow: 22059	Flow: ERROR	Flow: 21168	576	576	576	.3	.9	✓
9:00	Total: 75930793	Total: ERROR	Total: 36631786						
10:00	Flow: 22116	Flow: ERROR	Flow: 21199	576	576	576	.4	.9	✓
10:00	Total: 77269596	Total: ERROR	Total: 37911368						
11:00	Flow: 22159	Flow: ERROR	Flow: 21470	576	576	576	.4	.9	✓
11:00	Total 78528533		39124416						
12:00	Flow: 22425	Flow: ERROR	Flow: 21195	576	576	570	.	.9	✓
12:00	Total: 79623446	Total: ERROR	Total: 40188672						

PUMP OPERATOR [illegible] BC
Date 10-26-15

VERIFIED BY PUMP COORDINATOR [illegible] Date 10/26

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month 10 Day 25 Year 15

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
13:00	Flow:	Flow:	Flow:						
13:00	Total:	Total:	Total:						
14:00	Flow:	Flow:	Flow:						
14:00	Total:	Total:	Total:						
15:00	Flow:	Flow:	Flow:						
15:00	Total:	Total:	Total:						
16:00	Flow:	Flow:	Flow:						
16:00	Total:	Total:	Total:						
17:00	Flow:	Flow:	Flow:						
17:00	Total:	Total:	Total:						
18:00	Flow:	Flow:	Flow:				.20	.90	✓
18:00	Total:	Total:	Total:						
19:00	Flow:	Flow:	Flow:						
19:00	Total:	Total:	Total:						
20:00	Flow:	Flow:	Flow:						
20:00	Total:	Total:	Total:						
21:00	Flow:	Flow:	Flow:						
21:00	Total:	Total:	Total:						
22:00	Flow:	Flow:	Flow:						
22:00	Total:	Total:	Total:						
23:00	Flow:	Flow:	Flow:						
23:00	Total:	Total:	Total:						
24:00	Flow:	Flow:	Flow:						
24:00	Total:	Total:	Total:						

PUMP OPERATOR: Victor Cooper
Date: 10-25-15

VERIFIED BY PUMP COORDINATOR
Date:

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

10/26
Pump Run

Date / Time | EVENT LOG BOOK | Page 1 of _

Date / Time	EVENT LOG BOOK
10/27 1421	Started North Pumps
1426	Started South Pumps
0500	North Station Pumped 2,530,905
0500	South Station Pumped 2,123,810
0600	North Station Pumped 3,801,120
0600	South Station Pumped 3,811,800
0700	North Station Pumped 3,797,790
0700	South Station Pumped 3,850,650
0715	At South Station Went From 56Hz to 57 Hz.
0800	North Station Pumped 3812,220
0800	South Station Pumped 3,884,460
0900	North Station Pumped 3,838,800
0900	South Station Pumped 3,904,580
1000	North Station Pumped 3,843,990
1000	South Station Pumped 3,925,800
1100	North Station Pumped 3,851,940
1100	South Station Pumped 3,941,700
1155	North Station Pumped 3,659,450
1150	South Station Pumped 3,294,200
1200	Total gallons Pumped by North Station = 29,136,215
1200	Total Gallons Pumped by South Station into CCS = 28,737,220

10-15 - 10-21-15

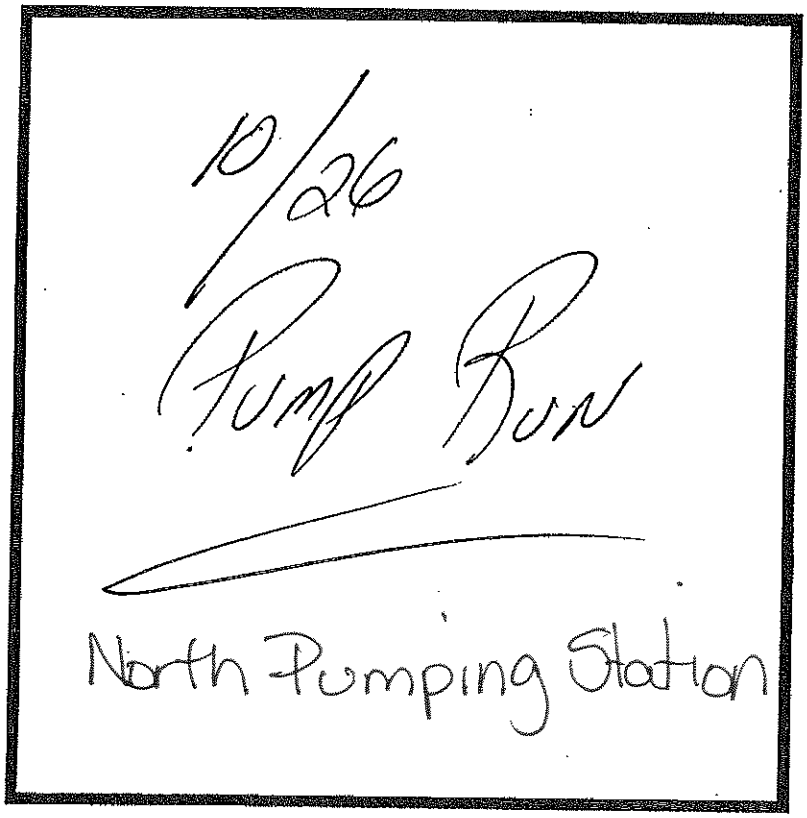
INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: _____ Date: 10/1/15

Approved: _____ Date: 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps



INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Bryan Ingram

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month 10 Day 27 Year 15

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
00:00	Flow:	Flow:	Flow:						
00:00	Total:	Total:	Total:						
1:00	Flow:	Flow:	Flow:						
1:00	Total:	Total:	Total:						
2:00	Flow:	Flow:	Flow:						
2:00	Total:	Total:	Total:						
3:00	Flow:	Flow:	Flow:						
3:00	Total:	Total:	Total:						
4:00 0421	Flow: 24410	Flow: ERROR	Flow: ERROR	576	576	576	0	.90	✓
4:00	Total: 79837861	Total: ERROR	Total: ERROR						
5:00	Flow: 21179	Flow: ERROR	Flow: ERROR	576	576	576	-.40	.90	✓
5:00	Total: 80601027	Total: ERROR	Total: ERROR						
6:00	Flow: 21125	Flow: ERROR	Flow: ERROR	576	576	576	-.4	.9	✓ (SD)
6:00	Total: 81858509	Total: ERROR	Total: ERROR	60HZ	60HZ	60HZ			
7:00	Flow: 21068	Flow: ERROR	Flow: ERROR	576	576	576	-.1	.9	✓
7:00	Total: 83190266	Total: ERROR	Total: ERROR						
8:00	Flow: 21606	Flow: ERROR	Flow: ERROR	576	576	576	.1	.9	✓
8:00	Total: 84453534	Total: ERROR	Total: ERROR						
9:00	Flow: 21954	Flow: ERROR	Flow: ERROR	576	576	576	.2	.9	✓
9:00	Total: 85750370	Total: ERROR	Total: ERROR						
10:00	Flow: 21799	Flow: ERROR	Flow: ERROR	576	576	576	.3	.9	✓
10:00	Total: 87062082	Total: ERROR	Total: ERROR						
11:00	Flow: 22219	Flow: ERROR	Flow: ERROR	576	576	576	.3	.9	✓
11:00	Total: 88293976	Total: ERROR	Total: ERROR						
11:54	Flow: 22396	Flow: ERROR	Flow: ERROR	576	576	576	.4	.9	✓
[illegible]	Total: 89487575	Total: ERROR	Total: ERROR						

PUMP OPERATOR [illegible] (SD) Date: 10-27-15

VERIFIED BY PUMP COORDINATOR _____ Date: _____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month 10 Day 26 Year 15

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
13:00	Flow:	Flow:	Flow:						
13:00	Total:	Total:	Total:						
14:00	Flow:	Flow:	Flow:						
14:00	Total:	Total:	Total:						
15:00	Flow:	Flow:	Flow:						
15:00	Total:	Total:	Total:						
16:00	Flow:	Flow:	Flow:						
16:00	Total:	Total:	Total:						
17:00	Flow:	Flow:	Flow:						
17:00	Total:	Total:	Total:						
18:00	Flow:	Flow:	Flow:				0	.90	✓
18:00	Total:	Total:	Total:						
19:00	Flow:	Flow:	Flow:						
19:00	Total:	Total:	Total:						
20:00	Flow:	Flow:	Flow:						
20:00	Total:	Total:	Total:						
21:00	Flow:	Flow:	Flow:						
21:00	Total:	Total:	Total:						
22:00	Flow:	Flow:	Flow:						
22:00	Total:	Total:	Total:						
23:00	Flow:	Flow:	Flow:						
23:00	Total:	Total:	Total:						
24:00	Flow:	Flow:	Flow:						
24:00	Total:	Total:	Total:						

PUMP OPERATOR Kimberly Cooper
Date 10-26-15

VERIFIED BY PUMP COORDINATOR
Date:

ERSC CASH 10/27/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: _____ **Date:** 10/1/15

Approved: _____ **Date:** 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps

10/26

Pump Run

South Pumping Station

ERICCASH

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month 10 Day 27 Year 2015

Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
00:00	Flow:	Flow:				
00:00	Total:	Total:				
1:00	Flow:	Flow:				
100	Total:	Total:				
2:00	Flow:	Flow:				
2:00	Total:	Total:				
3:00	Flow:	Flow:				
3:00	Total:	Total:				
~~4:00~~ 4:26	Flow: 32718	Flow: 29405	588	588	0.85	✓
~~4:00~~ 4:26	Total: 24735145	Total: 80602332				
5:00	Flow: 32694	Flow: 30113	588	588	0.85	✓
5:00	Total: 25388422	Total: 81561331				
6:00	Flow: 33226	Flow: 31027	588	588	.85	✓
6:00	Total: 26056079	Total: 83594991				
7:00	Flow: 33057	Flow: 31065	588	588	.85	✓
7:00	Total: 27489575	Total: 84626566				
8:00	Flow: 33538	Flow: 31412	598	598	.85	✓
8:00	Total: 28169469	Total: 85740706				
9:00	Flow: 34019	Flow: 30752	594	598	.85	✓
9:00	Total: 28869981	Total: 86495504				
10:00	Flow: 33965	Flow: 32324	594	598	.85	✓
10:00	Total: 29566102	Total: 87506558				
11:00	Flow: 33973	Flow: 31128	594	598	.85	✓
11:00	Total: 30613900	Total: 88493558				
12:00	Flow: 33838	Flow: 32434	594	598	.85	✓
12:00	Total: 30230151	Total: 89377402			.85	

PUMP OPERATOR ERICCASH
Date 10/27/15

VERIFIED BY PUMP COORDINATOR _____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month Day Year

Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
13:00	Flow:	Flow:				
13:00	Total:	Total:				
14:00	Flow:	Flow:				
14:00	Total:	Total:				
15:00	Flow:	Flow:				
15:00	Total:	Total:				
16:00	Flow:	Flow:				
16:00	Total:	Total:				
17:00	Flow:	Flow:				
17:00	Total:	Total:				
18:00	Flow:	Flow:				
18:00	Total:	Total:				
19:00	Flow:	Flow:				
19:00	Total:	Total:				
20:00	Flow:	Flow:				
20:00	Total:	Total:				
21:00	Flow:	Flow:				
21:00	Total:	Total:				
22:00	Flow:	Flow:				
22:00	Total:	Total:				
23:00	Flow:	Flow:				
23:00	Total:	Total:				
24:00	Flow:	Flow:				
24: 00	Total:	Total:				

PUMP OPERATOR_____

Date_____

VERIFIED BY PUMP COORDINATOR_____

Date:_____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

10/27 Pump Run

Date / Time — EVENT LOG BOOK — Page 1 of _

Date / Time	EVENT LOG BOOK
10/28 / 1417	Started North pumps
/ 1422	Started South pumps
/ 1500	North Station pumped 2,724,845
/ 1500	South Station pumped 2,451,418
/ 1600	North Station Pumped 3,775,770
/ 1600	South Station Pumped 3,880,620
/ 1700	North Station Pumped 3,812,220
/ 1700	South Station Pumped 3,893,880
/ 1800	North Station Pumped 3,839,940
/ 1800	South Station Pumped 3,854,490
/ 1900	North Station Pumped 3,849,170
/ 1900	South Station Pumped 3,793,170
/ 1000	North Station Pumped 3,874,260
10/28 / 2000	South Station Pumped 3,861,000
/ 1100	North station Pumped 3,886,380
/ 1100	South station Pumped 3,934,380
/ 1155	North Station Pumped 3,559,215
/ 1150	South station Pumped 3,229,375
/	
10/28 / 1200	Total Pumped At North Station. = 29,267,800
10/28 /	Total Pumped At South Station into CCS = 28,939,333

10-27-15 - 10-28-15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: _____ **Date:** 10/1/15

Approved: _____ **Date:** 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps

North Pumping Station

Pump Run Date

10/27/15

10/28/2015

Rev 8, 10/01/2015

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Bryan Ingram

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month 10 Day 28 Year 15

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
00:00	Flow:	Flow:	Flow:						
00:00	Total:	Total:	Total:						
1:00	Flow:	Flow:	Flow:						
1:00	Total:	Total:	Total:						
2:00	Flow:	Flow:	Flow:						
2:00	Total:	Total:	Total:						
3:00	Flow:	Flow:	Flow:						
3:00	Total:	Total:	Total:						
4:00 0417	Flow: 22969	Flow: ERROR	Flow: 20115	576	576	576	.15	.90	✓
4:00	Total: 89584460	Total: ERROR	Total: 40418214						
5:00	Flow: 21732	Flow: ERROR	Flow: 19813	576	576	576	-.30	.90	✓
5:00	Total: 90458555	Total: ERROR	Total: 41177393						
6:00	Flow: 21854	Flow: ERROR	Flow: 20260	576	576	576	-.4	.9	✓ BP
6:00	Total: 91779623	Total:	Total: 41392586	60HZ	60HZ	60HZ			
7:00	Flow: 22226	Flow: ERROR	Flow: 20534	576	576	576	-.3	.9	✓
7:00	Total: 93106114	Total:	Total: 41613205						
8:00	Flow: 22649	Flow: ERROR	Flow: 20389	576	576	576	-.1	.9	✓
8:00	Total: 94507816	Total:	Total: 41897368						
9:00	Flow: 22399	Flow: ERROR	Flow: 20682	576	576	576	.0	.9	✓
9:00	Total: 95786891	Total:	Total: 42071200						
10:00	Flow: 22983	Flow: ERROR	Flow: 20878	576	576	576	.1	.9	✓
10:00	Total: 97155225	Total:	Total: 42337653	60HZ	60HZ	60HZ			
11:00	Flow: 22632	Flow: ERROR	Flow: 20853	576	576	576	.2	.9	✓
11:00	Total: 98489707		Total: 42568302						
[redacted]	Flow: 22971	Flow: ERROR	Flow: 20971	576	576	576	.3	.9	✓
[redacted]	Total: 99699573	Total:	Total: 42698256						

PUMP OPERATOR Debbie Cooper
Date 10-28-15 BC

VERIFIED BY PUMP COORDINATOR _____ Date 10/28

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month 10 Day 27 Year 15

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
13:00	Flow:	Flow:	Flow:						
13:00	Total:	Total:	Total:						
14:00	Flow:	Flow:	Flow:						
14:00	Total:	Total:	Total:						
15:00	Flow:	Flow:	Flow:						
15:00	Total:	Total:	Total:						
16:00	Flow:	Flow:	Flow:						
16:00	Total:	Total:	Total:						
17:00	Flow:	Flow:	Flow:						
17:00	Total:	Total:	Total:						
18:00	Flow:	Flow:	Flow:				-.30	.90	✓
18:00	Total:	Total:	Total:						
19:00	Flow:	Flow:	Flow:						
19:00	Total:	Total:	Total:						
20:00	Flow:	Flow:	Flow:						
20:00	Total:	Total:	Total:						
21:00	Flow:	Flow:	Flow:						
21:00	Total:	Total:	Total:						
22:00	Flow:	Flow:	Flow:						
22:00	Total:	Total:	Total:						
23:00	Flow:	Flow:	Flow:						
23:00	Total:	Total:	Total:						
24:00	Flow:	Flow:	Flow:						
24:00	Total:	Total:	Total:						

PUMP OPERATOR Debbie Cooper
Date 10-27-15

VERIFIED BY PUMP COORDINATOR _____
Date: _____

10-27-15- 10/28/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: _____ **Date:** 10/1/15

Approved: _____ **Date:** 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps

South Pumping Station

Pump Run Date

10/27/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month Day Year						
Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
00:00	Flow:	Flow:				
00:00	Total:	Total:				
1:00	Flow:	Flow:				
100	Total:	Total:				
2:00	Flow:	Flow:				
2:00	Total:	Total:				
3:00	Flow:	Flow:				
3:00	Total:	Total:				
~~4:00~~ 4:22	Flow: 33965	Flow: 30272	598	598	0.95	possible bogr seal needs tightening
~~4:00~~ 4:22	Total: 36597882	Total: 94005977				
5:00	Flow: 33996	Flow: 30787	598	598	0.95	" "
5:00	Total: 37594610	Total: 94905428				
6:00	Flow: 33784	Flow: 30787	598	598	0.95	" "
6:00	Total: 38 551330	Total: 96687252				
7:00	Flow: 34001	Flow: 31224	598	598	0.95	" "
7:00	Total: 4163 1996	Total: 98600520				
8:00	Flow: 33009	Flow: 30249	598	598	0.95	" "
8:00	Total: 43648796	Total: 448583				
9:00	Flow: 33078	Flow: 30103	598	598	0.95	" "
9:00	Total: 4559 7816	Total: 22 36652				
10:00	Flow: 34019	Flow: 31500	598	598	0.95	" "
10:00	Total: 47613652	Total: 4086617				
11:00	Flow: ~~47613~~ 33825	Flow: 31802				
11:00	Total: 49568166	Total: 6013826				
~~12.00~~ 11 50	Flow: 33774	Flow: 31414				
~~12.00~~ 1150	Total: 51200736	Total: 7548776				

PUMP OPERATOR Kyle Carr

Date 10/28/15

VERIFIED BY PUMP COORDINATOR

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month Day Year						
Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
13:00	Flow:	Flow:				
13:00	Total:	Total:				
14:00	Flow:	Flow:				
14:00	Total:	Total:				
15:00	Flow:	Flow:				
15:00	Total:	Total:				
16:00	Flow:	Flow:				
16:00	Total:	Total:				
17:00	Flow:	Flow:				
17:00	Total:	Total:				
18:00	Flow:	Flow:				
18:00	Total:	Total:				
19:00	Flow:	Flow:				
19:00	Total:	Total:				
20:00	Flow:	Flow:				
20:00	Total:	Total:				
21:00	Flow:	Flow:				
21:00	Total:	Total:				
22:00	Flow:	Flow:				
22:00	Total:	Total:				
23:00	Flow:	Flow:				
23:00	Total:	Total:				
24:00	Flow:	Flow:				
24: 00	Total:	Total:				

PUMP OPERATOR_____

Date_____

VERIFIED BY PUMP COORDINATOR_____

Date:_____

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

10/28

Date / Time | EVENT LOG BOOK | Page 1 of _

Date / Time	EVENT LOG BOOK
10/29 1404	Started North Pumps
1409	Started South pumps
1430	North Station pumped 3,749,088
1500	South Station pumped 3,274,149
1600	South Station pumped 3,898,620
1600	North Station pumped 3,764,760
1700	North Station Pumped 3,863,610
1700	South Station Pumped 3,896,700
1800	NORTH STATION Pumped 3,845,760
1800	SOUTH STATION Pumped 3,876,060
1900	NORTH STATION Pumped 3,848,640
1900	SOUTH STATION Pumped 3,847,110
1000	NORTH STATION Pumped 3,857,520
1000	SOUTH STATION Pumped 3,891,510
1100	NORTH STATION Pumped 3,843,480
1100	SOUTH STATION Pumped 4,018,920
1155	NORTH STATION Pumped 3,565,320
1150	SOUTH STATION Pumped 3,351,850
1200	Total Gallons pumped by NORTH STATION 30,338,178
1200	Total Gallons pumped by SOUTH STATION 30,054,914

10-28-15-10-29-15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: [signature] **Date:** 10/1/15

Approved: [signature] **Date:** 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps

10/28
Pump Run

North Pumping Station

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month 10 Day 29 Year 15

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
00:00	Flow:	Flow:	Flow:						
00:00	Total:	Total:	Total:						
1:00	Flow:	Flow:	Flow:						
1:00	Total:	Total:	Total:						
2:00	Flow:	Flow:	Flow:						
2:00	Total:	Total:	Total:						
3:00	Flow:	Flow:	Flow:						
3:00	Total:	Total:	Total:						
4:00 0404	Flow: 29151	Flow: ERROR	Flow: 2.0606	576	576	576	-.30	.90	✓
4:00	Total: 99778356	Total: ERROR	Total: 49778405						
5:00	Flow: 21778	Flow: ERROR	Flow: 19740	576	576	576	-.30	.90	✓
5:00	Total: 902111	Total: ERROR	Total: 50824523						
6:00	Flow: 22074	Flow: ERROR	Flow: 19700	576	576	576	-.40	.90	✓
6:00	Total: 2212091	Total: ERROR	Total: 52016892						
7:00	Flow: 22313	Flow: ERROR	Flow: ERROR	576	576	576	-.30	.90	✓
7:00	Total: 3517195	Total:	Total:						
8:00	Flow: 21479	Flow: ERROR	Flow: ERROR	576	576	576	-.30	.90	✓
8:00	Total: 4866545	Total: ERROR	Total: ERROR				-.20	.90	✓
9:00	Flow: 22409	Flow: ERROR	Flow: ERROR	576	576	576	-.20	.90	✓
9:00	Total: 4190524	Total: ERROR	Total: ERROR						
10:00	Flow: 21775	Flow: ERROR	Flow: ERROR	576	576	576	-.10	.90	✓
10:00	Total: 7551030	Total: ERROR	Total: ERROR						
11:00	Flow: 21941	Flow: ERROR	Flow: ERROR	576	576	576	.0	.90	✓
11:00	Total: 8824122	ERROR	ERROR						
12:00	Flow: 22307	Flow: ERROR	Flow: ERROR	576	576	576	.2	.90	✓
12:00	Total: 10013896	Total: ERROR	Total: ERROR	576	576	576			

PUMP OPERATOR [illegible] Date 10-29-15

VERIFIED BY PUMP COORDINATOR [illegible] Date 10/29/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month 10 Day 28 Year 15

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
13:00	Flow:	Flow:	Flow:						
13:00	Total:	Total:	Total:						
14:00	Flow:	Flow:	Flow:						
14:00	Total:	Total:	Total:						
15:00	Flow:	Flow:	Flow:						
15:00	Total:	Total:	Total:						
16:00	Flow:	Flow:	Flow:						
16:00	Total:	Total:	Total:						
17:00	Flow:	Flow:	Flow:						
17:00	Total:	Total:	Total:						
18:00	Flow:	Flow:	Flow:				-.30	.90	✓
18:00	Total:	Total:	Total:						
19:00	Flow:	Flow:	Flow:						
19:00	Total:	Total:	Total:						
20:00	Flow:	Flow:	Flow:						
20:00	Total:	Total:	Total:						
21:00	Flow:	Flow:	Flow:						
21:00	Total:	Total:	Total:						
22:00	Flow:	Flow:	Flow:						
22:00	Total:	Total:	Total:						
23:00	Flow:	Flow:	Flow:						
23:00	Total:	Total:	Total:						
24:00	Flow:	Flow:	Flow:						
24:00	Total:	Total:	Total:						

PUMP OPERATOR [signature] Date 10-28-15

VERIFIED BY PUMP COORDINATOR Date

Kyle Carr

Rev 8, 10/01/2015

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: [signature] Date: 10/1/15

Approved: [signature] Date: 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps

10/28 Pump Run

South Pumping Station

ERIC CASH
10/29/15 Rev 8, 10/01/2015

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month 10 Day 29 Year 2015

Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
00:00	Flow:	Flow:				
00:00	Total:	Total:				
1:00	Flow:	Flow:				
100	Total:	Total:				
2:00	Flow:	Flow:				
2:00	Total:	Total:				
3:00	Flow:	Flow:				
3:00	Total:	Total:				
~~4:00~~ 4:09	Flow: 33139	Flow: 30434	598	598	0.85	✓
~~4:00~~ 4:09	Total: 51405603	Total: 7707741				
5:00	Flow: 33756	Flow: 31007	598	598	0.85	✓
5:00	Total: 53053222	Total: 9208484				
6:00	Flow: 34310	Flow: 30881	598	598	.85	✓
6:00	Total: 55038697	Total: 11030087				
7:00	Flow: 33902	Flow: 30797	598	598	.85	✓
7:00	Total: 57097522	Total: 12902464				
8:00	Flow: 33705	Flow: 30798	598	598	.85	✓
8:00	Total: 59118603	Total: 14748318				
9:00	Flow: 33605	Flow: 30129	598	598	.85	✓
9:00	Total: 61158438	Total: 16584091				
10:00	Flow: 33953	Flow: 32030	598	598	.85	✓
10:00	Total: 63197960	Total: 18436354				
11:00	Flow: 34670	Flow: 32371	598	598	.85	✓
11:00	Total: 65230531	Total: 20155560				
12:00	Flow: 34610	Flow: 32423	598	598	.85	✓
12:00	Total: 66881874	Total: 20616724				

PUMP OPERATOR ERIC CASH
Date 10/29/15

VERIFIED BY PUMP COORDINATOR [signature]
10/29/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month Day Year						
Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
13:00	Flow:	Flow:				
13:00	Total:	Total:				
14:00	Flow:	Flow:				
14:00	Total:	Total:				
15:00	Flow:	Flow:				
15:00	Total:	Total:				
16:00	Flow:	Flow:				
16:00	Total:	Total:				
17:00	Flow:	Flow:				
17:00	Total:	Total:				
18:00	Flow:	Flow:				
18:00	Total:	Total:				
19:00	Flow:	Flow:				
19:00	Total:	Total:				
20:00	Flow:	Flow:				
20:00	Total:	Total:				
21:00	Flow:	Flow:				
21:00	Total:	Total:				
22:00	Flow:	Flow:				
22:00	Total:	Total:				
23:00	Flow:	Flow:				
23:00	Total:	Total:				
24:00	Flow:	Flow:				
24: 00	Total:	Total:				

PUMP OPERATOR_____

Date_____

VERIFIED BY PUMP COORDINATOR_____

Date:_____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: Caitlyn Ward **Date:** 10/1/15

Approved: [signature] **Date:** 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps

North Station
10/29 Pump Run

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

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Bryan Ingram 10/30/2015

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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1.0 PURPOSE

This procedure provides instructions for operating the North and South Pumping Stations to inject L31 Canal Water into the Canal Cooling System (CCS). The North Pumping Station consists of 3 (three) axial flow pumps, West 30" Pump, Center 30" Pump and East 30" Pump. The South Pumping Station consists of 2 (two) axial pumps, North 36" Pump and the South 36" Pump. Two shifts will be utilized to operate the pumping stations. Each shift will consist of a FPL Pump Coordinator, and One (1) AWE Pump Operator.

2.0 PRECAUTIONS AND LIMITATIONS

2.1 Precautions

1. Working over or around water requires either a personal flotation device or appropriate fall protection.
2. When work is to be performed on equipment in the water then 30" ring buoys with 90' of line shall be available with a lifesaving skiff at the work location.
3. Each shift should be familiar with the layout of each station specifically the location of floatation devices, spill kits, emergency shutdown equipment, fire extinguisher and logbooks that include all contact information.
4. Pump operation should be controlled using the Variable Frequency Drive (VFDs).
5. Pump control container live panel access is restricted to certified electricians

2.2 Limitations

1. Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches. Management notification is required if freeboard level is less than 7 inches. No pump operation is allowed if freeboard level is less than 5 inches.
2. When both pumping stations are capable of pumping they are to be manned continuously by a dedicated operator.
3. The North Pumping Station is always to be started first with a minimum of 5 minutes operation prior to starting the South Pumping Station.

4. The South Pumping Station is always to be stopped first with a minimum of 5 minutes prior to stopping the North Pumping Station.
5. Water level in the south canal shall not be allowed to decrease less than the initial level that the pumps were first started.
6. Pump control container access is restricted to AWE operators and FPL oversight.

3.0 PREREQUISITES

1. Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches. Management notification is required if freeboard level is less than 7 inches. No pump operation is allowed if freeboard level is less than 5 inches.
2. Ensure staff gauges are installed at both pump locations and verify that level can be visibly determined and recorded hourly when the pumps are capable of pumping. Ensure canal level indication is available from the data loggers.
3. Ensure flow measuring devices are energized and not indicating any faults.
4. Ensure data loggers are energized and ready to operate.
5. Verify floating turbidity curtain and secondary debris screens (fence)are intact and positioned to encompass the pump location.
6. Ensure logbooks are at each pump station
7. Review the criteria for emergency shutdown of the pumps:

- Manatees or crocodiles noted less than 50 feet from the pumps
- Excessive pipe movement
- Excessive leakage on pump discharge piping
- Significant shore erosion since the last inspection
- When directed by either Pump Operator or the Pump Coordinator
- Erratic pump motor amperage (> ± 10% of benchmark full flow value)

4.0 NORMAL OPERATIONS

1. When normal pumping cycles are imminent, the pump Operation will be fully staffed for 18 hour operation, 7 day per week. This staff will be comprised of a day and night

shift coverage which will include One (1) vender supplied pump operator, and One (1) FPL Project Team member per shift.

2. The on shift FPL Project Team member will be responsible for monitoring the SFWMD website a minimum once every 15 minutes for the 504 acre-feet threshold. In addition the FPL PTN Chemistry Department will perform hourly monitoring of the SFWMD website with notifications to the Chemistry Manager and PGM if transfer volume reaches 400 acre-feet.

3. Prior to Pump Operation:
   - Verify CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches.
   - Management notification is required if freeboard level is less than 7 inches to provide:
     - canal level data
     - general canal status
     - weather forecast that may add to the CCS level.

4. After reaching 504 acre-feet notification shall be made to Ray Moore and/or Alan Katz after commencing and/or securing pump operation.

5. Any questions or concerns that should arise during either shift of operation shall be vetted through Ray Moore or Alan Katz.

4.1 North Pumping Station Start-up

> ***CAUTION***
>
> ***The North Pumping Station is always to be started a minimum of 5 minutes operation prior to starting the South Pumping Station.***

1. Ensure North Pump Operator has reviewed ATTACHMENT 2, North Pump Operator Roles and Responsibilities.

2. Pre-Start Up Check List:
   - external leakage
   - perform pre-start checks
   - Signs of shore erosion
   - Excessive pipe movement
   - Verify Grass and Trash are clear from inside Turbidity Curtain
   - Erratic Motor Amperage
   - Verify CCS is clear at South Discharge

3. Monitor South Florida Water Management District and confirm the SFWMD flow authorization for the next pumping period until 11:59 PM and document below (bay delivery point of 504 acre-feet).

4. Record the canal levels at the North and South canal and document on Attachment 2 for North and Attachment 3 for South.

CAUTION

Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started

5. Verify Flow indicators are energized for the pump discharge headers on Attachment 2 for North and Attachment 3 for South.

6. Turn Pump ON
   - Check for Manatee and Wildlife
   - Verify pump Breaker is ON
   - Verify Main Breaker is ON
   - verify SWITCH is turned to VFD
   - Verify HZ is set a desired setting (60HZ = full power)
   - PUSH START button
   - Verify Water is Flowing from motor tube

7. Verify water flow is observed at the south side of Palm Drive and document on Attachment 2.

4.2 South Pumping Station Start-up

CAUTION

The North Pumping Station is always to be started a minimum of 5 minutes operation prior to starting the South Pumping Station.

1. Ensure South Pump Operator has reviewed ATTACHMENT 3, South Pump Operator Roles and Responsibilities.

2. Pre-Start Up Check List:
   - external leakage

- perform pre-start checks
- Signs of shore erosion
- Excessive pipe movement
- Verify Grass and Trash are Cleared inside Turbidity Curtain
- Erratic Motor Amperage
- Verify CCS is clear at the Discharge

3. Verify Flow indicators are energized for the pump discharge headers. Document on Attachment 3.

4. Record the Total flow rate from the North Pumping Station on Attachment 3.

5. Record the canal levels at the North and South canal and document on Attachment 2 for North and Attachment 3 for South.

CAUTION
Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started

6. Verify that the North Station Pump(s) are Operating

7. Turn Pump ON
   - Check for Manatee and Wildlife
   - Verify pump Breaker is ON
   - Verify Main Breaker is ON
   - verify SWITCH is turned to VFD
   - Verify HZ is set a desired setting (60HZ = full power)
   - PUSH START button
   - Verify Water is Flowing from motor tube

8. Verify water flow is observed at the Cooling Canal System and document on Attachment 3.

4.3 South Pumping Station Shutdown

CAUTION
The South Pumping Station is always to be stopped a minimum of 5 minutes prior to stopping the North Pumping Station.

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Verify that the Injection of L31 Canal Water to the Canal Cooling System is to be shutdown.

> ***CAUTION***
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

2. Record the canal levels at the North and South canal and document on Attachment 2 and Attachment 3

3. Shutdown Pump

   - Read TOTALIZER PRIOR to turning pump off
   - Push OFF button
   - Allow Frequency to COAST down to 00:00
   - HZ Reading will remain the same
   - Listen for pump to STOP RUNNING
   - Once you have verified pump has come to COMPLETE STOP
   - Turn SWITCH to OFF (ONE CLICK ONLY)

4. Verify water flow is observed to stop at the Canal Cooling System.

5. Record the shutdown time and flow volume totals of the South Pumping Station on ATTACHMENT 3, South Pump Operator Roles and Responsibilities.

6. Check out the system for:
   - Visual inspect for excess grass and trash and document in log
   - Signs of shore erosion
   - Read staff gauge and continue to log for an additional 10 minutes

7. Verify the South Pumping Station is shutdown prior to shutting down the North Pumping Station.

4.4 North Pumping Station Shutdown

> ***CAUTION***
> ***The South Pumping Station is always to be stopped a minimum of 5 minutes prior to stopping the North Pumping Station.***

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Verify that the South Pumping Station is shut down

> ***CAUTION***
>
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

2. Record the canal levels at the North and South canal and document on Attachment 2 and Attachment 3

3. Shutdown Pump
   - Read TOTALIZER PRIOR to turning pump off
   - Push OFF button
   - Allow Frequency to COAST down to 00:00
   - HZ Reading will remain the same
   - Listen for pump to STOP RUNNING
   - Once you have verified pump has come to COMPLETE STOP
   - Turn SWITCH to OFF (ONE CLICK ONLY)

4. Shutdown the running pumps at the North Pumping Station and verify water flow is observed to stop at the south side of Palm Drive.

5. Record the shutdown time and flow volume totals of the North Pumping Station on ATTACHMENT 2, North Pump Operator Roles and Responsibilities.

6. Check out the system for:
   - Visual inspect for excess grass and trash and document in log
   - Signs of shore erosion
   - Read staff gauge and continue to log for an additional 10 minutes

7. Notify the Water District Management that Injection of L31 Canal Water to the Canal Cooling System is shutdown. SFWMD Operation Control Center 561-682-6116.

5.0 INFREQUENT OPERATIONS

5.1 Emergency shutdown of pump stations

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Immediately stop the Pumps and notify the Pump Coordinator and the other Pump Station that flow has stopped when any of the following conditions apply:
   - Erratic pump motor amperage indicative of suction blockage
   - Intake grate fouling that is degrading pump performance
   - Manatees or crocodiles noted less than 50 feet from the pumps
   - Excessive pipe movement
   - Excessive leakage on pump discharge piping
   - Emergency evacuation order
   - Significant shore erosion since the last inspection
   - When directed by either Pump Operator
2. Pump Coordinator to notify the SFWM of the reason that the pumps were immediately shutdown.
3. Notify Environmental of the reason that the pumps were immediately shutdown and request assistance as required.
4. Pump Coordinator shall document the date/time of the event total flow volume pumped and a description of actions taken and persons notified.

Date/Time: _____/_____

_____

_____

_____

_____

_____

6.0 RECORDS

The Pump Coordinator is to scan and transmit the North and South Pump Operator daily log readings each day to Environmental for subsequent submittal to DERM/SFWDM. Transfer electronic copies to WO 40379504 Documents EDMS file folder.

7.0 REFERENCES AND COMMITMENTS

- Class 1 Construction permit, permit # CLI-2014-0312
- South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
- Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Taylor Engineering FPL PTN Cooling Canal Freshwater Recharge
- PTN Engineering Change (EC) 282152

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1

Pump Coordinator Roles and Responsibilities

The FPL Pump Coordinator is the main point of contact for all activities associated with the injection of L31 Canal water into the Canal Cooling System.

The Pump Coordinator will report to FPL Environmental and will provide direction to the Pump Operators on Starting and Stopping of the pumps including infrequent operations involving the emergency shutdown of all pumping equipment.

Responsibilities of the Pump Coordinator include but are not limited to the following items:

- Maintaining the safe operation of the North and South Pumping Stations
- Briefing the Pump Operators on their roles and responsibilities
- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Communicating any issues with pump performance or compliance with the permit to the Control Room and Environmental
- Coordination of Emergency Response activities to address an evacuation
- Obtaining the daily water pump start authorization and maintaining Pumping Stations in compliance with the SFWMD permitted pumping start time. Authorization is defined as after the daily SFWMD bay discharge quota is reached.
- Coordinating Pump starts/stops at the North and South Pumping Stations
- Ensuring Pump Operator performs all designated routines throughout the shift
- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day (to be part of the submittal)

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

- Periodically inspect each Pump Station (approx. once per 3hrs) to verify and validate (V&V) recorded data of the operators and conduct of Pump Operations
- Maintaining 24/7 coverage of the Pump Stations when the North and South Pumps are operational
- Maintaining housekeeping standards at the North and South Pumping Stations
- Scan and transfer reports daily of pump data to FPL Environmental at 11:59 AM or shortly thereafter each day. Transfer electronic copy to WO 40379504 EDMS file.

Contact information

Control Room		-	Shift Manager	X6492
Control Room		-	Emergency	X4444
Rory Rahming		-	Environmental	786-427-7437
Nan Sweeney	(Dayshift)	-	Pump Coordinator	570-241-8135
Willis Nettles	(Night Shift)	-	Pump Coordinator	772-473-1041

Coastal and Wetlands Resource Section		305-372-6575
FWC	ImperiledSpecies@myFWC.com	
FWC Hotline		888-404-3922
U.S. Fish and Wildlife Service		772-562-3909
State of Florida Bureau Archaeological Research		850-245-6444
Miami-Dade County Office of Historic Preservation		305-375-3412

DERM Coastal and Wetlands Resource Compliance Supervisor
John Ricisak ricisj@miamidade.gov
DERM Coastal and Wetlands Resource Permitting Supervisor
Christine Hopps hoppsc@miamidade.gov

SFWMD:
Executive Director, Len Lindahl, LLindahl@sfwmd.gov
Water Resources Division Director, Terri Bates, tbates@sfwmd.gov
Water Resources Hydrologist, Simon Sunderland, P.G, ssunder@sfwmd.gov
Bureau Chief, Maria Clemente, P.E. at mclement@sfwmd.gov

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

10/29
Pump Run

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

EVENT LOG BOOK

Date / Time	
10/30/1420	Performed Wildlife Check
/1425	Prepared Stations for pumping
/	
10/30/1450	Started North Pumps
3/1455	Started South Pumps
/1600	North Station Pumped = 4,339,055
/1600	South Station Pumped = 4,241,835
/1700	North Station Pumped = 3,740,490
/1700	South Station Pumped = 3,960,930
/1800	North Station Pumped = 3,749,550
/1800	South Station Pumped = 3,963,240
/1800	Changed Hz at South Station From 57 Hz to 56
/1900	North Station Pumped = 3,740,790
/1900	South Station Pumped = 3,912,810
/1000	North Station Pumped = 3,741,750
/1000	South Station Pumped = 3,840,210
/1100	North station Pumped = 3,757,470
/1100	South Station Pumped = 3,851,700
/1155	North Station Pumped = 3,446,189
/1140	South Station Pumped = 2,649,480
/	
/1200	Total Pumped by North Station = 26,515,294
/1200	Total Pumped into CCS by South Station = 26,420,025

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

The AWE North Pump Operator is responsible for the safe operation of the three submersible pumps and associated variable speed drives and instrumentation. All pumping evolutions will be at the direction of the Pump Coordinator except if an emergency shutdown is required.
All events or equipment issues will be documented in the enclosed Event Log and will be immediately reported to the Pump Coordinator. Responsibilities of the Pump Operator include but are not limited to the following items:

- Maintaining the safe operation of the North Pumping Stations and performing and logging required periodic maintenance/lubrication of pump equipment Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches.

- Management notification is required if freeboard level is less than 7 inches to provide canal level data, general canal status, and weather forecast that may add to the CCS level. No pump operation is allowed if freeboard level is less than 5 inches.

- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)

- Communicating any issues with pump performance or compliance with the permit to the Pump Coordinator

- Performing Emergency Response activities to address an evacuation order or a fuel/oil spill

- Ensure spill response equipment maintained in good condition

- Maintaining Pump flows at the direction of the Pump Coordinator

- Perform Manatee and crocodile watch when pumps are running (Polarized lenses are required for Manatee watch)

- Perform all designated routines, readings and recordings throughout the shift including maintaining housekeeping standards at the North Pumping Station

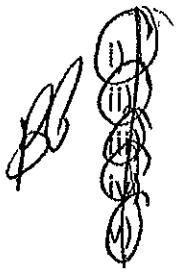
- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day(to be part of the submittal)

- Maintaining 24/7 coverage of the North Pump Station when the North Pumps are operational

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

Document on the log sheet periodic maintenance/lubrication and pump level changes.
Every hour Check out the system for the following and document on the hourly log sheet:



i) External leakage
ii) Signs of shore erosion
iii) Excessive pipe movement
iv) Intake Grate fouling or debris/wildlife approach
v) Erratic pump motor amperage (> ± 10% of benchmark full flow value)

Date / Time EVENT LOG BOOK Page _ of _

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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

10/30/2015

ATTACHMENT 2

North Pump Operator Roles and Responsibilities

Date / Time	EVENT LOG BOOK	Page 1 of _
/ 1420	Pump Station Preps + Wild life water	
/ 1450	Started North pumps	
/		
/ 0600	- Check pumps and ptubes. Check for wildlife	
/ 0700	- SAME	
/ 0800	- SAME	
/ 0900	- Check pumps and ptubes, grass, debris and wildlife	
/ 1000	- SAME	
/ 1100	- SAME	
/ 11:55	- all pumps are off at 11:55	

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Bryan Troyan

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month 10 Day 30 Year 2015

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
00:00	Flow:	Flow:	Flow:						
00:00	Total:	Total:	Total:						
1:00	Flow:	Flow:	Flow:						
1:00	Total:	Total:	Total:						
2:00	Flow:	Flow:	Flow:						
2:00	Total:	Total:	Total:						
3:00	Flow:	Flow:	Flow:						
3:00	Total:	Total:	Total:						
~~4:00~~ 4:50	Flow: 22292	Flow: 20559	Flow: 19471						
~~4:00~~ 4:50	Total: 10145183	Total: 37609982	Total: 59012990				.85	-.2	
5:00	Flow:	Flow:	Flow:						
5:00	Total:	Total:	Total:						
6:00	Flow: 21708	Flow: Ecorr	Flow: 19384	576	576	576	-.4	.9	✓ (5)
6:00	Total: 11572727	Total:	Total: 60283203	60Hz	60Hz	60Hz			
7:00	Flow: 21935	Flow: Ecorr	Flow: 19456	576	576	576	-.4	.9	✓
7:00	Total: 12889089	Total:	Total: 61456144						
8:00	Flow: 21868	Flow: Ecorr	Flow: 19526	576	576	576	-.4	.9	✓
8:00	Total: 14217958	Total: Ecorr	Total: 62636181						
9:00	Flow: 21685	Flow: Ecorr	Flow: 19414	576	576	576	-.4	.9	✓
9:00	Total: 15569430	Total: Ecorr	Total: 63797677						
10:00	Flow: 21911	Flow: Ecorr	Flow: 19515	576	576	576	-.3	.9	✓
10:00	Total: 16831364	Total: Ecorr	Total: 64968607						
11:00	Flow: 21906	Flow: Ecorr	Flow: 19723	576	576	576	-.1	.9	✓
11:00	Total: 18132925		Total: 66140621						
(2) ~~11:50~~ 11:58	Flow: 21845	Flow: 19698	Flow: [redacted]	576	576	576	-.0	.9	✓ (2)
~~11:50~~	Total: 19277641	Total: Ecorr	Total: 67171872						

PUMP OPERATOR: [redacted] Date: 10/30/2015

Page 18 of 24

VERIFIED BY PUMP COORDINATOR: [redacted] Date: 10/31/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month Day Year

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
13:00	Flow:	Flow:	Flow:						
13:00	Total:	Total:	Total:						
14:00	Flow:	Flow:	Flow:						
14:00	Total:	Total:	Total:						
15:00	Flow:	Flow:	Flow:						
15:00	Total:	Total:	Total:						
16:00	Flow:	Flow:	Flow:						
16:00	Total:	Total:	Total:						
17:00	Flow:	Flow:	Flow:						
17:00	Total:	Total:	Total:						
18:00	Flow:	Flow:	Flow:						
18:00	Total:	Total:	Total:						
19:00	Flow:	Flow:	Flow:						
19:00	Total:	Total:	Total:						
20:00	Flow:	Flow:	Flow:						
20:00	Total:	Total:	Total:						
21:00	Flow:	Flow:	Flow:						
21:00	Total:	Total:	Total:						
22:00	Flow:	Flow:	Flow:						
22:00	Total:	Total:	Total:						
23:00	Flow:	Flow:	Flow:						
23:00	Total:	Total:	Total:						
24:00	Flow:	Flow:	Flow:						
24:00	Total:	Total:	Total:						

PUMP OPERATOR: _____

Date: _____

VERIFIED BY PUMP COORDINATOR: _____

Date: _____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

The AWE South Pump Operator is responsible for the safe operation of the two 36" axial pumps. All pumping evolutions will be at the direction of the Pump Coordinator except if an emergency shutdown is required. All events or equipment issues will be documented in the enclosed Event Log and will be immediately reported to the Pump Coordinator. Responsibilities of the Pump Operator include but are not limited to the following items:

- Maintaining the safe operation of the South Pumping Station and performing and logging required periodic maintenance/lubrication of pump equipment
- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Communicating any issues with pump performance or compliance with the permit to the Pump Coordinator
- Performing Emergency Response activities to address an evacuation order
- Monitor the transformer containment pad daily and drain the water when it rains
- Maintaining Pump flows at the direction of the Pump Coordinator
- Perform Manatee and crocodile watch when pumps are running (Polarized lenses are required for Manatee watch)
- Perform all designated routines, readings and recordings throughout the shift including maintaining housekeeping standards at the South Pumping Station
- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day (to be part of the submittal)
- Maintaining 24/7 coverage of the South Pump Station when the South Pumps are operational

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

Document on the log sheet periodic maintenance/lubrication and pump level changes.
Every hour check out the system for the following and document on the hourly log sheet:

i) External leakage
ii) Signs of shore erosion
iii) Excessive pipe movement
iv) Intake Grass or debris/wildlife approach
v) Erratic pump motor amperage (> ± 10% of benchmark full flow value)

Date / Time EVENT LOG BOOK Page _ of _

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

Date / Time EVENT LOG BOOK Page _of _

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET	Month	Day	Year			
Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
00:00	Flow:	Flow:				
00:00	Total:	Total:				
1:00	Flow:	Flow:				
100	Total:	Total:				
2:00	Flow:	Flow:				
2:00	Total:	Total:				
3:00	Flow:	Flow:				
3:00	Total:	Total:				
4:00	Flow:	Flow:				
4:00	Total:	Total:				
5:00	Flow:	Flow:				
5:00	Total:	Total:				
6:00	Flow:	Flow:				
6:00	Total:	Total:				
7:00	Flow:	Flow:				
7:00	Total:	Total:				
8:00	Flow:	Flow:				
8:00	Total:	Total:				
9:00	Flow:	Flow:				
9:00	Total:	Total:				
10:00	Flow:	Flow:				
10:00	Total:	Total:				
11:00	Flow:	Flow:				
11:00	Total:	Total:				
12:00	Flow:	Flow:				
12:00	Total:	Total:				

PUMP OPERATOR_____

Date_____

VERIFIED BY PUMP COORDINATOR_____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month Day Year

Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
13:00	Flow:	Flow:				
13:00	Total:	Total:				
14:00	Flow:	Flow:				
14:00	Total:	Total:				
15:00	Flow:	Flow:				
15:00	Total:	Total:				
16:00	Flow:	Flow:				
16:00	Total:	Total:				
17:00	Flow:	Flow:				
17:00	Total:	Total:				
18:00	Flow:	Flow:				
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19:00	Flow:	Flow:				
19:00	Total:	Total:				
20:00	Flow:	Flow:				
20:00	Total:	Total:				
21:00	Flow:	Flow:				
21:00	Total:	Total:				
22:00	Flow:	Flow:				
22:00	Total:	Total:				
23:00	Flow:	Flow:				
23:00	Total:	Total:				
24:00	Flow:	Flow:				
24: 00	Total:	Total:				

PUMP OPERATOR_____

Date_____

VERIFIED BY PUMP COORDINATOR_____

Date:_____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

10/29
Pump Run

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

Date / Time	EVENT LOG BOOK	Page 1 of _
10/30 1420	Performed Wildlife Check	
/	Prepared Stations for pumping	
/		
10/30 1450	Started North Pumps	
1455	Started South Pumps	
1600	North Station Pumped = 4,339,058	
1600	South Station Pumped = 4,241,835	
1700	North Station Pumped = 3,740,490	
1700	South station Pumped = 3,960,930	
1800	North Station Pumped = 3,749,550	
1800	South Station Pumped = 3,963,240	
1800	Changed Hz at South Station From 57 Hz to 56 Hz	
1900	North Station Pumped = 3,740,790	
1900	South Station Pumped = 3,912,810	
1000	North Station Pumped = 3,741,750	
1000	South Station Pumped = 3,840,210	
1100	North station Pumped = 3,757,470	
1100	South Station Pumped = 3,851,700	
1155	North station Pumped = 3,446,189	
1140	South Station Pumped = 2,649,480	
/		
1200	Total Pumped by North Stations = 26,515,294	
1200	Total Pumped into CCS by South Station = 26,420,025	
/		
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EESECASH 10/30/15
Kyle Carr Rev 8, 10/01/2015

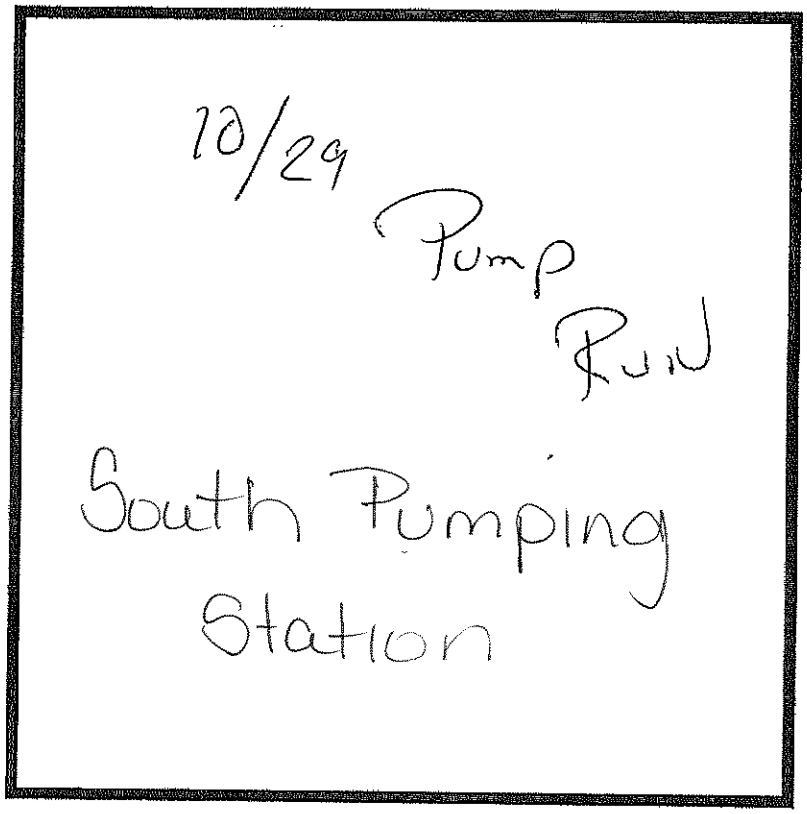
INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: _____ **Date:** 10/1/15

Approved: _____ **Date:** 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps



INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1.0 PURPOSE

This procedure provides instructions for operating the North and South Pumping Stations to inject L31 Canal Water into the Canal Cooling System (CCS). The North Pumping Station consists of 3 (three) axial flow pumps, West 30" Pump, Center 30" Pump and East 30" Pump. The South Pumping Station consists of 2 (two) axial pumps, North 36" Pump and the South 36" Pump. Two shifts will be utilized to operate the pumping stations. Each shift will consist of a FPL Pump Coordinator, and One (1) AWE Pump Operator.

2.0 PRECAUTIONS AND LIMITATIONS

2.1 Precautions

1. Working over or around water requires either a personal flotation device or appropriate fall protection.
2. When work is to be performed on equipment in the water then 30" ring buoys with 90' of line shall be available with a lifesaving skiff at the work location.
3. Each shift should be familiar with the layout of each station specifically the location of floatation devices, spill kits, emergency shutdown equipment, fire extinguisher and logbooks that include all contact information.
4. Pump operation should be controlled using the Variable Frequency Drive (VFDs).
5. Pump control container live panel access is restricted to certified electricians

2.2 Limitations

1. Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches. Management notification is required if freeboard level is less than 7 inches. No pump operation is allowed if freeboard level is less than 5 inches.
2. When both pumping stations are capable of pumping they are to be manned continuously by a dedicated operator.
3. The North Pumping Station is always to be started first with a minimum of 5 minutes operation prior to starting the South Pumping Station.

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

4. The South Pumping Station is always to be stopped first with a minimum of 5 minutes prior to stopping the North Pumping Station.

5. Water level in the south canal shall not be allowed to decrease less than the initial level that the pumps were first started.

6. Pump control container access is restricted to AWE operators and FPL oversight.

3.0 PREREQUISITES

1. Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches. Management notification is required if freeboard level is less than 7 inches. No pump operation is allowed if freeboard level is less than 5 inches.

2. Ensure staff gauges are installed at both pump locations and verify that level can be visibly determined and recorded hourly when the pumps are capable of pumping. Ensure canal level indication is available from the data loggers.

3. Ensure flow measuring devices are energized and not indicating any faults.

4. Ensure data loggers are energized and ready to operate.

5. Verify floating turbidity curtain and secondary debris screens (fence)are intact and positioned to encompass the pump location.

6. Ensure logbooks are at each pump station

7. Review the criteria for emergency shutdown of the pumps:

- ☒ Manatees or crocodiles noted less than 50 feet from the pumps
- ☒ Excessive pipe movement
- ☒ Excessive leakage on pump discharge piping
- ☒ Significant shore erosion since the last inspection
- ☒ When directed by either Pump Operator or the Pump Coordinator
- ☒ Erratic pump motor amperage (> ± 10% of benchmark full flow value)

4.0 NORMAL OPERATIONS

1. When normal pumping cycles are imminent, the pump Operation will be fully staffed for 18 hour operation, 7 day per week. This staff will be comprised of a day and night

shift coverage which will include One (1) vender supplied pump operator, and One (1) FPL Project Team member per shift.

2. The on shift FPL Project Team member will be responsible for monitoring the SFWMD website a minimum once every 15 minutes for the 504 acre-feet threshold. In addition the FPL PTN Chemistry Department will perform hourly monitoring of the SFWMD website with notifications to the Chemistry Manager and PGM if transfer volume reaches 400 acre-feet.

3. Prior to Pump Operation:
   - Verify CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches.
   - Management notification is required if freeboard level is less than 7 inches to provide:
     - canal level data
     - general canal status
     - weather forecast that may add to the CCS level.

4. After reaching 504 acre-feet notification shall be made to Ray Moore and/or Alan Katz after commencing and/or securing pump operation.

5. Any questions or concerns that should arise during either shift of operation shall be vetted through Ray Moore or Alan Katz.

4.1 North Pumping Station Start-up

CAUTION

The North Pumping Station is always to be started a minimum of 5 minutes operation prior to starting the South Pumping Station.

1. Ensure North Pump Operator has reviewed ATTACHMENT 2, North Pump Operator Roles and Responsibilities.

2. Pre-Start Up Check List:
   - external leakage
   - perform pre-start checks
   - Signs of shore erosion
   - Excessive pipe movement
   - Verify Grass and Trash are clear from inside Turbidity Curtain
   - Erratic Motor Amperage
   - Verify CCS is clear at South Discharge

3. Monitor South Florida Water Management District and confirm the SFWMD flow authorization for the next pumping period until 11:59 PM and document below (bay delivery point of 504 acre-feet).

4. Record the canal levels at the North and South canal and document on Attachment 2 for North and Attachment 3 for South.

> ***CAUTION***
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

5. Verify Flow indicators are energized for the pump discharge headers on Attachment 2 for North and Attachment 3 for South.

6. Turn Pump ON
   - Check for Manatee and Wildlife
   - Verify pump Breaker is ON
   - Verify Main Breaker is ON
   - verify SWITCH is turned to VFD
   - Verify HZ is set a desired setting (60HZ = full power)
   - PUSH START button
   - Verify Water is Flowing from motor tube

7. Verify water flow is observed at the south side of Palm Drive and document on Attachment 2.

4.2 South Pumping Station Start-up

> ***CAUTION***
> ***The North Pumping Station is always to be started a minimum of 5 minutes operation prior to starting the South Pumping Station.***

1. Ensure South Pump Operator has reviewed ATTACHMENT 3, South Pump Operator Roles and Responsibilities.

2. Pre-Start Up Check List:
   - external leakage

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

- perform pre-start checks
- Signs of shore erosion
- Excessive pipe movement
- Verify Grass and Trash are Cleared inside Turbidity Curtain
- Erratic Motor Amperage
- Verify CCS is clear at the Discharge

3. Verify Flow indicators are energized for the pump discharge headers. Document on Attachment 3.

4. Record the Total flow rate from the North Pumping Station on Attachment 3.

5. Record the canal levels at the North and South canal and document on Attachment 2 for North and Attachment 3 for South.

> ***CAUTION***
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

6. Verify that the North Station Pump(s) are Operating

7. Turn Pump ON
   - Check for Manatee and Wildlife
   - Verify pump Breaker is ON
   - Verify Main Breaker is ON
   - verify SWITCH is turned to VFD
   - Verify HZ is set a desired setting (60HZ = full power)
   - PUSH START button
   - Verify Water is Flowing from motor tube

8. Verify water flow is observed at the Cooling Canal System and document on Attachment 3.

4.3 South Pumping Station Shutdown

> ***CAUTION***
> ***The South Pumping Station is always to be stopped a minimum of 5 minutes prior to stopping the North Pumping Station.***

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Verify that the Injection of L31 Canal Water to the Canal Cooling System is to be shutdown.

> ***CAUTION***
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

2. Record the canal levels at the North and South canal and document on Attachment 2 and Attachment 3
3. Shutdown Pump
   - Read TOTALIZER PRIOR to turning pump off
   - Push OFF button
   - Allow Frequency to COAST down to 00:00
   - HZ Reading will remain the same
   - Listen for pump to STOP RUNNING
   - Once you have verified pump has come to COMPLETE STOP
   - Turn SWITCH to OFF (ONE CLICK ONLY)
4. Verify water flow is observed to stop at the Canal Cooling System.
5. Record the shutdown time and flow volume totals of the South Pumping Station on ATTACHMENT 3, South Pump Operator Roles and Responsibilities.
6. Check out the system for:
   - Visual inspect for excess grass and trash and document in log
   - Signs of shore erosion
   - Read staff gauge and continue to log for an additional 10 minutes
7. Verify the South Pumping Station is shutdown prior to shutting down the North Pumping Station.

4.4 North Pumping Station Shutdown

> ***CAUTION***
> ***The South Pumping Station is always to be stopped a minimum of 5 minutes prior to stopping the North Pumping Station.***

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Verify that the South Pumping Station is shut down

CAUTION
Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started

2. Record the canal levels at the North and South canal and document on Attachment 2 and Attachment 3

3. Shutdown Pump
   - Read TOTALIZER PRIOR to turning pump off
   - Push OFF button
   - Allow Frequency to COAST down to 00:00
   - HZ Reading will remain the same
   - Listen for pump to STOP RUNNING
   - Once you have verified pump has come to COMPLETE STOP
   - Turn SWITCH to OFF (ONE CLICK ONLY)

4. Shutdown the running pumps at the North Pumping Station and verify water flow is observed to stop at the south side of Palm Drive.

5. Record the shutdown time and flow volume totals of the North Pumping Station on ATTACHMENT 2, North Pump Operator Roles and Responsibilities.

6. Check out the system for:
   - Visual inspect for excess grass and trash and document in log
   - Signs of shore erosion
   - Read staff gauge and continue to log for an additional 10 minutes

7. Notify the Water District Management that Injection of L31 Canal Water to the Canal Cooling System is shutdown. SFWMD Operation Control Center 561-682-6116.

5.0 INFREQUENT OPERATIONS

5.1 Emergency shutdown of pump stations

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Immediately stop the Pumps and notify the Pump Coordinator and the other Pump Station that flow has stopped when any of the following conditions apply:

   - Erratic pump motor amperage indicative of suction blockage
   - Intake grate fouling that is degrading pump performance
   - Manatees or crocodiles noted less than 50 feet from the pumps
   - Excessive pipe movement
   - Excessive leakage on pump discharge piping
   - Emergency evacuation order
   - Significant shore erosion since the last inspection
   - When directed by either Pump Operator

2. Pump Coordinator to notify the SFWM of the reason that the pumps were immediately shutdown.

3. Notify Environmental of the reason that the pumps were immediately shutdown and request assistance as required.

4. Pump Coordinator shall document the date/time of the event total flow volume pumped and a description of actions taken and persons notified.

   Date/Time: _____/_____

   _____

   _____

   _____

   _____

   _____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

6.0 RECORDS

The Pump Coordinator is to scan and transmit the North and South Pump Operator daily log readings each day to Environmental for subsequent submittal to DERM/SFWDM. Transfer electronic copies to WO 40379504 Documents EDMS file folder.

7.0 REFERENCES AND COMMITMENTS

- Class 1 Construction permit, permit # CLI-2014-0312
- South Florida Water Management District Emergency Order, SFWMD No. 2015-0034-DAO-WU/ROW/ERP
- Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Taylor Engineering FPL PTN Cooling Canal Freshwater Recharge
- PTN Engineering Change (EC) 282152

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1

Pump Coordinator Roles and Responsibilities

The FPL Pump Coordinator is the main point of contact for all activities associated with the injection of L31 Canal water into the Canal Cooling System.

The Pump Coordinator will report to FPL Environmental and will provide direction to the Pump Operators on Starting and Stopping of the pumps including infrequent operations involving the emergency shutdown of all pumping equipment.

Responsibilities of the Pump Coordinator include but are not limited to the following items:

- Maintaining the safe operation of the North and South Pumping Stations
- Briefing the Pump Operators on their roles and responsibilities
- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Communicating any issues with pump performance or compliance with the permit to the Control Room and Environmental
- Coordination of Emergency Response activities to address an evacuation
- Obtaining the daily water pump start authorization and maintaining Pumping Stations in compliance with the SFWMD permitted pumping start time. Authorization is defined as after the daily SFWMD bay discharge quota is reached.
- Coordinating Pump starts/stops at the North and South Pumping Stations
- Ensuring Pump Operator performs all designated routines throughout the shift
- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day (to be part of the submittal)

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

- Periodically inspect each Pump Station (approx. once per 3hrs) to verify and validate (V&V) recorded data of the operators and conduct of Pump Operations
- Maintaining 24/7 coverage of the Pump Stations when the North and South Pumps are operational
- Maintaining housekeeping standards at the North and South Pumping Stations
- Scan and transfer reports daily of pump data to FPL Environmental at 11:59 AM or shortly thereafter each day. Transfer electronic copy to WO 40379504 EDMS file.

Contact information

Control Room		-	Shift Manager	X6492
Control Room		-	Emergency	X4444
Rory Rahming		-	Environmental	786-427-7437
Nan Sweeney	(Dayshift)	-	Pump Coordinator	570-241-8135
Willis Nettles	(Night Shift)	-	Pump Coordinator	772-473-1041

Coastal and Wetlands Resource Section		305-372-6575
FWC	ImperiledSpecies@myFWC.com	
FWC Hotline		888-404-3922
U.S. Fish and Wildlife Service		772-562-3909
State of Florida Bureau Archaeological Research		850-245-6444
Miami-Dade County Office of Historic Preservation		305-375-3412

DERM Coastal and Wetlands Resource Compliance Supervisor
John Ricisak ricisj@miamidade.gov
DERM Coastal and Wetlands Resource Permitting Supervisor
Christine Hopps hoppsc@miamidade.gov

SFWMD:
Executive Director, Len Lindahl, LLindahl@sfwmd.gov
Water Resources Division Director, Terri Bates, tbates@sfwmd.gov
Water Resources Hydrologist, Simon Sunderland, P.G, ssunder@sfwmd.gov
Bureau Chief, Maria Clemente, P.E. at mclement@sfwmd.gov

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

10/29
Pump Run

Page 2 of _

Date / Time	EVENT LOG BOOK
10/30/1420	Performed Wildlife Check
/1430	Prepared Stations for pumping
/	
10/30/1450	Started North pumps
/1455	Started South pumps
/1600	North Station Pumped = 4,339,058
/1600	South Station Pumped = 4,241,835
/1700	North Station Pumped = 3,740,490
/1700	South station Pumped = 3,960,930
/1800	North Station Pumped = 3,749,550
/1800	South Station Pumped = 3,963,240
/1800	Changed Hz at South Station From 57 Hz to 56 Hz
/1900	North Station Pumped = 3,740,790
/1900	South Station Pumped = 3,912,810
/1000	North Station Pumped = 3,741,750
/1000	South Station Pumped = 3,840,210
/1100	North station Pumped = 3,757,470
/1100	South station Pumped = 3,851,700
/1155	North station Pumped = 3,446,189
/1140	South Station Pumped = 2,649,480
/	
/1200	Total Pumped by North Station = 26,515,299
/1200	Total Pumped into CCS by South Station = 26,420,025
/	
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/	

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

The AWE North Pump Operator is responsible for the safe operation of the three submersible pumps and associated variable speed drives and instrumentation. All pumping evolutions will be at the direction of the Pump Coordinator except if an emergency shutdown is required.
All events or equipment issues will be documented in the enclosed Event Log and will be immediately reported to the Pump Coordinator. Responsibilities of the Pump Operator include but are not limited to the following items:

- Maintaining the safe operation of the North Pumping Stations and performing and logging required periodic maintenance/lubrication of pump equipment Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches.

- Management notification is required if freeboard level is less than 7 inches to provide canal level data, general canal status, and weather forecast that may add to the CCS level. No pump operation is allowed if freeboard level is less than 5 inches.

- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)

- Communicating any issues with pump performance or compliance with the permit to the Pump Coordinator

- Performing Emergency Response activities to address an evacuation order or a fuel/oil spill

- Ensure spill response equipment maintained in good condition

- Maintaining Pump flows at the direction of the Pump Coordinator

- Perform Manatee and crocodile watch when pumps are running (Polarized lenses are required for Manatee watch)

- Perform all designated routines, readings and recordings throughout the shift including maintaining housekeeping standards at the North Pumping Station

- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day(to be part of the submittal)

- Maintaining 24/7 coverage of the North Pump Station when the North Pumps are operational

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

Document on the log sheet periodic maintenance/lubrication and pump level changes.
Every hour Check out the system for the following and document on the hourly log sheet:

i) External leakage
ii) Signs of shore erosion
iii) Excessive pipe movement
iv) Intake Grate fouling or debris/wildlife approach
v) Erratic pump motor amperage (> ± 10% of benchmark full flow value)

Date / Time EVENT LOG BOOK Page _ of _

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

Date / Time EVENT LOG BOOK Page _ of _

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET	Month	Day	Year						
Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
00:00	Flow:	Flow:	Flow:						
00:00	Total:	Total:	Total:						
1:00	Flow:	Flow:	Flow:						
1:00	Total:	Total:	Total:						
2:00	Flow:	Flow:	Flow:						
2:00	Total:	Total:	Total:						
3:00	Flow:	Flow:	Flow:						
3:00	Total:	Total:	Total:						
4:00	Flow:	Flow:	Flow:						
4:00	Total:	Total:	Total:						
5:00	Flow:	Flow:	Flow:						
5:00	Total:	Total:	Total:						
6:00	Flow:	Flow:	Flow:						
6:00	Total:	Total:	Total:						
7:00	Flow:	Flow:	Flow:						
7:00	Total:	Total:	Total:						
8:00	Flow:	Flow:	Flow:						
8:00	Total:	Total:	Total:						
9:00	Flow:	Flow:	Flow:						
9:00	Total:	Total:	Total:						
10:00	Flow:	Flow:	Flow:						
10:00	Total:	Total:	Total:						
11:00	Flow:	Flow:	Flow:						
11:00	Total								
12:00	Flow:	Flow:	Flow:						
12:00	Total:	Total:	Total:						

PUMP OPERATOR _____

Date _____

VERIFIED BY PUMP COORDINATOR _____ Date: _____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET	Month	Day	Year						
Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
13:00	Flow:	Flow:	Flow:						
13:00	Total:	Total:	Total:						
14:00	Flow:	Flow:	Flow:						
14:00	Total:	Total:	Total:						
15:00	Flow:	Flow:	Flow:						
15:00	Total:	Total:	Total:						
16:00	Flow:	Flow:	Flow:						
16:00	Total:	Total:	Total:						
17:00	Flow:	Flow:	Flow:						
17:00	Total:	Total:	Total:						
18:00	Flow:	Flow:	Flow:						
18:00	Total:	Total:	Total:						
19:00	Flow:	Flow:	Flow:						
19:00	Total:	Total:	Total:						
20:00	Flow:	Flow:	Flow:						
20:00	Total:	Total:	Total:						
21:00	Flow:	Flow:	Flow:						
21:00	Total:	Total:	Total:						
22:00	Flow:	Flow:	Flow:						
22:00	Total:	Total:	Total:						
23:00	Flow:	Flow:	Flow:						
23:00	Total:	Total:	Total:						
24:00	Flow:	Flow:	Flow:						
24:00	Total:	Total:	Total:						

PUMP OPERATOR _____

Date

VERIFIED BY PUMP COORDINATOR _____

Date:

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

The AWE South Pump Operator is responsible for the safe operation of the two 36" axial pumps. All pumping evolutions will be at the direction of the Pump Coordinator except if an emergency shutdown is required. All events or equipment issues will be documented in the enclosed Event Log and will be immediately reported to the Pump Coordinator. Responsibilities of the Pump Operator include but are not limited to the following items:

- Maintaining the safe operation of the South Pumping Station and performing and logging required periodic maintenance/lubrication of pump equipment

- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)

- Communicating any issues with pump performance or compliance with the permit to the Pump Coordinator

- Performing Emergency Response activities to address an evacuation order

- Monitor the transformer containment pad daily and drain the water when it rains

- Maintaining Pump flows at the direction of the Pump Coordinator

- Perform Manatee and crocodile watch when pumps are running (Polarized lenses are required for Manatee watch)

- Perform all designated routines, readings and recordings throughout the shift including maintaining housekeeping standards at the South Pumping Station

- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day (to be part of the submittal)

- Maintaining 24/7 coverage of the South Pump Station when the South Pumps are operational

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

Document on the log sheet periodic maintenance/lubrication and pump level changes.
Every hour check out the system for the following and document on the hourly log sheet:

i) External leakage
ii) Signs of shore erosion
iii) Excessive pipe movement
iv) Intake Grass or debris/wildlife approach
v) Erratic pump motor amperage (> ± 10% of benchmark full flow value)

Date / Time	EVENT LOG BOOK	Page _ of
10/20/ 4:11	The staff gauge is 0.85. no endangered wildlife /crocodiles	
___/___	pumps are in good conditions,	
___/ 4:55	Started pumps @ 57 Hz	
___/ 545	SHIFT CHANGE W/ KYLE	
___/ 900	LOWERED THE Hz TO 56	
___/ 1140	STOPPED PUMPING	
___/___		
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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

Date / Time | EVENT LOG BOOK | Page _of _

Date / Time	Event
____/____	
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ERICCASH

Rev 8, 10/01/2015

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month 10 Day 30 Year 2015

Time	North Pump (107944)	South Pump (107939)	RPM No. Pump	RPM So. Pump	South Canal Level	System Checks Sat.
00:00	Flow:	Flow:				
00:00	Total:	Total:				
1:00	Flow:	Flow:				
100	Total:	Total:				
2:00	Flow:	Flow:				
2:00	Total:	Total:				
3:00	Flow:	Flow:				
3:00	Total:	Total:				
~~4:00~~ 4:55	Flow: 33876	Flow: 30663	596	598	0.85	a screw is loose
~~4:00~~ 4:55	Total: 67099707	Total: 20685905				
~~5:00~~ 600	Flow: 34008	Flow: 31971	598	598	.85	✓
~~5:00~~ 600	Total: 67284290	Total: 20725107				
6:00	Flow:	Flow:				
6:00	Total:	Total:				
7:00	Flow: 34042	Flow: 30990	598	598	.85	✓
7:00	Total: 67557860	Total: 20576204				
8:00	Flow: 34022	Flow: 32054	598	598	.85	✓
8:00	Total: 67906751	Total: 20803323				
9:00	Flow: 33515	Flow: 30836	586	586	.85	✓
9:00	Total: 67940970	Total: 20831010				
10:00	Flow: 33352	Flow: 30304	586	586	.85	✓
10:00	Total: 68274093	Total: 20861079				
11:00	Flow: 34032	Flow: 31402	586	586	.85	✓
11:00	Total: 68275949	Total: 20984409				
12:00	Flow: 34352	Flow: 32486	586	586	.85	
12:00	Total: 68575052	Total: 21014839				

PUMP OPERATOR ERICCASH

Date 10/30/15

VERIFIED BY PUMP COORDINATOR

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month Day Year						
Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
13:00	Flow:	Flow:				
13:00	Total:	Total:				
14:00	Flow:	Flow:				
14:00	Total:	Total:				
15:00	Flow:	Flow:				
15:00	Total:	Total:				
16:00	Flow:	Flow:				
16:00	Total:	Total:				
17:00	Flow:	Flow:				
17:00	Total:	Total:				
18:00	Flow:	Flow:				
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19:00	Total:	Total:				
20:00	Flow:	Flow:				
20:00	Total:	Total:				
21:00	Flow:	Flow:				
21:00	Total:	Total:				
22:00	Flow:	Flow:				
22:00	Total:	Total:				
23:00	Flow:	Flow:				
23:00	Total:	Total:				
24:00	Flow:	Flow:				
24: 00	Total:	Total:				

PUMP OPERATOR_____

Date_____

VERIFIED BY PUMP COORDINATOR_____

Date:_____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

10/29 Pump Run

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

EVENT LOG BOOK

Date / Time	
10/30 1420	Performed Wildlife Check
/	Prepared Stations for pumping
/	
10/30 1450	Started North Pumps
1455	Started South Pumps
1600	North Station Pumped = 4,339,055
1600	South Station Pumped = 4,241,835
1700	North Station Pumped = 3,740,490
1700	South station Pumped = 3,960,930
1800	North Station Pumped = 3,749,550
1800	South Station Pumped = 3,963,240
1800	Changed Hz at South Station From 57 Hz to 56 Hz
1900	North Station Pumped = 3,740,790
1900	South Station Pumped = 3,912,810
1000	North Station Pumped = 3,741,750
1000	South station Pumped = 3,840,210
1100	North station Pumped = 3,757,470
1100	South station Pumped = 3,851,700
1155	North station Pumped = 3,446,189
1140	South Station Pumped = 2,649,480
/	
1200	Total Pumped by North Station = 26,515,294
1200	Total Pumped into CCS by South Station = 26,420,025

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: _____ **Date:** 10/1/15

Approved: _____ **Date:** 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps

10/30
Pump Run
North Pumping
Station

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

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Bryan Ingram 10/31/2015

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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1.0 PURPOSE

This procedure provides instructions for operating the North and South Pumping Stations to inject L31 Canal Water into the Canal Cooling System (CCS). The North Pumping Station consists of 3 (three) axial flow pumps, West 30" Pump, Center 30" Pump and East 30" Pump. The South Pumping Station consists of 2 (two) axial pumps, North 36" Pump and the South 36" Pump. Two shifts will be utilized to operate the pumping stations. Each shift will consist of a FPL Pump Coordinator, and One (1) AWE Pump Operator.

2.0 PRECAUTIONS AND LIMITATIONS

2.1 Precautions

1. Working over or around water requires either a personal flotation device or appropriate fall protection.
2. When work is to be performed on equipment in the water then 30" ring buoys with 90' of line shall be available with a lifesaving skiff at the work location.
3. Each shift should be familiar with the layout of each station specifically the location of floatation devices, spill kits, emergency shutdown equipment, fire extinguisher and logbooks that include all contact information.
4. Pump operation should be controlled using the Variable Frequency Drive (VFDs).
5. Pump control container live panel access is restricted to certified electricians

2.2 Limitations

1. Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches. Management notification is required if freeboard level is less than 7 inches. No pump operation is allowed if freeboard level is less than 5 inches.
2. When both pumping stations are capable of pumping they are to be manned continuously by a dedicated operator.
3. The North Pumping Station is always to be started first with a minimum of 5 minutes operation prior to starting the South Pumping Station.

4. The South Pumping Station is always to be stopped first with a minimum of 5 minutes prior to stopping the North Pumping Station.
5. Water level in the south canal shall not be allowed to decrease less than the initial level that the pumps were first started.
6. Pump control container access is restricted to AWE operators and FPL oversight.

3.0 PREREQUISITES

1. Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches. Management notification is required if freeboard level is less than 7 inches. No pump operation is allowed if freeboard level is less than 5 inches.
2. Ensure staff gauges are installed at both pump locations and verify that level can be visibly determined and recorded hourly when the pumps are capable of pumping. Ensure canal level indication is available from the data loggers.
3. Ensure flow measuring devices are energized and not indicating any faults.
4. Ensure data loggers are energized and ready to operate.
5. Verify floating turbidity curtain and secondary debris screens (fence)are intact and positioned to encompass the pump location.
6. Ensure logbooks are at each pump station
7. Review the criteria for emergency shutdown of the pumps:

- Manatees or crocodiles noted less than 50 feet from the pumps
- Excessive pipe movement
- Excessive leakage on pump discharge piping
- Significant shore erosion since the last inspection
- When directed by either Pump Operator or the Pump Coordinator
- Erratic pump motor amperage (> ± 10% of benchmark full flow value)

4.0 NORMAL OPERATIONS

1. When normal pumping cycles are imminent, the pump Operation will be fully staffed for 18 hour operation, 7 day per week. This staff will be comprised of a day and night

shift coverage which will include One (1) vender supplied pump operator, and One (1) FPL Project Team member per shift.

2. The on shift FPL Project Team member will be responsible for monitoring the SFWMD website a minimum once every 15 minutes for the 504 acre-feet threshold. In addition the FPL PTN Chemistry Department will perform hourly monitoring of the SFWMD website with notifications to the Chemistry Manager and PGM if transfer volume reaches 400 acre-feet.

3. Prior to Pump Operation:
   - Verify CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches.
   - Management notification is required if freeboard level is less than 7 inches to provide:
     - canal level data
     - general canal status
     - weather forecast that may add to the CCS level.

4. After reaching 504 acre-feet notification shall be made to Ray Moore and/or Alan Katz after commencing and/or securing pump operation.

5. Any questions or concerns that should arise during either shift of operation shall be vetted through Ray Moore or Alan Katz.

4.1 North Pumping Station Start-up

CAUTION

The North Pumping Station is always to be started a minimum of 5 minutes operation prior to starting the South Pumping Station.

1. Ensure North Pump Operator has reviewed ATTACHMENT 2, North Pump Operator Roles and Responsibilities.

2. Pre-Start Up Check List:
   - external leakage
   - perform pre-start checks
   - Signs of shore erosion
   - Excessive pipe movement
   - Verify Grass and Trash are clear from inside Turbidity Curtain
   - Erratic Motor Amperage
   - Verify CCS is clear at South Discharge

3. Monitor South Florida Water Management District and confirm the SFWMD flow authorization for the next pumping period until 11:59 PM and document below (bay delivery point of 504 acre-feet).

4. Record the canal levels at the North and South canal and document on Attachment 2 for North and Attachment 3 for South.

> ***CAUTION***
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

5. Verify Flow indicators are energized for the pump discharge headers on Attachment 2 for North and Attachment 3 for South.

6. Turn Pump ON
   - Check for Manatee and Wildlife
   - Verify pump Breaker is ON
   - Verify Main Breaker is ON
   - verify SWITCH is turned to VFD
   - Verify HZ is set a desired setting (60HZ = full power)
   - PUSH START button
   - Verify Water is Flowing from motor tube

7. Verify water flow is observed at the south side of Palm Drive and document on Attachment 2.

4.2 South Pumping Station Start-up

> ***CAUTION***
> ***The North Pumping Station is always to be started a minimum of 5 minutes operation prior to starting the South Pumping Station.***

1. Ensure South Pump Operator has reviewed ATTACHMENT 3, South Pump Operator Roles and Responsibilities.

2. Pre-Start Up Check List:
   - external leakage

- perform pre-start checks
- Signs of shore erosion
- Excessive pipe movement
- Verify Grass and Trash are Cleared inside Turbidity Curtain
- Erratic Motor Amperage
- Verify CCS is clear at the Discharge

3. Verify Flow indicators are energized for the pump discharge headers. Document on Attachment 3.

4. Record the Total flow rate from the North Pumping Station on Attachment 3.

5. Record the canal levels at the North and South canal and document on Attachment 2 for North and Attachment 3 for South.

CAUTION
Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started

6. Verify that the North Station Pump(s) are Operating

7. Turn Pump ON
   - Check for Manatee and Wildlife
   - Verify pump Breaker is ON
   - Verify Main Breaker is ON
   - verify SWITCH is turned to VFD
   - Verify HZ is set a desired setting (60HZ = full power)
   - PUSH START button
   - Verify Water is Flowing from motor tube

8. Verify water flow is observed at the Cooling Canal System and document on Attachment 3.

4.3 South Pumping Station Shutdown

CAUTION
The South Pumping Station is always to be stopped a minimum of 5 minutes prior to stopping the North Pumping Station.

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Verify that the Injection of L31 Canal Water to the Canal Cooling System is to be shutdown.

> ***CAUTION***
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

2. Record the canal levels at the North and South canal and document on Attachment 2 and Attachment 3

3. Shutdown Pump

   - Read TOTALIZER PRIOR to turning pump off
   - Push OFF button
   - Allow Frequency to COAST down to 00:00
   - HZ Reading will remain the same
   - Listen for pump to STOP RUNNING
   - Once you have verified pump has come to COMPLETE STOP
   - Turn SWITCH to OFF (ONE CLICK ONLY)

4. Verify water flow is observed to stop at the Canal Cooling System.

5. Record the shutdown time and flow volume totals of the South Pumping Station on ATTACHMENT 3, South Pump Operator Roles and Responsibilities.

6. Check out the system for:
   - Visual inspect for excess grass and trash and document in log
   - Signs of shore erosion
   - Read staff gauge and continue to log for an additional 10 minutes

7. Verify the South Pumping Station is shutdown prior to shutting down the North Pumping Station.

4.4 North Pumping Station Shutdown

> ***CAUTION***
> ***The South Pumping Station is always to be stopped a minimum of 5 minutes prior to stopping the North Pumping Station.***

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Verify that the South Pumping Station is shut down

> ***CAUTION***
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

2. Record the canal levels at the North and South canal and document on Attachment 2 and Attachment 3

3. Shutdown Pump
   - Read TOTALIZER PRIOR to turning pump off
   - Push OFF button
   - Allow Frequency to COAST down to 00:00
   - HZ Reading will remain the same
   - Listen for pump to STOP RUNNING
   - Once you have verified pump has come to COMPLETE STOP
   - Turn SWITCH to OFF (ONE CLICK ONLY)

4. Shutdown the running pumps at the North Pumping Station and verify water flow is observed to stop at the south side of Palm Drive.

5. Record the shutdown time and flow volume totals of the North Pumping Station on ATTACHMENT 2, North Pump Operator Roles and Responsibilities.

6. Check out the system for:
   - Visual inspect for excess grass and trash and document in log
   - Signs of shore erosion
   - Read staff gauge and continue to log for an additional 10 minutes

7. Notify the Water District Management that Injection of L31 Canal Water to the Canal Cooling System is shutdown. SFWMD Operation Control Center 561-682-6116.

5.0 INFREQUENT OPERATIONS

5.1 Emergency shutdown of pump stations

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Immediately stop the Pumps and notify the Pump Coordinator and the other Pump Station that flow has stopped when any of the following conditions apply:
   - Erratic pump motor amperage indicative of suction blockage
   - Intake grate fouling that is degrading pump performance
   - Manatees or crocodiles noted less than 50 feet from the pumps
   - Excessive pipe movement
   - Excessive leakage on pump discharge piping
   - Emergency evacuation order
   - Significant shore erosion since the last inspection
   - When directed by either Pump Operator
2. Pump Coordinator to notify the SFWM of the reason that the pumps were immediately shutdown.
3. Notify Environmental of the reason that the pumps were immediately shutdown and request assistance as required.
4. Pump Coordinator shall document the date/time of the event total flow volume pumped and a description of actions taken and persons notified.

Date/Time: _____/_____

_____

_____

_____

_____

_____

6.0 RECORDS

The Pump Coordinator is to scan and transmit the North and South Pump Operator daily log readings each day to Environmental for subsequent submittal to DERM/SFWDM. Transfer electronic copies to WO 40379504 Documents EDMS file folder.

7.0 REFERENCES AND COMMITMENTS

- Class 1 Construction permit, permit # CLI-2014-0312
- South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
- Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Taylor Engineering FPL PTN Cooling Canal Freshwater Recharge
- PTN Engineering Change (EC) 282152

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1

Pump Coordinator Roles and Responsibilities

The FPL Pump Coordinator is the main point of contact for all activities associated with the injection of L31 Canal water into the Canal Cooling System.

The Pump Coordinator will report to FPL Environmental and will provide direction to the Pump Operators on Starting and Stopping of the pumps including infrequent operations involving the emergency shutdown of all pumping equipment.

Responsibilities of the Pump Coordinator include but are not limited to the following items:

- Maintaining the safe operation of the North and South Pumping Stations
- Briefing the Pump Operators on their roles and responsibilities
- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Communicating any issues with pump performance or compliance with the permit to the Control Room and Environmental
- Coordination of Emergency Response activities to address an evacuation
- Obtaining the daily water pump start authorization and maintaining Pumping Stations in compliance with the SFWMD permitted pumping start time. Authorization is defined as after the daily SFWMD bay discharge quota is reached.
- Coordinating Pump starts/stops at the North and South Pumping Stations
- Ensuring Pump Operator performs all designated routines throughout the shift
- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day (to be part of the submittal)

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

- Periodically inspect each Pump Station (approx. once per 3hrs) to verify and validate (V&V) recorded data of the operators and conduct of Pump Operations
- Maintaining 24/7 coverage of the Pump Stations when the North and South Pumps are operational
- Maintaining housekeeping standards at the North and South Pumping Stations
- Scan and transfer reports daily of pump data to FPL Environmental at 11:59 AM or shortly thereafter each day. Transfer electronic copy to WO 40379504 EDMS file.

Contact information

Control Room	-	Shift Manager	X6492
Control Room	-	Emergency	X4444
Rory Rahming	-	Environmental	786-427-7437
Nan Sweeney	(Dayshift) -	Pump Coordinator	570-241-8135
Willis Nettles	(Night Shift)-	Pump Coordinator	772-473-1041

Coastal and Wetlands Resource Section		305-372-6575
FWC	ImperiledSpecies@myFWC.com	
FWC Hotline		888-404-3922
U.S. Fish and Wildlife Service		772-562-3909
State of Florida Bureau Archaeological Research		850-245-6444
Miami-Dade County Office of Historic Preservation		305-375-3412

DERM Coastal and Wetlands Resource Compliance Supervisor
John Ricisak ricisj@miamidade.gov
DERM Coastal and Wetlands Resource Permitting Supervisor
Christine Hopps hoppsc@miamidade.gov

SFWMD:
Executive Director, Len Lindahl, LLindahl@sfwmd.gov
Water Resources Division Director, Terri Bates, tbates@sfwmd.gov
Water Resources Hydrologist, Simon Sunderland, P.G, ssunder@sfwmd.gov
Bureau Chief, Maria Clemente, P.E. at mclement@sfwmd.gov

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

10/30 Pump Run

Date / Time — EVENT LOG BOOK — Page 1 of _

Date / Time	EVENT LOG BOOK
10/31 /	
/	
9 / 1713	Started North Pumps
/ 1718	Started South Pumps
/	
/ 0800	North Station Pumped = 3,038,526
/ 0800	South Station Pumped = 2,664,333
/ 0900	North Station Pumped = 3,842,760
/ 0900	South Station Pumped = 3,805,170
/ 1000	North Station Pumped = 3,806,490
/ 1000	South Station Pumped = 3,836,990
/ 1100	North Station Pumped = 3,810,573
/ 1100	South Station Pumped = 3,920,850
/ 1155	North Station Pumped = 3,496,092
/ 1150	South Station Pumped = 3,297,150
/	
/ 1200	Total Pumped by North Station = 17,994,391
10/31 / 1200	Total Pumped by South Station into the CCS = 17,524,493

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

The AWE North Pump Operator is responsible for the safe operation of the three submersible pumps and associated variable speed drives and instrumentation. All pumping evolutions will be at the direction of the Pump Coordinator except if an emergency shutdown is required.
All events or equipment issues will be documented in the enclosed Event Log and will be immediately reported to the Pump Coordinator. Responsibilities of the Pump Operator include but are not limited to the following items:

- Maintaining the safe operation of the North Pumping Stations and performing and logging required periodic maintenance/lubrication of pump equipment Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches.
- Management notification is required if freeboard level is less than 7 inches to provide canal level data, general canal status, and weather forecast that may add to the CCS level. No pump operation is allowed if freeboard level is less than 5 inches.
- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Communicating any issues with pump performance or compliance with the permit to the Pump Coordinator
- Performing Emergency Response activities to address an evacuation order or a fuel/oil spill
- Ensure spill response equipment maintained in good condition
- Maintaining Pump flows at the direction of the Pump Coordinator
- Perform Manatee and crocodile watch when pumps are running (Polarized lenses are required for Manatee watch)
- Perform all designated routines, readings and recordings throughout the shift including maintaining housekeeping standards at the North Pumping Station
- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day(to be part of the submittal)
- Maintaining 24/7 coverage of the North Pump Station when the North Pumps are operational

Bryant Ingram

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

10/31/2015

ATTACHMENT 2

North Pump Operator Roles and Responsibilities

Document on the log sheet periodic maintenance/lubrication and pump level changes.
Every hour Check out the system for the following and document on the hourly log sheet:

(i) External leakage
(ii) Signs of shore erosion
(iii) Excessive pipe movement
(iv) Intake Grate fouling or debris/wildlife approach
(v) Erratic pump motor amperage (> ± 10% of benchmark full flow value)

BI

Date / Time EVENT LOG BOOK Page _ of _

10/31 / 0713 – Started pumps at 7:13 and Check all
/ pumps and p-tubes, No wildlife
/ 0800 – SAME
/ 0900 – Check all pumps and p-tubes and all are
/ working good. No wildlife, grass and debris
/ 1000 – SAME
/ 1100 – Check all pumps and p-tubes, wildlife, grass and
/ debris
/ 11:55 all pumps off at 11:55

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

Date / Time EVENT LOG BOOK Page _ of _

Bryan Ingram

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month 10 Day 31 Year 2015

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
00:00	Flow:	Flow:	Flow:						
00:00	Total:	Total:	Total:						
1:00	Flow:	Flow:	Flow:						
1:00	Total:	Total:	Total:						
2:00	Flow:	Flow:	Flow:						
2:00	Total:	Total:	Total:						
3:00	Flow:	Flow:	Flow:						
3:00	Total:	Total:	Total:						
4:00	Flow:	Flow:	Flow:						
4:00	Total:	Total:	Total:						
5:00	Flow:	Flow:	Flow:						
5:00	Total:	Total:	Total:						
6:00	Flow:	Flow:	Flow:						
6:00	Total:	Total:	Total:						
7:00 7:13	Flow: 23160	Flow: 30847	Flow: 20276	576	576	576	-.3	.9	✓
7:00	Total: 19384371	Total: 38445053	Total: 67248562						
8:00	Flow: 23575	Flow: ERROR	Flow: 20685	576	576	576	-.4	.9	✓
8:00	Total: 20349090	Total: ERROR	Total: 68121528						
9:00	Flow: 22227	Flow: ERROR	Flow: 20005	576	576	576	-.3	.9	✓
9:00	Total: 21788471	Total: ERROR	Total: 69315661						
10:00	Flow: 22484	Flow: ERROR	Flow: 19967	576	576	576	-.3	.9	✓
10:00	Total: 23044920	Total: ERROR	Total: 70513404						
11:00	Flow: 22207	Flow: ERROR	Flow: 20161	576	576	576	-.2	.9	✓
11:00	Total: 24464350	ERROR	71725210						
11:55	Flow: 22327	Flow: ERROR	Flow: 20232	576	576	576	.0	.9	✓
BI	Total: 26601314	Total: ERROR	Total: 72797499	60Hz	60Hz	60Hz			

PUMP OPERATOR: Bryan Ingram

Date: 10/31/2015

VERIFIED BY PUMP COORDINATOR __________ Date ______

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET	Month	Day	Year						
Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
13:00	Flow:	Flow:	Flow:						
13:00	Total:	Total:	Total:						
14:00	Flow:	Flow:	Flow:						
14:00	Total:	Total:	Total:						
15:00	Flow:	Flow:	Flow:						
15:00	Total:	Total:	Total:						
16:00	Flow:	Flow:	Flow:						
16:00	Total:	Total:	Total:						
17:00	Flow:	Flow:	Flow:						
17:00	Total:	Total:	Total:						
18:00	Flow:	Flow:	Flow:						
18:00	Total:	Total:	Total:						
19:00	Flow:	Flow:	Flow:						
19:00	Total:	Total:	Total:						
20:00	Flow:	Flow:	Flow:						
20:00	Total:	Total:	Total:						
21:00	Flow:	Flow:	Flow:						
21:00	Total:	Total:	Total:						
22:00	Flow:	Flow:	Flow:						
22:00	Total:	Total:	Total:						
23:00	Flow:	Flow:	Flow:						
23:00	Total:	Total:	Total:						
24:00	Flow:	Flow:	Flow:						
24:00	Total:	Total:	Total:						

PUMP OPERATOR _____

Date _____

VERIFIED BY PUMP COORDINATOR _____

Date _____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

The AWE South Pump Operator is responsible for the safe operation of the two 36" axial pumps. All pumping evolutions will be at the direction of the Pump Coordinator except if an emergency shutdown is required. All events or equipment issues will be documented in the enclosed Event Log and will be immediately reported to the Pump Coordinator. Responsibilities of the Pump Operator include but are not limited to the following items:

- Maintaining the safe operation of the South Pumping Station and performing and logging required periodic maintenance/lubrication of pump equipment

- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)

- Communicating any issues with pump performance or compliance with the permit to the Pump Coordinator

- Performing Emergency Response activities to address an evacuation order

- Monitor the transformer containment pad daily and drain the water when it rains

- Maintaining Pump flows at the direction of the Pump Coordinator

- Perform Manatee and crocodile watch when pumps are running (Polarized lenses are required for Manatee watch)

- Perform all designated routines, readings and recordings throughout the shift including maintaining housekeeping standards at the South Pumping Station

- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day (to be part of the submittal)

- Maintaining 24/7 coverage of the South Pump Station when the South Pumps are operational

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

Document on the log sheet periodic maintenance/lubrication and pump level changes.
Every hour check out the system for the following and document on the hourly log sheet:

i) External leakage
ii) Signs of shore erosion
iii) Excessive pipe movement
iv) Intake Grass or debris/wildlife approach
v) Erratic pump motor amperage (> ± 10% of benchmark full flow value)

Date / Time EVENT LOG BOOK Page _ of _

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

Date / Time EVENT LOG BOOK Page _of _

_____/_____ ______________________________
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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET	Month	Day	Year			
Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
00:00	Flow:	Flow:				
00:00	Total:	Total:				
1:00	Flow:	Flow:				
100	Total:	Total:				
2:00	Flow:	Flow:				
2:00	Total:	Total:				
3:00	Flow:	Flow:				
3:00	Total:	Total:				
4:00	Flow:	Flow:				
4:00	Total:	Total:				
5:00	Flow:	Flow:				
5:00	Total:	Total:				
6:00	Flow:	Flow:				
6:00	Total:	Total:				
7:00	Flow:	Flow:				
7:00	Total:	Total:				
8:00	Flow:	Flow:				
8:00	Total:	Total:				
9:00	Flow:	Flow:				
9:00	Total:	Total:				
10:00	Flow:	Flow:				
10:00	Total:	Total:				
11:00	Flow:	Flow:				
11:00	Total:	Total:				
12:00	Flow:	Flow:				
12:00	Total:	Total:				

PUMP OPERATOR_____

Date_____

VERIFIED BY PUMP COORDINATOR_____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month Day Year

Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
13:00	Flow:	Flow:				
13:00	Total:	Total:				
14:00	Flow:	Flow:				
14:00	Total:	Total:				
15:00	Flow:	Flow:				
15:00	Total:	Total:				
16:00	Flow:	Flow:				
16:00	Total:	Total:				
17:00	Flow:	Flow:				
17:00	Total:	Total:				
18:00	Flow:	Flow:				
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19:00	Flow:	Flow:				
19:00	Total:	Total:				
20:00	Flow:	Flow:				
20:00	Total:	Total:				
21:00	Flow:	Flow:				
21:00	Total:	Total:				
22:00	Flow:	Flow:				
22:00	Total:	Total:				
23:00	Flow:	Flow:				
23:00	Total:	Total:				
24:00	Flow:	Flow:				
24: 00	Total:	Total:				

PUMP OPERATOR_____

Date_____

VERIFIED BY PUMP COORDINATOR_____

Date:_____

ERIC CASH 10/31/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: _____ **Date:** 10/1/15

Approved: _____ **Date:** 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps

South Pumping Station

Pump Run Date 10/30/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1.0 PURPOSE

This procedure provides instructions for operating the North and South Pumping Stations to inject L31 Canal Water into the Canal Cooling System (CCS). The North Pumping Station consists of 3 (three) axial flow pumps, West 30" Pump, Center 30" Pump and East 30" Pump. The South Pumping Station consists of 2 (two) axial pumps, North 36" Pump and the South 36" Pump. Two shifts will be utilized to operate the pumping stations. Each shift will consist of a FPL Pump Coordinator, and One (1) AWE Pump Operator.

2.0 PRECAUTIONS AND LIMITATIONS

2.1 Precautions

1. Working over or around water requires either a personal flotation device or appropriate fall protection.
2. When work is to be performed on equipment in the water then 30" ring buoys with 90' of line shall be available with a lifesaving skiff at the work location.
3. Each shift should be familiar with the layout of each station specifically the location of floatation devices, spill kits, emergency shutdown equipment, fire extinguisher and logbooks that include all contact information.
4. Pump operation should be controlled using the Variable Frequency Drive (VFDs).
5. Pump control container live panel access is restricted to certified electricians

2.2 Limitations

1. Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches. Management notification is required if freeboard level is less than 7 inches. No pump operation is allowed if freeboard level is less than 5 inches.
2. When both pumping stations are capable of pumping they are to be manned continuously by a dedicated operator.
3. The North Pumping Station is always to be started first with a minimum of 5 minutes operation prior to starting the South Pumping Station.

4. The South Pumping Station is always to be stopped first with a minimum of 5 minutes prior to stopping the North Pumping Station.

5. Water level in the south canal shall not be allowed to decrease less than the initial level that the pumps were first started.

6. Pump control container access is restricted to AWE operators and FPL oversight.

3.0 PREREQUISITES

1. Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches. Management notification is required if freeboard level is less than 7 inches. No pump operation is allowed if freeboard level is less than 5 inches.

2. Ensure staff gauges are installed at both pump locations and verify that level can be visibly determined and recorded hourly when the pumps are capable of pumping. Ensure canal level indication is available from the data loggers.

3. Ensure flow measuring devices are energized and not indicating any faults.

4. Ensure data loggers are energized and ready to operate.

5. Verify floating turbidity curtain and secondary debris screens (fence)are intact and positioned to encompass the pump location.

6. Ensure logbooks are at each pump station

7. Review the criteria for emergency shutdown of the pumps:

- Manatees or crocodiles noted less than 50 feet from the pumps
- Excessive pipe movement
- Excessive leakage on pump discharge piping
- Significant shore erosion since the last inspection
- When directed by either Pump Operator or the Pump Coordinator
- Erratic pump motor amperage (> ± 10% of benchmark full flow value)

4.0 NORMAL OPERATIONS

1. When normal pumping cycles are imminent, the pump Operation will be fully staffed for 18 hour operation, 7 day per week. This staff will be comprised of a day and night

shift coverage which will include One (1) vender supplied pump operator, and One (1) FPL Project Team member per shift.

2. The on shift FPL Project Team member will be responsible for monitoring the SFWMD website a minimum once every 15 minutes for the 504 acre-feet threshold. In addition the FPL PTN Chemistry Department will perform hourly monitoring of the SFWMD website with notifications to the Chemistry Manager and PGM if transfer volume reaches 400 acre-feet.

3. Prior to Pump Operation:
   - Verify CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches.
   - Management notification is required if freeboard level is less than 7 inches to provide:
     - canal level data
     - general canal status
     - weather forecast that may add to the CCS level.

4. After reaching 504 acre-feet notification shall be made to Ray Moore and/or Alan Katz after commencing and/or securing pump operation.

5. Any questions or concerns that should arise during either shift of operation shall be vetted through Ray Moore or Alan Katz.

4.1 North Pumping Station Start-up

CAUTION

The North Pumping Station is always to be started a minimum of 5 minutes operation prior to starting the South Pumping Station.

1. Ensure North Pump Operator has reviewed ATTACHMENT 2, North Pump Operator Roles and Responsibilities.

2. Pre-Start Up Check List:
   - external leakage
   - perform pre-start checks
   - Signs of shore erosion
   - Excessive pipe movement
   - Verify Grass and Trash are clear from inside Turbidity Curtain
   - Erratic Motor Amperage
   - Verify CCS is clear at South Discharge

3. Monitor South Florida Water Management District and confirm the SFWMD flow authorization for the next pumping period until 11:59 PM and document below (bay delivery point of 504 acre-feet).

4. Record the canal levels at the North and South canal and document on Attachment 2 for North and Attachment 3 for South.

CAUTION
Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started

5. Verify Flow indicators are energized for the pump discharge headers on Attachment 2 for North and Attachment 3 for South.

6. Turn Pump ON
   - Check for Manatee and Wildlife
   - Verify pump Breaker is ON
   - Verify Main Breaker is ON
   - verify SWITCH is turned to VFD
   - Verify HZ is set a desired setting (60HZ = full power)
   - PUSH START button
   - Verify Water is Flowing from motor tube

7. Verify water flow is observed at the south side of Palm Drive and document on Attachment 2.

EC **4.2 South Pumping Station Start-up**

EC ***CAUTION***
The North Pumping Station is always to be started a minimum of 5 minutes operation prior to starting the South Pumping Station.

1 EC Ensure South Pump Operator has reviewed ATTACHMENT 3, South Pump Operator Roles and Responsibilities.

2 EC Pre-Start Up Check List:
   - external leakage

- perform pre-start checks
- Signs of shore erosion
- Excessive pipe movement
- Verify Grass and Trash are Cleared inside Turbidity Curtain
- Erratic Motor Amperage
- Verify CCS is clear at the Discharge

3. Verify Flow indicators are energized for the pump discharge headers. Document on Attachment 3.

4. Record the Total flow rate from the North Pumping Station on Attachment 3.

5. Record the canal levels at the North and South canal and document on Attachment 2 for North and Attachment 3 for South.

> ***CAUTION***
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

6. Verify that the North Station Pump(s) are Operating

7. Turn Pump ON
   - Check for Manatee and Wildlife
   - Verify pump Breaker is ON
   - Verify Main Breaker is ON
   - verify SWITCH is turned to VFD
   - Verify HZ is set a desired setting (60HZ = full power)
   - PUSH START button
   - Verify Water is Flowing from motor tube

8. Verify water flow is observed at the Cooling Canal System and document on Attachment 3.

4.3 South Pumping Station Shutdown

> ***CAUTION***
> ***The South Pumping Station is always to be stopped a minimum of 5 minutes prior to stopping the North Pumping Station.***

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. EC Verify that the Injection of L31 Canal Water to the Canal Cooling System is to be shutdown.

> ***CAUTION***
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

2. EC Record the canal levels at the North and South canal and document on Attachment 2 and Attachment 3

3. EC Shutdown Pump

- Read TOTALIZER PRIOR to turning pump off
- Push OFF button
- Allow Frequency to COAST down to 00:00
- HZ Reading will remain the same
- Listen for pump to STOP RUNNING
- Once you have verified pump has come to COMPLETE STOP
- Turn SWITCH to OFF (ONE CLICK ONLY)

4. EC Verify water flow is observed to stop at the Canal Cooling System.

5. EC Record the shutdown time and flow volume totals of the South Pumping Station on ATTACHMENT 3, South Pump Operator Roles and Responsibilities.

6. EC Check out the system for:

- Visual inspect for excess grass and trash and document in log
- Signs of shore erosion
- Read staff gauge and continue to log for an additional 10 minutes

7. EC Verify the South Pumping Station is shutdown prior to shutting down the North Pumping Station.

4.4 North Pumping Station Shutdown

> ***CAUTION***
> ***The South Pumping Station is always to be stopped a minimum of 5 minutes prior to stopping the North Pumping Station.***

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Verify that the South Pumping Station is shut down

> ***CAUTION***
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

2. Record the canal levels at the North and South canal and document on Attachment 2 and Attachment 3

3. Shutdown Pump
   - Read TOTALIZER PRIOR to turning pump off
   - Push OFF button
   - Allow Frequency to COAST down to 00:00
   - HZ Reading will remain the same
   - Listen for pump to STOP RUNNING
   - Once you have verified pump has come to COMPLETE STOP
   - Turn SWITCH to OFF (ONE CLICK ONLY)

4. Shutdown the running pumps at the North Pumping Station and verify water flow is observed to stop at the south side of Palm Drive.

5. Record the shutdown time and flow volume totals of the North Pumping Station on ATTACHMENT 2, North Pump Operator Roles and Responsibilities.

6. Check out the system for:
   - Visual inspect for excess grass and trash and document in log
   - Signs of shore erosion
   - Read staff gauge and continue to log for an additional 10 minutes

7. Notify the Water District Management that Injection of L31 Canal Water to the Canal Cooling System is shutdown. SFWMD Operation Control Center 561-682-6116.

5.0 INFREQUENT OPERATIONS

5.1 Emergency shutdown of pump stations

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Immediately stop the Pumps and notify the Pump Coordinator and the other Pump Station that flow has stopped when any of the following conditions apply:

- Erratic pump motor amperage indicative of suction blockage
- Intake grate fouling that is degrading pump performance
- Manatees or crocodiles noted less than 50 feet from the pumps
- Excessive pipe movement
- Excessive leakage on pump discharge piping
- Emergency evacuation order
- Significant shore erosion since the last inspection
- When directed by either Pump Operator

2. Pump Coordinator to notify the SFWM of the reason that the pumps were immediately shutdown.

3. Notify Environmental of the reason that the pumps were immediately shutdown and request assistance as required.

4. Pump Coordinator shall document the date/time of the event total flow volume pumped and a description of actions taken and persons notified.

Date/Time: _____/_____

_____

_____

_____

_____

_____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

6.0 RECORDS

The Pump Coordinator is to scan and transmit the North and South Pump Operator daily log readings each day to Environmental for subsequent submittal to DERM/SFWDM. Transfer electronic copies to WO 40379504 Documents EDMS file folder.

7.0 REFERENCES AND COMMITMENTS

- Class 1 Construction permit, permit # CLI-2014-0312
- South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
- Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Taylor Engineering FPL PTN Cooling Canal Freshwater Recharge
- PTN Engineering Change (EC) 282152

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1

Pump Coordinator Roles and Responsibilities

The FPL Pump Coordinator is the main point of contact for all activities associated with the injection of L31 Canal water into the Canal Cooling System.

The Pump Coordinator will report to FPL Environmental and will provide direction to the Pump Operators on Starting and Stopping of the pumps including infrequent operations involving the emergency shutdown of all pumping equipment.

Responsibilities of the Pump Coordinator include but are not limited to the following items:

- Maintaining the safe operation of the North and South Pumping Stations
- Briefing the Pump Operators on their roles and responsibilities
- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Communicating any issues with pump performance or compliance with the permit to the Control Room and Environmental
- Coordination of Emergency Response activities to address an evacuation
- Obtaining the daily water pump start authorization and maintaining Pumping Stations in compliance with the SFWMD permitted pumping start time. Authorization is defined as after the daily SFWMD bay discharge quota is reached.
- Coordinating Pump starts/stops at the North and South Pumping Stations
- Ensuring Pump Operator performs all designated routines throughout the shift
- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day (to be part of the submittal)

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

- Periodically inspect each Pump Station (approx. once per 3hrs) to verify and validate (V&V) recorded data of the operators and conduct of Pump Operations
- Maintaining 24/7 coverage of the Pump Stations when the North and South Pumps are operational
- Maintaining housekeeping standards at the North and South Pumping Stations
- Scan and transfer reports daily of pump data to FPL Environmental at 11:59 AM or shortly thereafter each day. Transfer electronic copy to WO 40379504 EDMS file.

Contact information

Control Room	-	Shift Manager	X6492
Control Room	-	Emergency	X4444
Rory Rahming	-	Environmental	786-427-7437
Nan Sweeney	(Dayshift) -	Pump Coordinator	570-241-8135
Willis Nettles	(Night Shift)-	Pump Coordinator	772-473-1041

Coastal and Wetlands Resource Section	305-372-6575
FWC ImperiledSpecies@myFWC.com	
FWC Hotline	888-404-3922
U.S. Fish and Wildlife Service	772-562-3909
State of Florida Bureau Archaeological Research	850-245-6444
Miami-Dade County Office of Historic Preservation	305-375-3412

DERM Coastal and Wetlands Resource Compliance Supervisor
John Ricisak ricisj@miamidade.gov
DERM Coastal and Wetlands Resource Permitting Supervisor
Christine Hopps hoppsc@miamidade.gov

SFWMD:
Executive Director, Len Lindahl, LLindahl@sfwmd.gov
Water Resources Division Director, Terri Bates, tbates@sfwmd.gov
Water Resources Hydrologist, Simon Sunderland, P.G, ssunder@sfwmd.gov
Bureau Chief, Maria Clemente, P.E. at mclement@sfwmd.gov

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

10/30 Pump Run

Date / Time — EVENT LOG BOOK — Page 1 of _

Date / Time	EVENT LOG BOOK
10/31 /	
/	
9 / 1713	Started North Pumps
/ 1718	Started South Pumps
/	
/ 0800	North Station Pumped = 3,038,526
/ 0800	South Station Pumped = 2,664,333
/ 0900	North Station Pumped = 3,842,760
/ 0900	South Station Pumped = 3,805,170
/ 1000	North Station Pumped = 3,806,490
/ 1000	South Station Pumped = 3,836,990
/ 1100	North Station Pumped = 3,810,573
/ 1100	South Station Pumped = 3,920,850
/ 1155	North station Pumped = 3,496,092
/ 1150	South Station Pumped = 3,297,150
/	
/ 1200	Total Pumped by North Station = 17,994,391
10/31 / 1200	Total Pumped by South Station into the CCS = 17,524,493

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

The AWE North Pump Operator is responsible for the safe operation of the three submersible pumps and associated variable speed drives and instrumentation. All pumping evolutions will be at the direction of the Pump Coordinator except if an emergency shutdown is required.
All events or equipment issues will be documented in the enclosed Event Log and will be immediately reported to the Pump Coordinator. Responsibilities of the Pump Operator include but are not limited to the following items:

- Maintaining the safe operation of the North Pumping Stations and performing and logging required periodic maintenance/lubrication of pump equipment Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches.

- Management notification is required if freeboard level is less than 7 inches to provide canal level data, general canal status, and weather forecast that may add to the CCS level. No pump operation is allowed if freeboard level is less than 5 inches.

- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)

- Communicating any issues with pump performance or compliance with the permit to the Pump Coordinator

- Performing Emergency Response activities to address an evacuation order or a fuel/oil spill

- Ensure spill response equipment maintained in good condition

- Maintaining Pump flows at the direction of the Pump Coordinator

- Perform Manatee and crocodile watch when pumps are running (Polarized lenses are required for Manatee watch)

- Perform all designated routines, readings and recordings throughout the shift including maintaining housekeeping standards at the North Pumping Station

- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day(to be part of the submittal)

- Maintaining 24/7 coverage of the North Pump Station when the North Pumps are operational

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

Document on the log sheet periodic maintenance/lubrication and pump level changes.
Every hour Check out the system for the following and document on the hourly log sheet:

i) External leakage
ii) Signs of shore erosion
iii) Excessive pipe movement
iv) Intake Grate fouling or debris/wildlife approach
v) Erratic pump motor amperage (> ± 10% of benchmark full flow value)

Date / Time EVENT LOG BOOK Page _ of _

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

Date / Time EVENT LOG BOOK Page _ of _

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET	Month	Day	Year						
Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
00:00	Flow:	Flow:	Flow:						
00:00	Total:	Total:	Total:						
1:00	Flow:	Flow:	Flow:						
1:00	Total:	Total:	Total:						
2:00	Flow:	Flow:	Flow:						
2:00	Total:	Total:	Total:						
3:00	Flow:	Flow:	Flow:						
3:00	Total:	Total:	Total:						
4:00	Flow:	Flow:	Flow:						
4:00	Total:	Total:	Total:						
5:00	Flow:	Flow:	Flow:						
5:00	Total:	Total:	Total:						
6:00	Flow:	Flow:	Flow:						
6:00	Total:	Total:	Total:						
7:00	Flow:	Flow:	Flow:						
7:00	Total:	Total:	Total:						
8:00	Flow:	Flow:	Flow:						
8:00	Total:	Total:	Total:						
9:00	Flow:	Flow:	Flow:						
9:00	Total:	Total:	Total:						
10:00	Flow:	Flow:	Flow:						
10:00	Total:	Total:	Total:						
11:00	Flow:	Flow:	Flow:						
11:00	Total								
12:00	Flow:	Flow:	Flow:						
12:00	Total:	Total:	Total:						

PUMP OPERATOR_____

Date_____

VERIFIED BY PUMP COORDINATOR_____ Date_____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month Day Year

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
13:00	Flow:	Flow:	Flow:						
13:00	Total:	Total:	Total:						
14:00	Flow:	Flow:	Flow:						
14:00	Total:	Total:	Total:						
15:00	Flow:	Flow:	Flow:						
15:00	Total:	Total:	Total:						
16:00	Flow:	Flow:	Flow:						
16:00	Total:	Total:	Total:						
17:00	Flow:	Flow:	Flow:						
17:00	Total:	Total:	Total:						
18:00	Flow:	Flow:	Flow:						
18:00	Total:	Total:	Total:						
19:00	Flow:	Flow:	Flow:						
19:00	Total:	Total:	Total:						
20:00	Flow:	Flow:	Flow:						
20:00	Total:	Total:	Total:						
21:00	Flow:	Flow:	Flow:						
21:00	Total:	Total:	Total:						
22:00	Flow:	Flow:	Flow:						
22:00	Total:	Total:	Total:						
23:00	Flow:	Flow:	Flow:						
23:00	Total:	Total:	Total:						
24:00	Flow:	Flow:	Flow:						
24:00	Total:	Total:	Total:						

PUMP OPERATOR _____

Date

VERIFIED BY PUMP COORDINATOR _____

Date: _____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

The AWE South Pump Operator is responsible for the safe operation of the two 36" axial pumps. All pumping evolutions will be at the direction of the Pump Coordinator except if an emergency shutdown is required. All events or equipment issues will be documented in the enclosed Event Log and will be immediately reported to the Pump Coordinator. Responsibilities of the Pump Operator include but are not limited to the following items:

- Maintaining the safe operation of the South Pumping Station and performing and logging required periodic maintenance/lubrication of pump equipment

- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)

- Communicating any issues with pump performance or compliance with the permit to the Pump Coordinator

- Performing Emergency Response activities to address an evacuation order

- Monitor the transformer containment pad daily and drain the water when it rains

- Maintaining Pump flows at the direction of the Pump Coordinator

- Perform Manatee and crocodile watch when pumps are running (Polarized lenses are required for Manatee watch)

- Perform all designated routines, readings and recordings throughout the shift including maintaining housekeeping standards at the South Pumping Station

- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day (to be part of the submittal)

- Maintaining 24/7 coverage of the South Pump Station when the South Pumps are operational

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

Document on the log sheet periodic maintenance/lubrication and pump level changes.
Every hour check out the system for the following and document on the hourly log sheet:

i) External leakage
ii) Signs of shore erosion
iii) Excessive pipe movement
iv) Intake Grass or debris/wildlife approach
v) Erratic pump motor amperage (> ± 10% of benchmark full flow value)

Date / Time — EVENT LOG BOOK — Page _ of _

10/31/7:00 INSPECTED PUMPS. CHECKED FOR WILDLIFE
/7:18 STARTED PUMPING @ 56 Hz
/9:27 CHANGED THE Hz TO 57
/11:50 STOPPED PUMPING

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

Date / Time EVENT LOG BOOK Page _of _

_____/_____ ____
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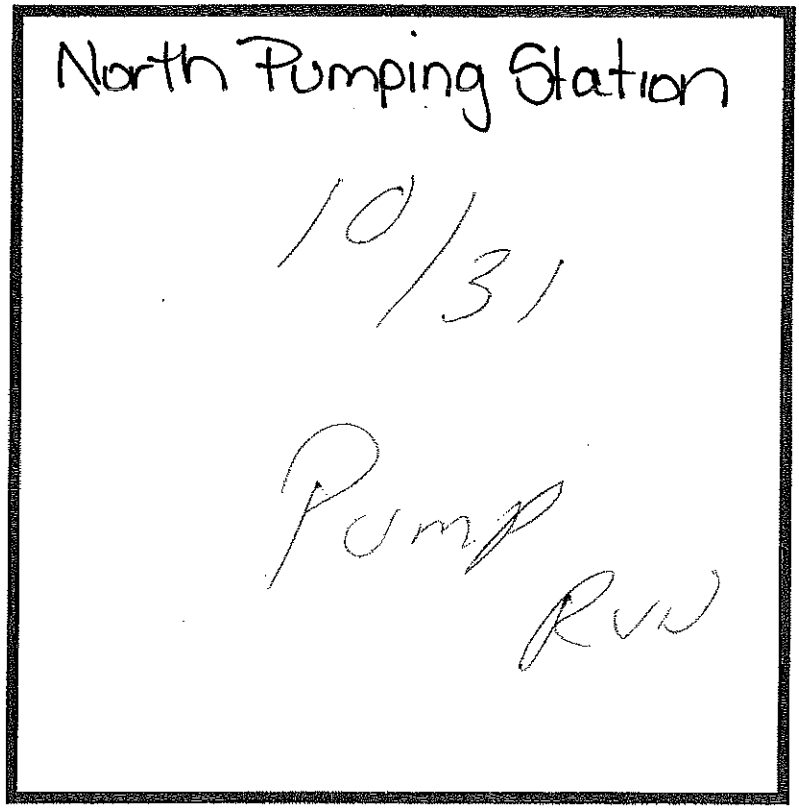
INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: _____ **Date:** 10/1/15

Approved: _____ **Date:** 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps



INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1.0 PURPOSE

This procedure provides instructions for operating the North and South Pumping Stations to inject L31 Canal Water into the Canal Cooling System (CCS). The North Pumping Station consists of 3 (three) axial flow pumps, West 30" Pump, Center 30" Pump and East 30" Pump. The South Pumping Station consists of 2 (two) axial pumps, North 36" Pump and the South 36" Pump. Two shifts will be utilized to operate the pumping stations. Each shift will consist of a FPL Pump Coordinator, and One (1) AWE Pump Operator.

2.0 PRECAUTIONS AND LIMITATIONS

2.1 Precautions

1. Working over or around water requires either a personal flotation device or appropriate fall protection.
2. When work is to be performed on equipment in the water then 30" ring buoys with 90' of line shall be available with a lifesaving skiff at the work location.
3. Each shift should be familiar with the layout of each station specifically the location of floatation devices, spill kits, emergency shutdown equipment, fire extinguisher and logbooks that include all contact information.
4. Pump operation should be controlled using the Variable Frequency Drive (VFDs).
5. Pump control container live panel access is restricted to certified electricians

2.2 Limitations

1. Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches. Management notification is required if freeboard level is less than 7 inches. No pump operation is allowed if freeboard level is less than 5 inches.
2. When both pumping stations are capable of pumping they are to be manned continuously by a dedicated operator.
3. The North Pumping Station is always to be started first with a minimum of 5 minutes operation prior to starting the South Pumping Station.

4. The South Pumping Station is always to be stopped first with a minimum of 5 minutes prior to stopping the North Pumping Station.
5. Water level in the south canal shall not be allowed to decrease less than the initial level that the pumps were first started.
6. Pump control container access is restricted to AWE operators and FPL oversight.

3.0 PREREQUISITES

1. Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches. Management notification is required if freeboard level is less than 7 inches. No pump operation is allowed if freeboard level is less than 5 inches.
2. Ensure staff gauges are installed at both pump locations and verify that level can be visibly determined and recorded hourly when the pumps are capable of pumping. Ensure canal level indication is available from the data loggers.
3. Ensure flow measuring devices are energized and not indicating any faults.
4. Ensure data loggers are energized and ready to operate.
5. Verify floating turbidity curtain and secondary debris screens (fence)are intact and positioned to encompass the pump location.
6. Ensure logbooks are at each pump station
7. Review the criteria for emergency shutdown of the pumps:

- Manatees or crocodiles noted less than 50 feet from the pumps
- Excessive pipe movement
- Excessive leakage on pump discharge piping
- Significant shore erosion since the last inspection
- When directed by either Pump Operator or the Pump Coordinator
- Erratic pump motor amperage (> ± 10% of benchmark full flow value)

4.0 NORMAL OPERATIONS

1. When normal pumping cycles are imminent, the pump Operation will be fully staffed for 18 hour operation, 7 day per week. This staff will be comprised of a day and night

shift coverage which will include One (1) vender supplied pump operator, and One (1) FPL Project Team member per shift.

2. The on shift FPL Project Team member will be responsible for monitoring the SFWMD website a minimum once every 15 minutes for the 504 acre-feet threshold. In addition the FPL PTN Chemistry Department will perform hourly monitoring of the SFWMD website with notifications to the Chemistry Manager and PGM if transfer volume reaches 400 acre-feet.

3. Prior to Pump Operation:
   - Verify CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches. Management notification is required if freeboard level is less than 7 inches to provide:
     - canal level data
     - general canal status
     - weather forecast that may add to the CCS level.

4. After reaching 504 acre-feet notification shall be made to Ray Moore and/or Alan Katz after commencing and/or securing pump operation.

5. Any questions or concerns that should arise during either shift of operation shall be vetted through Ray Moore or Alan Katz.

4.1 North Pumping Station Start-up

CAUTION

The North Pumping Station is always to be started a minimum of 5 minutes operation prior to starting the South Pumping Station.

1. Ensure North Pump Operator has reviewed ATTACHMENT 2, North Pump Operator Roles and Responsibilities.

2. Pre-Start Up Check List:
   - external leakage
   - perform pre-start checks
   - Signs of shore erosion
   - Excessive pipe movement
   - Verify Grass and Trash are clear from inside Turbidity Curtain
   - Erratic Motor Amperage
   - Verify CCS is clear at South Discharge

3. Monitor South Florida Water Management District and confirm the SFWMD flow authorization for the next pumping period until 11:59 PM and document below (bay delivery point of 504 acre-feet).

4. Record the canal levels at the North and South canal and document on Attachment 2 for North and Attachment 3 for South.

> ***CAUTION***
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

5. Verify Flow indicators are energized for the pump discharge headers on Attachment 2 for North and Attachment 3 for South.

6. Turn Pump ON
   - Check for Manatee and Wildlife
   - Verify pump Breaker is ON
   - Verify Main Breaker is ON
   - verify SWITCH is turned to VFD
   - Verify HZ is set a desired setting (60HZ = full power)
   - PUSH START button
   - Verify Water is Flowing from motor tube

7. Verify water flow is observed at the south side of Palm Drive and document on Attachment 2.

4.2 South Pumping Station Start-up

> ***CAUTION***
> ***The North Pumping Station is always to be started a minimum of 5 minutes operation prior to starting the South Pumping Station.***

1. Ensure South Pump Operator has reviewed ATTACHMENT 3, South Pump Operator Roles and Responsibilities.

2. Pre-Start Up Check List:
   - external leakage

- perform pre-start checks
- Signs of shore erosion
- Excessive pipe movement
- Verify Grass and Trash are Cleared inside Turbidity Curtain
- Erratic Motor Amperage
- Verify CCS is clear at the Discharge

3. Verify Flow indicators are energized for the pump discharge headers. Document on Attachment 3.

4. Record the Total flow rate from the North Pumping Station on Attachment 3.

5. Record the canal levels at the North and South canal and document on Attachment 2 for North and Attachment 3 for South.

CAUTION
Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started

6. Verify that the North Station Pump(s) are Operating

7. Turn Pump ON
   - Check for Manatee and Wildlife
   - Verify pump Breaker is ON
   - Verify Main Breaker is ON
   - verify SWITCH is turned to VFD
   - Verify HZ is set a desired setting (60HZ = full power)
   - PUSH START button
   - Verify Water is Flowing from motor tube

8. Verify water flow is observed at the Cooling Canal System and document on Attachment 3.

4.3 South Pumping Station Shutdown

CAUTION
The South Pumping Station is always to be stopped a minimum of 5 minutes prior to stopping the North Pumping Station.

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Verify that the Injection of L31 Canal Water to the Canal Cooling System is to be shutdown.

> ***CAUTION***
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

2. Record the canal levels at the North and South canal and document on Attachment 2 and Attachment 3

3. Shutdown Pump

   - Read TOTALIZER PRIOR to turning pump off
   - Push OFF button
   - Allow Frequency to COAST down to 00:00
   - HZ Reading will remain the same
   - Listen for pump to STOP RUNNING
   - Once you have verified pump has come to COMPLETE STOP
   - Turn SWITCH to OFF (ONE CLICK ONLY)

4. Verify water flow is observed to stop at the Canal Cooling System.

5. Record the shutdown time and flow volume totals of the South Pumping Station on ATTACHMENT 3, South Pump Operator Roles and Responsibilities.

6. Check out the system for:
   - Visual inspect for excess grass and trash and document in log
   - Signs of shore erosion
   - Read staff gauge and continue to log for an additional 10 minutes

7. Verify the South Pumping Station is shutdown prior to shutting down the North Pumping Station.

4.4 North Pumping Station Shutdown

> ***CAUTION***
> ***The South Pumping Station is always to be stopped a minimum of 5 minutes prior to stopping the North Pumping Station.***

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Verify that the South Pumping Station is shut down

> ***CAUTION***
>
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

2. Record the canal levels at the North and South canal and document on Attachment 2 and Attachment 3

3. Shutdown Pump
   - Read TOTALIZER PRIOR to turning pump off
   - Push OFF button
   - Allow Frequency to COAST down to 00:00
   - HZ Reading will remain the same
   - Listen for pump to STOP RUNNING
   - Once you have verified pump has come to COMPLETE STOP
   - Turn SWITCH to OFF (ONE CLICK ONLY)

4. Shutdown the running pumps at the North Pumping Station and verify water flow is observed to stop at the south side of Palm Drive.

5. Record the shutdown time and flow volume totals of the North Pumping Station on ATTACHMENT 2, North Pump Operator Roles and Responsibilities.

6. Check out the system for:
   - Visual inspect for excess grass and trash and document in log
   - Signs of shore erosion
   - Read staff gauge and continue to log for an additional 10 minutes

7. Notify the Water District Management that Injection of L31 Canal Water to the Canal Cooling System is shutdown. SFWMD Operation Control Center 561-682-6116.

5.0 INFREQUENT OPERATIONS

5.1 Emergency shutdown of pump stations

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Immediately stop the Pumps and notify the Pump Coordinator and the other Pump Station that flow has stopped when any of the following conditions apply:

   - Erratic pump motor amperage indicative of suction blockage
   - Intake grate fouling that is degrading pump performance
   - Manatees or crocodiles noted less than 50 feet from the pumps
   - Excessive pipe movement
   - Excessive leakage on pump discharge piping
   - Emergency evacuation order
   - Significant shore erosion since the last inspection
   - When directed by either Pump Operator

2. Pump Coordinator to notify the SFWM of the reason that the pumps were immediately shutdown.

3. Notify Environmental of the reason that the pumps were immediately shutdown and request assistance as required.

4. Pump Coordinator shall document the date/time of the event total flow volume pumped and a description of actions taken and persons notified.

Date/Time: _____/_____

_____

_____

_____

_____

_____

6.0 RECORDS

The Pump Coordinator is to scan and transmit the North and South Pump Operator daily log readings each day to Environmental for subsequent submittal to DERM/SFWDM. Transfer electronic copies to WO 40379504 Documents EDMS file folder.

7.0 REFERENCES AND COMMITMENTS

- Class 1 Construction permit, permit # CLI-2014-0312
- South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
- Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Taylor Engineering FPL PTN Cooling Canal Freshwater Recharge
- PTN Engineering Change (EC) 282152

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1

Pump Coordinator Roles and Responsibilities

The FPL Pump Coordinator is the main point of contact for all activities associated with the injection of L31 Canal water into the Canal Cooling System.

The Pump Coordinator will report to FPL Environmental and will provide direction to the Pump Operators on Starting and Stopping of the pumps including infrequent operations involving the emergency shutdown of all pumping equipment.

Responsibilities of the Pump Coordinator include but are not limited to the following items:

- Maintaining the safe operation of the North and South Pumping Stations
- Briefing the Pump Operators on their roles and responsibilities
- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Communicating any issues with pump performance or compliance with the permit to the Control Room and Environmental
- Coordination of Emergency Response activities to address an evacuation
- Obtaining the daily water pump start authorization and maintaining Pumping Stations in compliance with the SFWMD permitted pumping start time. Authorization is defined as after the daily SFWMD bay discharge quota is reached.
- Coordinating Pump starts/stops at the North and South Pumping Stations
- Ensuring Pump Operator performs all designated routines throughout the shift
- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day (to be part of the submittal)

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

- Periodically inspect each Pump Station (approx. once per 3hrs) to verify and validate (V&V) recorded data of the operators and conduct of Pump Operations
- Maintaining 24/7 coverage of the Pump Stations when the North and South Pumps are operational
- Maintaining housekeeping standards at the North and South Pumping Stations
- Scan and transfer reports daily of pump data to FPL Environmental at 11:59 AM or shortly thereafter each day. Transfer electronic copy to WO 40379504 EDMS file.

Contact information

Control Room	-	Shift Manager	X6492
Control Room	-	Emergency	X4444
Rory Rahming	-	Environmental	786-427-7437
Nan Sweeney	(Dayshift) -	Pump Coordinator	570-241-8135
Willis Nettles	(Night Shift)-	Pump Coordinator	772-473-1041

Coastal and Wetlands Resource Section		305-372-6575
FWC	ImperiledSpecies@myFWC.com	
FWC Hotline		888-404-3922
U.S. Fish and Wildlife Service		772-562-3909
State of Florida Bureau Archaeological Research		850-245-6444
Miami-Dade County Office of Historic Preservation		305-375-3412

DERM Coastal and Wetlands Resource Compliance Supervisor
John Ricisak ricisj@miamidade.gov
DERM Coastal and Wetlands Resource Permitting Supervisor
Christine Hopps hoppsc@miamidade.gov

SFWMD:
Executive Director, Len Lindahl, LLindahl@sfwmd.gov
Water Resources Division Director, Terri Bates, tbates@sfwmd.gov
Water Resources Hydrologist, Simon Sunderland, P.G, ssunder@sfwmd.gov
Bureau Chief, Maria Clemente, P.E. at mclement@sfwmd.gov

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1

10/31 Pump Run

Pump Coordinator Roles and Responsibilities

Date / Time	EVENT LOG BOOK	Page 1 of 1
11/1 0802	started up North Pumps	
0807	started up South Pumps.	
1900	North Station Pumped	3,714,842
1900	South Station Pumped	3,408,271
1000	North Station Pumped	3,755,580
1000	South Station Pumped	3,961,980
1100	North Station Pumped	3,776,790
1100	South Station Pumped	3,994,440
1155	North Station Pumped	3,479,492
1145	South Station Pumped	2,996,370
11/1 1200	Total Pumped by North Station =	14,726,704
11/1 1200	Total Pumped by South Station into CCS =	14,361,060

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

The AWE North Pump Operator is responsible for the safe operation of the three submersible pumps and associated variable speed drives and instrumentation. All pumping evolutions will be at the direction of the Pump Coordinator except if an emergency shutdown is required.
All events or equipment issues will be documented in the enclosed Event Log and will be immediately reported to the Pump Coordinator. Responsibilities of the Pump Operator include but are not limited to the following items:

- Maintaining the safe operation of the North Pumping Stations and performing and logging required periodic maintenance/lubrication of pump equipment Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches.
- Management notification is required if freeboard level is less than 7 inches to provide canal level data, general canal status, and weather forecast that may add to the CCS level. No pump operation is allowed if freeboard level is less than 5 inches.
- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Communicating any issues with pump performance or compliance with the permit to the Pump Coordinator
- Performing Emergency Response activities to address an evacuation order or a fuel/oil spill
- Ensure spill response equipment maintained in good condition
- Maintaining Pump flows at the direction of the Pump Coordinator
- Perform Manatee and crocodile watch when pumps are running (Polarized lenses are required for Manatee watch)
- Perform all designated routines, readings and recordings throughout the shift including maintaining housekeeping standards at the North Pumping Station
- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day(to be part of the submittal)
- Maintaining 24/7 coverage of the North Pump Station when the North Pumps are operational

Bryan Ingram

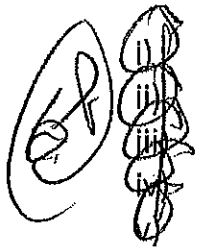
INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

11/1/2015

ATTACHMENT 2

North Pump Operator Roles and Responsibilities

Document on the log sheet periodic maintenance/lubrication and pump level changes.
Every hour Check out the system for the following and document on the hourly log sheet:



i) External leakage
ii) Signs of shore erosion
iii) Excessive pipe movement
iv) Intake Grate fouling or debris/wildlife approach
v) Erratic pump motor amperage (> ± 10% of benchmark full flow value)

Date / Time — EVENT LOG BOOK — Page _ of _

11/1/0800 - Started pomps at 8:02. All pumps and p tubes are working good. No cavitation
0900 - Check all pumps and p tubes and all are working good
1000 - Same
1100 - Same
11:55 All pomps off at 11:55

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

Date / Time EVENT LOG BOOK Page _ of _

Bryan Ingram

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month 11 Day 1 Year 2015

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
00:00	Flow:	Flow:	Flow:						
00:00	Total:	Total:	Total:						
1:00	Flow:	Flow:	Flow:						
1:00	Total:	Total:	Total:						
2:00	Flow:	Flow:	Flow:						
2:00	Total:	Total:	Total:						
3:00	Flow:	Flow:	Flow:						
3:00	Total:	Total:	Total:						
4:00	Flow:	Flow:	Flow:						
4:00	Total:	Total:	Total:						
5:00	Flow:	Flow:	Flow:						
5:00	Total:	Total:	Total:						
6:00	Flow:	Flow:	Flow:						
6:00	Total:	Total:	Total:						
7:00	Flow:	Flow:	Flow:						
7:00	Total:	Total:	Total:						
8:00 8:02	Flow: 24480	Flow: Reset	Flow: 19879	576	576	576	-.5	.9	✓ (80)
8:00	Total: 29685824	Total: Reset	Total: 72873262						
9:00	Flow: 22063	Flow: Reset	Flow: 19476	576	576	576	-.4	.9	✓
9:00	Total: 26905856	Total:	Total: 73949710						
10:00	Flow: 21992	Flow: Reset	Flow: 19455	576	576	576	-.3	.9	✓
10:00	Total: 28223177	Total: Reset	Total: 75112158						
11:00	Flow: 22595	Flow: Reset	Flow: 19651	576	576	576	-.2	.9	✓
11:00	Total: 29553606		Total: 76203285						
11:55	Flow: 24479	Flow: Reset	Flow: 19602	576	576	576	-.1	.9	✓
	Total: 30154864	Total: Reset	Total: 77329266	60Hz	60Hz	60Hz			

PUMP OPERATOR: Bryan Ingram Date: 11/1/2015

VERIFIED BY PUMP COORDINATOR: Date: 11-1

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month Day Year

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
13:00	Flow:	Flow:	Flow:						
13:00	Total:	Total:	Total:						
14:00	Flow:	Flow:	Flow:						
14:00	Total:	Total:	Total:						
15:00	Flow:	Flow:	Flow:						
15:00	Total:	Total:	Total:						
16:00	Flow:	Flow:	Flow:						
16:00	Total:	Total:	Total:						
17:00	Flow:	Flow:	Flow:						
17:00	Total:	Total:	Total:						
18:00	Flow:	Flow:	Flow:						
18:00	Total:	Total:	Total:						
19:00	Flow:	Flow:	Flow:						
19:00	Total:	Total:	Total:						
20:00	Flow:	Flow:	Flow:						
20:00	Total:	Total:	Total:						
21:00	Flow:	Flow:	Flow:						
21:00	Total:	Total:	Total:						
22:00	Flow:	Flow:	Flow:						
22:00	Total:	Total:	Total:						
23:00	Flow:	Flow:	Flow:						
23:00	Total:	Total:	Total:						
24:00	Flow:	Flow:	Flow:						
24:00	Total:	Total:	Total:						

PUMP OPERATOR _____

Date: _____

VERIFIED BY PUMP COORDINATOR _____

Date: _____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

The AWE South Pump Operator is responsible for the safe operation of the two 36" axial pumps. All pumping evolutions will be at the direction of the Pump Coordinator except if an emergency shutdown is required. All events or equipment issues will be documented in the enclosed Event Log and will be immediately reported to the Pump Coordinator. Responsibilities of the Pump Operator include but are not limited to the following items:

- Maintaining the safe operation of the South Pumping Station and performing and logging required periodic maintenance/lubrication of pump equipment
- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Communicating any issues with pump performance or compliance with the permit to the Pump Coordinator
- Performing Emergency Response activities to address an evacuation order
- Monitor the transformer containment pad daily and drain the water when it rains
- Maintaining Pump flows at the direction of the Pump Coordinator
- Perform Manatee and crocodile watch when pumps are running (Polarized lenses are required for Manatee watch)
- Perform all designated routines, readings and recordings throughout the shift including maintaining housekeeping standards at the South Pumping Station
- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day (to be part of the submittal)
- Maintaining 24/7 coverage of the South Pump Station when the South Pumps are operational

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

Document on the log sheet periodic maintenance/lubrication and pump level changes.
Every hour check out the system for the following and document on the hourly log sheet:

i) External leakage
ii) Signs of shore erosion
iii) Excessive pipe movement
iv) Intake Grass or debris/wildlife approach
v) Erratic pump motor amperage (> ± 10% of benchmark full flow value)

Date / Time EVENT LOG BOOK Page _ of _

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

Date / Time — EVENT LOG BOOK — Page _of _

Date / Time	Event
____/____	
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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET	Month	Day	Year			
Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
00:00	Flow:	Flow:				
00:00	Total:	Total:				
1:00	Flow:	Flow:				
100	Total:	Total:				
2:00	Flow:	Flow:				
2:00	Total:	Total:				
3:00	Flow:	Flow:				
3:00	Total:	Total:				
4:00	Flow:	Flow:				
4:00	Total:	Total:				
5:00	Flow:	Flow:				
5:00	Total:	Total:				
6:00	Flow:	Flow:				
6:00	Total:	Total:				
7:00	Flow:	Flow:				
7:00	Total:	Total:				
8:00	Flow:	Flow:				
8:00	Total:	Total:				
9:00	Flow:	Flow:				
9:00	Total:	Total:				
10:00	Flow:	Flow:				
10:00	Total:	Total:				
11:00	Flow:	Flow:				
11:00	Total:	Total:				
12:00	Flow:	Flow:				
12:00	Total:	Total:				

PUMP OPERATOR_____

Date_____

VERIFIED BY PUMP COORDINATOR_____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month Day Year

Time	North Pump (107944)	South Pump (107939)	RPM No Pump	RPM So Pump	South Canal Level	System Checks Sat
13:00	Flow:	Flow:				
13:00	Total:	Total:				
14:00	Flow:	Flow:				
14:00	Total:	Total:				
15:00	Flow:	Flow:				
15:00	Total:	Total:				
16:00	Flow:	Flow:				
16:00	Total:	Total:				
17:00	Flow:	Flow:				
17:00	Total:	Total:				
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21:00	Flow:	Flow:				
21:00	Total:	Total:				
22:00	Flow:	Flow:				
22:00	Total:	Total:				
23:00	Flow:	Flow:				
23:00	Total:	Total:				
24:00	Flow:	Flow:				
24: 00	Total:	Total:				

PUMP OPERATOR_____

Date_____

VERIFIED BY PUMP COORDINATOR_____

Date:_____

ERICCASH 11/04/15

Rev 8, 10/01/2015

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: Calvin Ward **Date:** 10/1/15

Approved: [signature] **Date:** 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps

10/31
Pump
RW
South Pumping
Station

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1.0 PURPOSE

This procedure provides instructions for operating the North and South Pumping Stations to inject L31 Canal Water into the Canal Cooling System (CCS). The North Pumping Station consists of 3 (three) axial flow pumps, West 30" Pump, Center 30" Pump and East 30" Pump. The South Pumping Station consists of 2 (two) axial pumps, North 36" Pump and the South 36" Pump. Two shifts will be utilized to operate the pumping stations. Each shift will consist of a FPL Pump Coordinator, and One (1) AWE Pump Operator.

2.0 PRECAUTIONS AND LIMITATIONS

2.1 Precautions

1. Working over or around water requires either a personal flotation device or appropriate fall protection.
2. When work is to be performed on equipment in the water then 30" ring buoys with 90' of line shall be available with a lifesaving skiff at the work location.
3. Each shift should be familiar with the layout of each station specifically the location of floatation devices, spill kits, emergency shutdown equipment, fire extinguisher and logbooks that include all contact information.
4. Pump operation should be controlled using the Variable Frequency Drive (VFDs).
5. Pump control container live panel access is restricted to certified electricians

2.2 Limitations

1. Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches. Management notification is required if freeboard level is less than 7 inches. No pump operation is allowed if freeboard level is less than 5 inches.
2. When both pumping stations are capable of pumping they are to be manned continuously by a dedicated operator.
3. The North Pumping Station is always to be started first with a minimum of 5 minutes operation prior to starting the South Pumping Station.

4. The South Pumping Station is always to be stopped first with a minimum of 5 minutes prior to stopping the North Pumping Station.

5. Water level in the south canal shall not be allowed to decrease less than the initial level that the pumps were first started.
6. Pump control container access is restricted to AWE operators and FPL oversight.

3.0 PREREQUISITES

1. Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches. Management notification is required if freeboard level is less than 7 inches. No pump operation is allowed if freeboard level is less than 5 inches.

2. Ensure staff gauges are installed at both pump locations and verify that level can be visibly determined and recorded hourly when the pumps are capable of pumping. Ensure canal level indication is available from the data loggers.

3. Ensure flow measuring devices are energized and not indicating any faults.

4. Ensure data loggers are energized and ready to operate.

5. Verify floating turbidity curtain and secondary debris screens (fence)are intact and positioned to encompass the pump location.

6. Ensure logbooks are at each pump station

7. Review the criteria for emergency shutdown of the pumps:

- Manatees or crocodiles noted less than 50 feet from the pumps
- Excessive pipe movement
- Excessive leakage on pump discharge piping
- Significant shore erosion since the last inspection
- When directed by either Pump Operator or the Pump Coordinator
- Erratic pump motor amperage (> ± 10% of benchmark full flow value)

4.0 NORMAL OPERATIONS

1. When normal pumping cycles are imminent, the pump Operation will be fully staffed for 18 hour operation, 7 day per week. This staff will be comprised of a day and night

shift coverage which will include One (1) vender supplied pump operator, and One (1) FPL Project Team member per shift.

2. The on shift FPL Project Team member will be responsible for monitoring the SFWMD website a minimum once every 15 minutes for the 504 acre-feet threshold. In addition the FPL PTN Chemistry Department will perform hourly monitoring of the SFWMD website with notifications to the Chemistry Manager and PGM if transfer volume reaches 400 acre-feet.

3. Prior to Pump Operation:
   - Verify CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches.
   - Management notification is required if freeboard level is less than 7 inches to provide:
     - canal level data
     - general canal status
     - weather forecast that may add to the CCS level.

4. After reaching 504 acre-feet notification shall be made to Ray Moore and/or Alan Katz after commencing and/or securing pump operation.

5. Any questions or concerns that should arise during either shift of operation shall be vetted through Ray Moore or Alan Katz.

4.1 North Pumping Station Start-up

CAUTION

The North Pumping Station is always to be started a minimum of 5 minutes operation prior to starting the South Pumping Station.

1. Ensure North Pump Operator has reviewed ATTACHMENT 2, North Pump Operator Roles and Responsibilities.

2. Pre-Start Up Check List:
   - external leakage
   - perform pre-start checks
   - Signs of shore erosion
   - Excessive pipe movement
   - Verify Grass and Trash are clear from inside Turbidity Curtain
   - Erratic Motor Amperage
   - Verify CCS is clear at South Discharge

3. Monitor South Florida Water Management District and confirm the SFWMD flow authorization for the next pumping period until 11:59 PM and document below (bay delivery point of 504 acre-feet).

4. Record the canal levels at the North and South canal and document on Attachment 2 for North and Attachment 3 for South.

CAUTION
Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started

5. Verify Flow indicators are energized for the pump discharge headers on Attachment 2 for North and Attachment 3 for South.

6. Turn Pump ON
   - Check for Manatee and Wildlife
   - Verify pump Breaker is ON
   - Verify Main Breaker is ON
   - verify SWITCH is turned to VFD
   - Verify HZ is set a desired setting (60HZ = full power)
   - PUSH START button
   - Verify Water is Flowing from motor tube

7. Verify water flow is observed at the south side of Palm Drive and document on Attachment 2.

4.2 South Pumping Station Start-up

CAUTION
The North Pumping Station is always to be started a minimum of 5 minutes operation prior to starting the South Pumping Station.

1. Ensure South Pump Operator has reviewed ATTACHMENT 3, South Pump Operator Roles and Responsibilities.

2. Pre-Start Up Check List:
   - external leakage

- perform pre-start checks
- Signs of shore erosion
- Excessive pipe movement
- Verify Grass and Trash are Cleared inside Turbidity Curtain
- Erratic Motor Amperage
- Verify CCS is clear at the Discharge

3. Verify Flow indicators are energized for the pump discharge headers. Document on Attachment 3.

4. Record the Total flow rate from the North Pumping Station on Attachment 3.

5. Record the canal levels at the North and South canal and document on Attachment 2 for North and Attachment 3 for South.

> ***CAUTION***
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

6. Verify that the North Station Pump(s) are Operating

7. Turn Pump ON
   - Check for Manatee and Wildlife
   - Verify pump Breaker is ON
   - Verify Main Breaker is ON
   - verify SWITCH is turned to VFD
   - Verify HZ is set a desired setting (60HZ = full power)
   - PUSH START button
   - Verify Water is Flowing from motor tube

8. Verify water flow is observed at the Cooling Canal System and document on Attachment 3.

4.3 South Pumping Station Shutdown

> ***CAUTION***
> ***The South Pumping Station is always to be stopped a minimum of 5 minutes prior to stopping the North Pumping Station.***

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Verify that the Injection of L31 Canal Water to the Canal Cooling System is to be shutdown.

> ***CAUTION***
>
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

2. Record the canal levels at the North and South canal and document on Attachment 2 and Attachment 3

3. Shutdown Pump
   - Read TOTALIZER PRIOR to turning pump off
   - Push OFF button
   - Allow Frequency to COAST down to 00:00
   - HZ Reading will remain the same
   - Listen for pump to STOP RUNNING
   - Once you have verified pump has come to COMPLETE STOP
   - Turn SWITCH to OFF (ONE CLICK ONLY)

4. Verify water flow is observed to stop at the Canal Cooling System.

5. Record the shutdown time and flow volume totals of the South Pumping Station on ATTACHMENT 3, South Pump Operator Roles and Responsibilities.

6. Check out the system for:
   - Visual inspect for excess grass and trash and document in log
   - Signs of shore erosion
   - Read staff gauge and continue to log for an additional 10 minutes

7. Verify the South Pumping Station is shutdown prior to shutting down the North Pumping Station.

4.4 North Pumping Station Shutdown

> ***CAUTION***
>
> ***The South Pumping Station is always to be stopped a minimum of 5 minutes prior to stopping the North Pumping Station.***

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Verify that the South Pumping Station is shut down

> ***CAUTION***
> ***Water level in the South Canal shall not be allowed to decrease less than the initial level that the Pumps were started***

2. Record the canal levels at the North and South canal and document on Attachment 2 and Attachment 3

3. Shutdown Pump
   - Read TOTALIZER PRIOR to turning pump off
   - Push OFF button
   - Allow Frequency to COAST down to 00:00
   - HZ Reading will remain the same
   - Listen for pump to STOP RUNNING
   - Once you have verified pump has come to COMPLETE STOP
   - Turn SWITCH to OFF (ONE CLICK ONLY)

4. Shutdown the running pumps at the North Pumping Station and verify water flow is observed to stop at the south side of Palm Drive.

5. Record the shutdown time and flow volume totals of the North Pumping Station on ATTACHMENT 2, North Pump Operator Roles and Responsibilities.

6. Check out the system for:
   - Visual inspect for excess grass and trash and document in log
   - Signs of shore erosion
   - Read staff gauge and continue to log for an additional 10 minutes

7. Notify the Water District Management that Injection of L31 Canal Water to the Canal Cooling System is shutdown. SFWMD Operation Control Center 561-682-6116.

5.0 INFREQUENT OPERATIONS

5.1 Emergency shutdown of pump stations

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

1. Immediately stop the Pumps and notify the Pump Coordinator and the other Pump Station that flow has stopped when any of the following conditions apply:

   - Erratic pump motor amperage indicative of suction blockage
   - Intake grate fouling that is degrading pump performance
   - Manatees or crocodiles noted less than 50 feet from the pumps
   - Excessive pipe movement
   - Excessive leakage on pump discharge piping
   - Emergency evacuation order
   - Significant shore erosion since the last inspection
   - When directed by either Pump Operator

2. Pump Coordinator to notify the SFWM of the reason that the pumps were immediately shutdown.

3. Notify Environmental of the reason that the pumps were immediately shutdown and request assistance as required.

4. Pump Coordinator shall document the date/time of the event total flow volume pumped and a description of actions taken and persons notified.

Date/Time: _____/_____

_____

_____

_____

_____

_____

6.0 RECORDS

The Pump Coordinator is to scan and transmit the North and South Pump Operator daily log readings each day to Environmental for subsequent submittal to DERM/SFWDM. Transfer electronic copies to WO 40379504 Documents EDMS file folder.

7.0 REFERENCES AND COMMITMENTS

- Class 1 Construction permit, permit # CLI-2014-0312
- South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
- Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Taylor Engineering FPL PTN Cooling Canal Freshwater Recharge
- PTN Engineering Change (EC) 282152

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1

Pump Coordinator Roles and Responsibilities

The FPL Pump Coordinator is the main point of contact for all activities associated with the injection of L31 Canal water into the Canal Cooling System.

The Pump Coordinator will report to FPL Environmental and will provide direction to the Pump Operators on Starting and Stopping of the pumps including infrequent operations involving the emergency shutdown of all pumping equipment.

Responsibilities of the Pump Coordinator include but are not limited to the following items:

- Maintaining the safe operation of the North and South Pumping Stations
- Briefing the Pump Operators on their roles and responsibilities
- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)
- Communicating any issues with pump performance or compliance with the permit to the Control Room and Environmental
- Coordination of Emergency Response activities to address an evacuation
- Obtaining the daily water pump start authorization and maintaining Pumping Stations in compliance with the SFWMD permitted pumping start time. Authorization is defined as after the daily SFWMD bay discharge quota is reached.
- Coordinating Pump starts/stops at the North and South Pumping Stations
- Ensuring Pump Operator performs all designated routines throughout the shift
- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day (to be part of the submittal)

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

- Periodically inspect each Pump Station (approx. once per 3hrs) to verify and validate (V&V) recorded data of the operators and conduct of Pump Operations
- Maintaining 24/7 coverage of the Pump Stations when the North and South Pumps are operational
- Maintaining housekeeping standards at the North and South Pumping Stations
- Scan and transfer reports daily of pump data to FPL Environmental at 11:59 AM or shortly thereafter each day. Transfer electronic copy to WO 40379504 EDMS file.

Contact information

Control Room	-	Shift Manager	X6492
Control Room	-	Emergency	X4444
Rory Rahming	-	Environmental	786-427-7437
Nan Sweeney	(Dayshift) -	Pump Coordinator	570-241-8135
Willis Nettles	(Night Shift)-	Pump Coordinator	772-473-1041

Coastal and Wetlands Resource Section	305-372-6575
FWC ImperiledSpecies@myFWC.com	
FWC Hotline	888-404-3922
U.S. Fish and Wildlife Service	772-562-3909
State of Florida Bureau Archaeological Research	850-245-6444
Miami-Dade County Office of Historic Preservation	305-375-3412

DERM Coastal and Wetlands Resource Compliance Supervisor
John Ricisak ricisj@miamidade.gov
DERM Coastal and Wetlands Resource Permitting Supervisor
Christine Hopps hoppsc@miamidade.gov

SFWMD:
Executive Director, Len Lindahl, LLindahl@sfwmd.gov
Water Resources Division Director, Terri Bates, tbates@sfwmd.gov
Water Resources Hydrologist, Simon Sunderland, P.G, ssunder@sfwmd.gov
Bureau Chief, Maria Clemente, P.E. at mclement@sfwmd.gov

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

10/31 Pump Run

Date / Time | EVENT LOG BOOK | Page 1 of 1

Date / Time	EVENT LOG BOOK	
11/1 8:02	Started up North Pumps	
8:07	Started up South Pumps.	
1900	North Station Pumped	3,714,842
1900	South Station Pumped	3,408,271
1000	North Station Pumped	3,755,580
1000	South Station Pumped	3,961,980
1100	North Station Pumped	3,776,790
1100	South Station Pumped	3,994,440
1155	North Station Pumped	3,479,492
1195	South Station Pumped	2,996,370
11/1 1200	Total Pumped by North Station = 14,726,704	
11/1 1200	Total Pumped by South Station into CCS = 14,361,060	

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

The AWE North Pump Operator is responsible for the safe operation of the three submersible pumps and associated variable speed drives and instrumentation. All pumping evolutions will be at the direction of the Pump Coordinator except if an emergency shutdown is required.
All events or equipment issues will be documented in the enclosed Event Log and will be immediately reported to the Pump Coordinator. Responsibilities of the Pump Operator include but are not limited to the following items:

- Maintaining the safe operation of the North Pumping Stations and performing and logging required periodic maintenance/lubrication of pump equipment Prior to Pump Operation, CCS level at the Turtle Point shall have a minimum freeboard level of 7 inches.

- Management notification is required if freeboard level is less than 7 inches to provide canal level data, general canal status, and weather forecast that may add to the CCS level. No pump operation is allowed if freeboard level is less than 5 inches.

- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)

- Communicating any issues with pump performance or compliance with the permit to the Pump Coordinator

- Performing Emergency Response activities to address an evacuation order or a fuel/oil spill

- Ensure spill response equipment maintained in good condition

- Maintaining Pump flows at the direction of the Pump Coordinator

- Perform Manatee and crocodile watch when pumps are running (Polarized lenses are required for Manatee watch)

- Perform all designated routines, readings and recordings throughout the shift including maintaining housekeeping standards at the North Pumping Station

- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day(to be part of the submittal)

- Maintaining 24/7 coverage of the North Pump Station when the North Pumps are operational

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

Document on the log sheet periodic maintenance/lubrication and pump level changes.
Every hour Check out the system for the following and document on the hourly log sheet:

i) External leakage
ii) Signs of shore erosion
iii) Excessive pipe movement
iv) Intake Grate fouling or debris/wildlife approach
v) Erratic pump motor amperage (> ± 10% of benchmark full flow value)

Date / Time EVENT LOG BOOK Page _ of _

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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2
North Pump Operator Roles and Responsibilities

Date / Time EVENT LOG BOOK Page _ of _

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month Day Year									
Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
00:00	Flow:	Flow:	Flow:						
00:00	Total:	Total:	Total:						
1:00	Flow:	Flow:	Flow:						
1:00	Total:	Total:	Total:						
2:00	Flow:	Flow:	Flow:						
2:00	Total:	Total:	Total:						
3:00	Flow:	Flow:	Flow:						
3:00	Total:	Total:	Total:						
4:00	Flow:	Flow:	Flow:						
4:00	Total:	Total:	Total:						
5:00	Flow:	Flow:	Flow:						
5:00	Total:	Total:	Total:						
6:00	Flow:	Flow:	Flow:						
6:00	Total:	Total:	Total:						
7:00	Flow:	Flow:	Flow:						
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9:00	Flow:	Flow:	Flow:						
9:00	Total:	Total:	Total:						
10:00	Flow:	Flow:	Flow:						
10:00	Total:	Total:	Total:						
11:00	Flow:	Flow:	Flow:						
11:00	Total								
12:00	Flow:	Flow:	Flow:						
12:00	Total:	Total:	Total:						

PUMP OPERATOR _____

Date _____

VERIFIED BY PUMP COORDINATOR _____ Date _____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month Day Year

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
13:00	Flow:	Flow:	Flow:						
13:00	Total:	Total:	Total:						
14:00	Flow:	Flow:	Flow:						
14:00	Total:	Total:	Total:						
15:00	Flow:	Flow:	Flow:						
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16:00	Flow:	Flow:	Flow:						
16:00	Total:	Total:	Total:						
17:00	Flow:	Flow:	Flow:						
17:00	Total:	Total:	Total:						
18:00	Flow:	Flow:	Flow:						
18:00	Total:	Total:	Total:						
19:00	Flow:	Flow:	Flow:						
19:00	Total:	Total:	Total:						
20:00	Flow:	Flow:	Flow:						
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21:00	Flow:	Flow:	Flow:						
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22:00	Flow:	Flow:	Flow:						
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23:00	Total:	Total:	Total:						
24:00	Flow:	Flow:	Flow:						
24:00	Total:	Total:	Total:						

PUMP OPERATOR _____

Date _____

VERIFIED BY PUMP COORDINATOR _____

Date: _____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

The AWE South Pump Operator is responsible for the safe operation of the two 36" axial pumps. All pumping evolutions will be at the direction of the Pump Coordinator except if an emergency shutdown is required. All events or equipment issues will be documented in the enclosed Event Log and will be immediately reported to the Pump Coordinator. Responsibilities of the Pump Operator include but are not limited to the following items:

- Maintaining the safe operation of the South Pumping Station and performing and logging required periodic maintenance/lubrication of pump equipment

- Ensuring Pump Stations remain in compliance with the:
  - Class 1 Construction permit, permit # CLI-2014-0312
  - South Florida Water Management District Emergency Order, SFWMD No. 2015-034-DAO-WU/ROW/ERP
  - Army Corps of Engineer Permit, SAJ-2014-02451 (NWP/GP-MLC)

- Communicating any issues with pump performance or compliance with the permit to the Pump Coordinator

- Performing Emergency Response activities to address an evacuation order

- Monitor the transformer containment pad daily and drain the water when it rains

- Maintaining Pump flows at the direction of the Pump Coordinator

- Perform Manatee and crocodile watch when pumps are running (Polarized lenses are required for Manatee watch)

- Perform all designated routines, readings and recordings throughout the shift including maintaining housekeeping standards at the South Pumping Station

- Maintain a 24 hour Event Log of daily activities, 11:59hrs through 11:58hrs the next day (to be part of the submittal)

- Maintaining 24/7 coverage of the South Pump Station when the South Pumps are operational

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

Document on the log sheet periodic maintenance/lubrication and pump level changes.
Every hour check out the system for the following and document on the hourly log sheet:

i) External leakage
ii) Signs of shore erosion
iii) Excessive pipe movement
iv) Intake Grass or debris/wildlife approach
v) Erratic pump motor amperage (> ± 10% of benchmark full flow value)

EVENT LOG BOOK

Page _ of _

Date / Time	
11/1 / 7:30	INSPECTED PUMPS + CHECKED FOR WILDLIFE
___ / 8:07	STARTED PUMPS @ 57 Hz
___ / 11:45	STOPPED PUMPING
___ / ___	
___ / ___	
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___ / ___	
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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3
South Pump Operator Roles and Responsibilities

Date / Time | EVENT LOG BOOK | Page _of _

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET	Month 11	Day 1	Year 2015			
Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
00:00	Flow:	Flow:				
00:00	Total:	Total:				
1:00	Flow:	Flow:				
100	Total:	Total:				
2:00	Flow:	Flow:				
2:00	Total:	Total:				
3:00	Flow:	Flow:				
3:00	Total:	Total:				
4:00	Flow:	Flow:				
4:00	Total:	Total:				
5:00	Flow:	Flow:				
5:00	Total:	Total:				
6:00	Flow:	Flow:				
6:00	Total:	Total:				
7:00	Flow:	Flow:				
7:00	Total:	Total:				
~~8:00~~ 8:07	Flow: 35362	Flow: 29606	598	598	.8	✓
~~8:00~~ 8:07	Total: 89744255	Total: 405863691				
9:00	Flow: 34250	Flow: 32896	598	598	.8	✓
9:00	Total: 915202891	Total: 421460006				
10:00	Flow: 34244	Flow: 32226	598	598	.8	✓
10:00	Total: 915090060	Total: 453160041				
11:00	Flow: 34147	Flow: 32481	598	598	.8	✓
11:00	Total: 95581547	Total: 45504560				
~~12:00~~ 11:45	Flow: 34063	Flow: ERROR	598	598	.8	✓
~~12:00~~ 11:45	Total: 90911405	Total: ERROR				

PUMP OPERATOR ERIC CASH

Date

VERIFIED BY PUMP COORDINATOR

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month Day Year						
Time	North Pump (107944)	South Pump (107939)	RPM No Pump	RPM So Pump	South Canal Level	System Checks Sat
13:00	Flow:	Flow:				
13:00	Total:	Total:				
14:00	Flow:	Flow:				
14:00	Total:	Total:				
15:00	Flow:	Flow:				
15:00	Total:	Total:				
16:00	Flow:	Flow:				
16:00	Total:	Total:				
17:00	Flow:	Flow:				
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20:00	Total:	Total:				
21:00	Flow:	Flow:				
21:00	Total:	Total:				
22:00	Flow:	Flow:				
22:00	Total:	Total:				
23:00	Flow:	Flow:				
23:00	Total:	Total:				
24:00	Flow:	Flow:				
24: 00	Total:	Total:				

PUMP OPERATOR _____

Date _____

VERIFIED BY PUMP COORDINATOR _____

Date: _____

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

11/1 Pump Run

Date / Time | EVENT LOG BOOK | Page 1 of _

Date / Time	EVENT LOG BOOK	
11/2 1750	Started North Pump	
1752	Started South Pump	
11/2 1900	North Station Pumped	4,709,960
11/2 1900	South Station Pumped	4,496,194
11/2 1000	North Station Pumped	3,846,600
11/2 1000	South Station Pumped	4,053,750
11/2 1100	North Station Pumped	3,856,680
11/2 1100	South Station Pumped	3,975,150
11/2 1155	North Station Pumped	3,541,725
11/2 1150	South Station Pumped	3,311,125
11/2 1200	Total gallons Pumped by North Station	= 15,954,965
11/2 1200	Total gallons Pumped by South Station	= 15,836,219

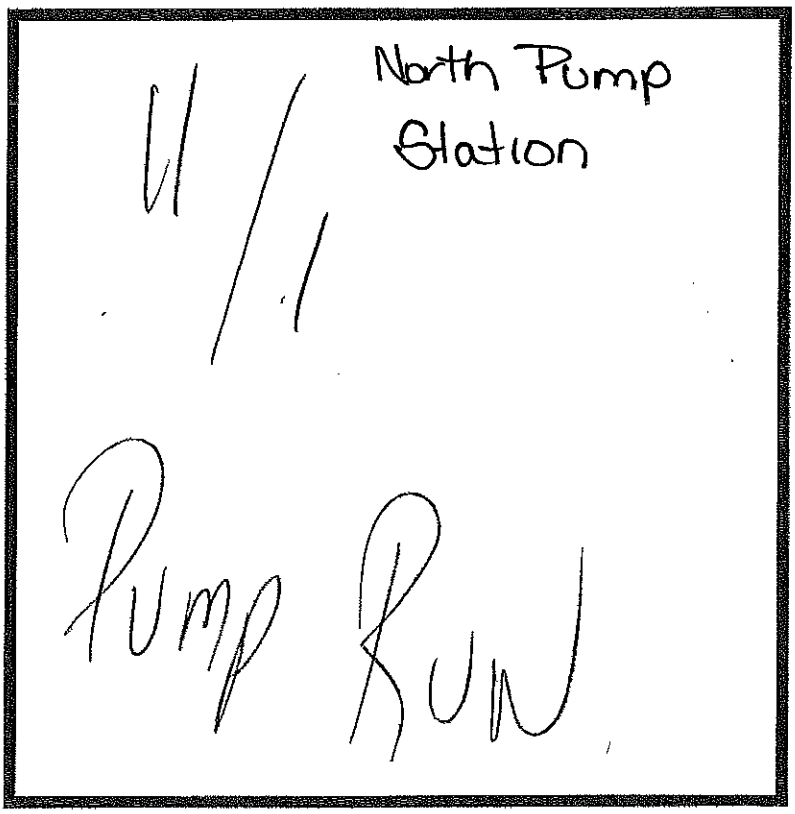
INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: _____ **Date:** 10/1/15

Approved: _____ **Date:** 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps



Bryan Ingram

Rev 8, 10/01/2015

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month 11 Day 2 Year 2015

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
00:00	Flow:	Flow:	Flow:						
00:00	Total:	Total:	Total:						
1:00	Flow:	Flow:	Flow:						
1:00	Total:	Total:	Total:						
2:00	Flow:	Flow:	Flow:						
2:00	Total:	Total:	Total:						
3:00	Flow:	Flow:	Flow:						
3:00	Total:	Total:	Total:						
4:00	Flow:	Flow:	Flow:						
4:00	Total:	Total:	Total:						
5:00	Flow:	Flow:	Flow:						
5:00	Total:	Total:	Total:						
6:00	Flow:	Flow:	Flow:						
6:00	Total:	Total:	Total:						
7:47	Flow: 22878	Flow: 20583	Flow: Error	576	576	576	-.3	.9	✓
7:00	Total: 30864677	Total: 38752603	Total:						
8:00	Flow:	Flow:	Flow:						
8:00	Total:	Total:	Total:						
9:00	Flow: 21762	Flow: Error	Flow: Error	576	576	576	-.4	.9	
9:00	Total: 32409302	Total:	Total:						
10:00	Flow: 22058	Flow: Error	Flow: Error	576	576	576	-.4	.9	✓
10:00	Total: 33686714	Total:	Total:	60Hz	60Hz	60Hz			
11:00	Flow: 2098	Flow: Error	Flow: Error	576	576	576	-.3	.9	✓
11:00	Total: 35220701								
11:55	Flow: 22292	Flow: Error	Flow: Error	576	576	576	-.2	.9	✓
	Total: 36197679	Total:	Total:						

PUMP OPERATOR: [signature] Date: 11/2/2015

Page 18 of 24

VERIFIED BY PUMP COORDINATOR: Date:

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month Day Year

Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	RPM East Pump	RPM Center Pump	RPM West Pump	North Canal Level North of 344 St	South Canal Level South of 344 St	System Checks Sat
13:00	Flow:	Flow:	Flow:						
13:00	Total:	Total:	Total:						
14:00	Flow:	Flow:	Flow:						
14:00	Total:	Total:	Total:						
15:00	Flow:	Flow:	Flow:						
15:00	Total:	Total:	Total:						
16:00	Flow:	Flow:	Flow:						
16:00	Total:	Total:	Total:						
17:00	Flow:	Flow:	Flow:						
17:00	Total:	Total:	Total:						
18:00	Flow:	Flow:	Flow:						
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19:00	Flow:	Flow:	Flow:						
19:00	Total:	Total:	Total:						
20:00	Flow:	Flow:	Flow:						
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21:00	Flow:	Flow:	Flow:						
21:00	Total:	Total:	Total:						
22:00	Flow:	Flow:	Flow:						
22:00	Total:	Total:	Total:						
23:00	Flow:	Flow:	Flow:						
23:00	Total:	Total:	Total:						
24:00	Flow:	Flow:	Flow:						
24:00	Total:	Total:	Total:						

PUMP OPERATOR _____ Date

VERIFIED BY PUMP COORDINATOR _____ Date: _____

EESC CASH 11/2/15

Rev 8, 10/01/2015

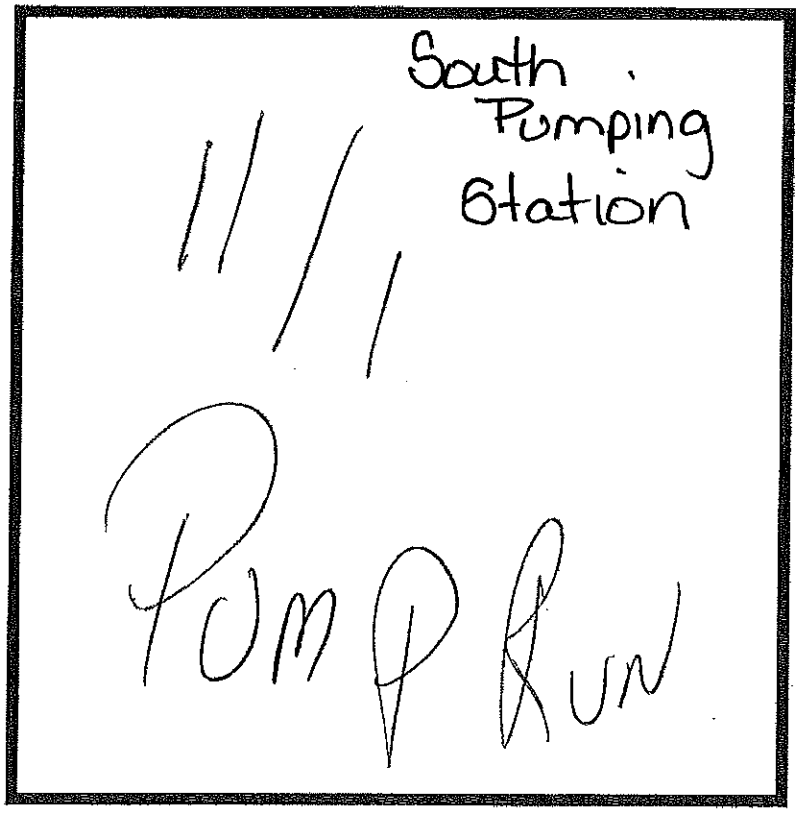
INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Revision No. 08

Author: _____ **Date:** 10/1/15

Approved: _____ **Date:** 10/1/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure.
Revision 8: Added requirement for validating CCS level margin prior to starting L31 pumps



ERIC CASH
11/2/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month 11 Day 02 Year 2015

Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
00:00	Flow:	Flow:				
00:00	Total:	Total:				
1:00	Flow:	Flow:				
100	Total:	Total:				
2:00	Flow:	Flow:				
2:00	Total:	Total:				
3:00	Flow:	Flow:				
3:00	Total:	Total:				
4:00	Flow:	Flow:				
4:00	Total:	Total:				
5:00	Flow:	Flow:				
5:00	Total:	Total:				
6:00	Flow:	Flow:				
6:00	Total:	Total:				
~~7:00~~ 7:52	Flow: 32541	Flow: 30843	596	596	.75	✓
7:00	Total: 97130518	Total: 45526812				
~~8:00~~ 9:00	Flow: 33725	Flow: 31132	596	596	.75	✓
~~8:00~~ 9:00	Total: 99326360	Total: 47569272				
9:00	Flow:	Flow:				
9:00	Total:	Total:				
10:00	Flow: 34092	Flow: 32176	596	596	.75	✓
10:00	Total: 13616057	Total: 49482736				
11:00	Flow: 33724	Flow: 32513	596	596	.75	✓
11:00	Total: 33276560	Total: 50186346				
12:00	Flow: 33695	Flow: ERROR	596	596	.75	✓
12:00	Total: 49772170	Total: ERROR				

PUMP OPERATOR ERIC CASH
Date 11/2/15

VERIFIED BY PUMP COORDINATOR

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month Day Year						
Time	North Pump (107944)	South Pump (107939)	RPM No.Pump	RPM So.Pump	South Canal Level	System Checks Sat
13:00	Flow:	Flow:				
13:00	Total:	Total:				
14:00	Flow:	Flow:				
14:00	Total:	Total:				
15:00	Flow:	Flow:				
15:00	Total:	Total:				
16:00	Flow:	Flow:				
16:00	Total:	Total:				
17:00	Flow:	Flow:				
17:00	Total:	Total:				
18:00	Flow:	Flow:				
18:00	Total:	Total:				
19:00	Flow:	Flow:				
19:00	Total:	Total:				
20:00	Flow:	Flow:				
20:00	Total:	Total:				
21:00	Flow:	Flow:				
21:00	Total:	Total:				
22:00	Flow:	Flow:				
22:00	Total:	Total:				
23:00	Flow:	Flow:				
23:00	Total:	Total:				
24:00	Flow:	Flow:				
24: 00	Total:	Total:				

PUMP OPERATOR_____

Date_____

VERIFIED BY PUMP COORDINATOR_____

Date:_____