INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

11/22 Pump Run

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

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

Date / Time	EVENT LOG BOOK
11/23 / 0100	Set up both Stations + wildlife Checks
11/23 / 0220	Start North Pumps 0220
11/23 / 0225	Start South pumps 0225
/ 0300	North pump Station 2,609,920
/ 0300	South pump Station 2,312,835
/ 0400	South pump Station 3,997,020
/ 0400	North pump Station 3,834,900
/ 0500	North pump Station 3,826,260
/ 0500	South pump Station 3,997,380
/ 0600	North pump STATION 3,846,870
/ 0600	South pump STATION 4,004.670
/ 0700	North pump STATION 3,874,290
/ 0700	South pump STATION 4,006,230
/ 0800	North Station Pumped = 3,913,050
/ 0800	South station Pumped = 3,981,480
/ 0900	North Station Pumped = 3,906,480
/ 0900	South Station Pumped = 3,884,660
/ 10:00	North station Pumped = 3,889,620
/ 10:00	South station Pumped = 3,830,670
/ 11:00	North station Pumped = 3,889,030
/ 11:00	South Station Pumped = 3,845,310
/ 1155	North Station Pumped = 3,540,240
/ 1150	South Station Pumped = 3,211,600
/	
11/23 / 12	Total Water Pumped by North Station = 37,130,660
11/23 / 12	Total Water Pumped by South station = 37,069,945

11-22-15 - 11-23-15

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

11/22

Pump Run

North Pumping Station
37,130,660 Gallons

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Bryan Ingram

ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month 11 Day 23 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:				-.35	.80	✓
1:00	Total:	Total:	Total:						
2:00 0220	Flow: 24756	Flow: ERROR	Flow: 20634	576	576	576	-.25	.80	✓
2:00	Total: 17155190	Total: ERROR	Total: 31048498						
3:00	Flow: 22397	Flow: ERROR	Flow: 20508	576	576	576	-.30	.80	✓
3:00	Total: 18010836	Total: ERROR	Total: 31821969						
4:00	Flow: 22195	Flow: ERROR	Flow: 20530	576	576	576	-.20	.80	✓
4:00	Total: 19297159	Total: ERROR	Total: 33061179						
5:00	Flow: 22091	Flow: ERROR	Flow: 20525	576	576	576	-.10	.80	✓
5:00	Total: 20598571	Total: ERROR	Total: 34280996						
6:00	Flow: 22636	Flow: ERROR	Flow: 20777	576	576	576	.0	.8	✓
6:00	Total: 21953031	Total: ERROR	Total: 35560450						
7:00	Flow: 22750	Flow: ERROR	Flow: 20780	576	576	576	+.1	.8	✓
7:00	Total: 23299181	Total: ERROR	Total: 36808350						
8:00	Flow: 22542	Flow: ERROR	Flow: 20763	576	576	576	+.2	.8	✓
8:00	Total: 24633820	Total: ERROR	Total: 38045850						
9:00	Flow: 23187	Flow: ERROR	Flow: 20124	576	576	576	+.2	.8	✓
9:00	Total: 25974407	Total: ERROR	Total: 39276262						
10:00	Flow: 22858	Flow: ERROR	Flow: 19885	576	576	576	+.2	.8	✓
10:00	Total: 27352279	Total: ERROR	Total: 40469633						
11:00	Flow: 23211	Flow: ERROR	Flow: 19747	576	576	576	+.3	.8	✓
11:00	Total: 28716992		Total: 41653852						
11:55	Flow: 22647	Flow: ERROR	Flow: 19531	576	576	576	.0	.8	✓
[illegible]	Total: 29918567	Total: ERROR	Total: 42706872						

PLANT OPERATOR [illegible] Date [illegible]

VERIFIED BY PLANT COORDINATOR [illegible] Date [illegible]

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 SHIFT COORDINATOR

Date:

ERIC CASH
11/23/15

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

South Pump Station

11/22 Pump Run

Nights Nan Sweeney
Days Eric Cash

37,069,945 Gallons

ERIC CASH 11/23/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

11/22 Pump Run

ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month 11 Day 22 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~~ 2:25	Flow: 34212	Flow: 31124				✓
~~2:00~~ 2:25	Total: 29074754	Total: 40997322			.8	✓
3:00	Flow: 34704	Flow: 32121				✓
3:00	Total: 36185944	Total: 42022663			.8	✓
4:00	Flow: 34515	Flow: 31792				✓
4:00	Total: 32270912	Total: 43955085			.8	✓
5:00	Flow: 34573	Flow: 32365				✓
5:00	Total: 34338785	Total: 45892382			.8	✓
6:00	Flow: 34026	Flow: 32525	596	596	.8	✓
6:00	Total: 36333415	Total: 47756395				
7:00	Flow: 34564	Flow: 32426	596	596	.8	✓
7:00	Total: 36359103	Total: 49608262				
8:00	Flow: 34452	Flow: 31274	596	596	.8	✓
8:00	Total: 40373198	Total: 51843591				
9:00	Flow: 34344	Flow: 29352	596	596	.8	
9:00	Total: 42461624	Total: 53374221				
10:00	Flow: 34641	Flow: ERROR	596	596	.8	✓
10:00	Total: 44469735	Total: 55960960				
11:00	Flow: 34832	Flow: ERROR	596	596	.8	✓
11:00	Total: 46526192	Total: 54018049				
12:00	Flow: 34928	Flow: ERROR	596	596	.8	✓
12:00	Total: 48274992	Total: 54018049				

PUMP OPERATOR ERIC CASH Date 11/23/15

VERIFIED BY PUMP COORDINATOR [signature] 11/23/15

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:

11-23-15-11-24-15

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

11/23

Pump RUN

North Pumping Station

37,110,727

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

TABLE OF CONTENTS

Bryan Ingram 11/04/2015

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

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

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: _____/_____

_____

_____

_____

_____

_____

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

Date / Time EVENT LOG BOOK Page _ of _

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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1

11/23 Pump Run

Pump Coordinator Roles and Responsibilities

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

Date / Time	EVENT LOG BOOK
11/24/0145	Set up pump Stations & Wildlife Checks
11/24/1224	Started North pumps
11/24/1229	Started South pumps
/0800	North pump Station 2,369,952
/0800	South pump Station 2,030,810
/0400	South pump Station 3,888,720
/0400	North pump Station 3,906,360
/0500	NORTH pump STATION 3,912,510
/0500	SOUTH pump STATION 3,864,270
/0600	NORTH pump STATION 3,895,650
/0600	SOUTH pump STATION 3,863,430
/0700	NORTH pump STATION 3,877,980
/0700	SOUTH pump STATION 3,880,410
/0800	NORTH pump STATION 3,890,310
/0800	SOUTH pump STATION 3,862,470
/0900	NORTH pump STATION 3,892,680
/0900	SOUTH pump STATION 3,973,530
/1000	NORTH pump STATION 3,888,480
/1000	SOUTH pump STATION 3,920,010
/1100	NORTH pump STATION 3,895,920
/1100	SOUTH pump STATION 3,939,060
/1155	NORTH pump STATION 3,580,885
/1150	SOUTH pump STATION 3,324,675
/	Total Gallons pumped by NORTH STATIONS = 37,110,727
/	Total Gallons pumped by SOUTH STATION = 36,547,385

Mike Gallagher
Mike Gallagher
11-24-15

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 I 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:

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

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

11-24 /1022 4 - 504 A/F reached. North pump station begins
___/___ pumping. Center also used flow meter/totalizer
___/___ reads ERROR 0010. All other readings within
___/___ normal limits. South pump station starts
___/___ pumps at 0229.
___/0300 - no changes noted.
___/0400 - no changes noted.
___/0500 - no changes noted.
___/0600 - Check all pumps and p tubes
___/0700 - SAME
___/0800 - SAME
___/0900 - SAME
___/1000 - SAME Check all pumps and p-tubes
___/1100 - SAME
___/11:55 All pumps are off at 11:55 AM
___/___
___/___
___/___
___/___ P.S. Thank you I just want to thank everybody who
___/___ has a part in L31 (Thank you)
___/___
___/___
___/___
___/___
___/___

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

Brogan Ingram

NORTH PUMPING STATION HOURLY LOG SHEET Month 11 Day 24 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 0224	Flow: 24475	Flow: ERROR	Flow: ERROR	576	576	576	-.30	.80	✓
2:00	Total: 29994249	Total: ERROR	Total: ERROR						
3:00	Flow: 22788	Flow: ERROR	Flow: ERROR	576	576	576	-.25	.80	✓
3:00	Total: 30737722	Total: ERROR	Total: ERROR						
4:00	Flow: 23019	Flow: ERROR	Flow: ERROR	576	576	576	-.30	.80	✓
4:00	Total: 32132269	Total: ERROR	Total: ERROR						
5:00	Flow: 22998	Flow: ERROR	Flow: ERROR	576	576	576	-.25	.80	✓
5:00	Total: 33485239	Total: ERROR	Total: ERROR						
6:00	Flow: 22457	Flow: ERROR	Flow: ERROR	576	576	576	-.2	.8	✓
6:00	Total: 35034754	Total:	Total:						
7:00	Flow: 22409	Flow: ERROR	Flow: ERROR	576	576	576	.0	.8	✓
7:00	Total: 36260325	Total:	Total:						
8:00	Flow: 22868	Flow: ERROR	Flow: ERROR	576	576	576	+.1	.8	✓
8:00	Total: 37615790	Total:	Total:						
9:00	Flow: 22488	Flow: ERROR	Flow: ERROR	576	576	576	+.1	.8	✓
9:00	Total: 38984452	Total:	Total:						
10:00	Flow: 22728	Flow: ERROR	Flow: ERROR	576	576	576	+.1	.8	✓
10:00	Total: 40338551	Total:	Total:						
11:00	Flow: 22736	Flow: ERROR	Flow: ERROR	576	576	576	+.2	.8	✓
11:00	Total: 41700643								
11:55	Flow: 23078	Flow: ERROR	Flow: ERROR	576	576	576	+.2	.8	✓
	Total: 42937440	Total:	Total:	60Hz	60Hz	60Hz			

PUMP OPERATOR: [illegible] Date: 11-24-15

VERIFIED BY PUMP COORDINATOR: [illegible] Date: 11-24-2015

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_____

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 _

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ATTACHMENT 3

South Pump Operator Roles and Responsibilities

Date / Time EVENT LOG BOOK Page _of _

Date / Time	EVENT LOG BOOK
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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_____

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:_____

ERSC CASH
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

11/23

Pump RUN

South Pumping Station

36,547,385 Gallons

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

TABLE OF CONTENTS

SECTION

ATTACHMENTS

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. 2015-034-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

11/23 Pump Run

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

Date / Time	EVENT LOG BOOK
11/24 /0145	Set up Pump Stations & Wildlife Checks
11/24 /1224	Started North Pumps
11/24 /1229	Started South Pumps
/0800	North Pump Station 2,369,952
/0800	South Pump Station 2,030,810
/0400	South Pump Station 3,888,720
/0400	North Pump Station 3,906,360
/0500	NORTH PUMP STATION 3,912,510
/0500	SOUTH PUMP STATION 3,864,270
/0600	NORTH PUMP STATION 3,895,650
/0600	SOUTH PUMP STATION 3,863,430
/0700	NORTH PUMP STATION 3,877,980
/0700	SOUTH PUMP STATION 3,880,410
/0800	NORTH PUMP STATION 3,890,310
/0800	SOUTH PUMP STATION 3,862,470
/0900	NORTH PUMP STATION 3,892,680
/0900	SOUTH PUMP STATION 3,973,530
/1000	NORTH PUMP STATION 3,888,480
/1000	SOUTH PUMP STATION 3,920,010
/1100	NORTH PUMP STATION 3,895,920
/1100	SOUTH PUMP STATION 3,939,060
/1156	NORTH PUMP STATION 3,580,885
/1150	SOUTH PUMP STATION 3,324,675
/	TOTAL Gallons pumped by NORTH STATION = 37,110,727
/	TOTAL Gallons pumped by SOUTH STATION = 36,547,385

Mike Gallagher
Mike Gallagher
11-24-15

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 _

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:						
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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:						
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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_____

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 _
24/11 /0216	No signs of endangered wildlife / crocodiles, the pumps are	
___/___	in good conditions, staff gauge is 0.75	
___/0229	I started my pumps @ 56 Hz	
EC ___/545	SHIFT CHANGE	
___/814	RAISED THE Hz TO 57	
___/1150	TURNED PUMPS OFF	
___/___		
___/___		
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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 11 Day 24 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~~ 2:29	Flow: 33000	Flow: 30891	588	588	0.75	✓
~~2:00~~ 2:29	Total: 48408723	Total: 54030828			0.75	✓
3:00	Flow: 34129	Flow: 30998 ~~35082~~	588	588	0.75	✓
3:00	Total: 49436956	Total: 55132256				
4:00	Flow: 33423	Flow: 31071	588	588	0.75	✓
4:00	Total: 51447801	Total: 57334599				
5:00	Flow: 33348	Flow: 30967	588	588	0.75	✓
5:00	Total: 53465091	Total: 59874976				
6:00	Flow: 33317	Flow: 31149	588	588	.75	✓
6:00	Total: 55209330	Total: 61568563				
7:00	Flow: 33791	Flow: 31102	588	588	.75	✓
7:00	Total: 57423277	Total: 63515465				
8:00	Flow: 35532	Flow: 28326	588	588	.75	✓
8:00	Total: 59484116	Total: 65785916				
9:00	Flow: 33719	Flow: ERROR	598	598	.75	✓
9:00	Total: 61506864	Total: 65911078				
10:00	Flow: 33746	Flow: ERROR	598	598	.75	✓
10:00	Total: 63475654	Total: 65911078				
11:00	Flow: 34554	Flow: ERROR	598	598	.75	✓
11:00	Total: 66547007	Total: ERROR				
12:00	Flow: 34133	Flow: ERROR	598	598	.75	✓
12:00	Total: 69175653	Total: ERROR				

PUMP OPERATOR ERICCASH
Date 11/24/15

VERIFIED BY PUMP COORDINATOR Mike Duffy
11-24-2015

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:_____

Pump Run 11/24

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1

Pump Coordinator Roles and Responsibilities

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

11/25/ 1200 Did not Reach 504 acre feet.

Did not pump

Pump Co-ordinator

Kenneth Spring

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM
ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month **11** Day **24** Year **2015**

Time	West Pump (107942)	Center Pump (107941)	East Pump (107940)	North Canal Level	South Canal Level	System Checks at
00:00	Flow: Total:	Flow: Total:	Flow: Total:			
01:00	Flow: Total:	Flow: Total:	Flow: Total:			
02:00	Flow: Total:	Flow: Total:	Flow: Total:			
03:00	Flow: Total:	Flow: Total:	Flow: Total:			
04:00	Flow: Total:	Flow: Total:	Flow: Total:			
05:00	Flow: Total:	Flow: Total:	Flow: Total:			
06:00	Flow: Total:	Flow: Total:	Flow: Total:			
07:00	Flow: Total:	Flow: Total:	Flow: Total:			
08:00	Flow: Total:	Flow: Total:	Flow: Total:			
09:00	Flow: Total:	Flow: Tot	Flow:			
10:00	Flow: Total:	Flo Tot				
11:00	Flow: Total:	Flo Tot				
12:00	Flow: Total:	Flo Tot				
13:00	Flow: Total:	Flo Tot				
14:00	Flow: Total:	Flo Tot				
15:00	Flow: Total:	Flo Tot				
16:00	Flow: Total:	Flo Tot				
17:00	Flow: Total:	ow: Total:	Flow: Total:			
18:00	Flow: Total:	Flow: Total:	Flow: Total:			
19:00	Flow: Total:	Flow: Total:	Flow: Total:			
20:00	Flow: Total:	Flow: Total:	Flow: Total:			
21:00	Flow: Total:	Flow: Total:	Flow: Total:			
22:00	Flow: Total:	Flow: Total:	Flow: Total:			
23:00	Flow: Total:	Flow: Total:	Flow: Total:			
23:59	Flow: Total:	Flow: Total:	Flow: Total:			

LESS THAN 504

NO WATER ALLOTTED

Nannette Sweeney
Nannette Sweeney

11/24/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM
ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month **11** Day **24** Year **2015**

Time	North Pump (107944)	South Pump (107939)		North Canal Level	South Canal Level	System Check Sat
00:00	Flow: Total:	Flow: Total:				
01:00	Flow: Total:	Flow: Total:				
02:00	Flow: Total:	Flow: Total:				
03:00	Flow: Total:	Flow: Total:				
04:00	Flow: Total:	Flow: Total:				
05:00	Flow: Total:	Flow: Total:				
06:00	Flow: Total:	Flow: Total:				
07:00	Flow: Total:	Flow: Total:				
08:00	Flow: Total:	Flow: Total:				
09:00	Flow: Total:	Flow: Total:				
10:00	Flow: Total:	Flow: Total:				
11:00	Flow: Total:	Flow: Total:				
12:00	Flow: Total:	Flow: Total:				
13:00	Flow: Total:	Flow: Total:				
14:00	Flow: Total:	Flow: Total:				
15:00	Flow: Total:	Flow: Total:				
16:00	Flow: Total:	Flow: Total:				
17:00	Flow: Total:	Flow: Total:				
18:00	Flow: Total:	Flow: Total:				
19:00	Flow: Total:	Flow: Total:				
20:00	Flow: Total:	Flow: Total:				
21:00	Flow: Total:	Flow: Total:				
22:00	Flow: Total:	Flow: Total:				
23:00	Flow: Total:	Flow: Total:				
23:59	Flow: Total:	Flow: Total:				

LESS THAN 504

NO WATER ALLOTTED

Nannette Sweeney
Nannette Sweeney

11/24/15

Pump Run 11/25

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 1
Pump Coordinator Roles and Responsibilities

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

11/26/1200 Did not reach 504 acre feet.
Did not Pump.

Pump Coordinator
: Kenneth Spig

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM
ATTACHMENT 2

NORTH PUMPING STATION HOURLY LOG SHEET Month **11** Day **25** Year **2015**

Time	West Pump (107942)	Center Pump (107941)	East Pump (107940)	North Canal Level	South Canal Level	System Checks at
00:00	Flow: Total:	Flow: Total:	Flow: Total:			
01:00	Flow: Total:	Flow: Total:	Flow: Total:			
02:00	Flow: Total:	Flow: Total:	Flow: Total:			
03:00	Flow: Total:	Flow: Total:	Flow: Total:			
04:00	Flow: Total:	Flow: Total:	Flow: Total:			
05:00	Flow: Total:	Flow: Total:	Flow: Total:			
06:00	Flow: Total:	Flow: Total:	Flow: Total:			
07:00	Flow: Total:	Flow: Total:	Flow: Total:			
08:00	Flow: Total:	Flow: Total:	Flow: Total:			
09:00	Flow: Total:	Flow: Total:	Flow: Total:			
10:00	Flow: Total:	Flow: Total:	Flow: Total:			
11:00	Flow: Total:	Flow: Total:	Flow: Total:			
12:00	Flow: Total:	Flow: Total:	Flow: Total:			
13:00	Flow: Total:	Flow: Total:	Flow: Total:			
14:00	Flow: Total:	Flow: Total:	Flow: Total:			
15:00	Flow: Total:	Flow: Total:	Flow: Total:			
16:00	Flow: Total:	Flow: Total:	Flow: Total:			
17:00	Flow: Total:	Flow: Total:	Flow: Total:			
18:00	Flow: Total:	Flow: Total:	Flow: Total:			
19:00	Flow: Total:	Flow: Total:	Flow: Total:			
20:00	Flow: Total:	Flow: Total:	Flow: Total:			
21:00	Flow: Total:	Flow: Total:	Flow: Total:			
22:00	Flow: Total:	Flow: Total:	Flow: Total:			
23:00	Flow: Total:	Flow: Total:	Flow: Total:			
23:59	Flow: Total:	Flow: Total:	Flow: Total:			

LESS THAN 504

NO WATER ALLOTTED

Nannette Sweeney
Nannette Sweeney

11/25/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM
ATTACHMENT 3

SOUTH PUMP STATION HOURLY LOG SHEET Month **11** Day **25** Year **2015**

Time	North Pump (107944)	South Pump (107939)		North Canal Level	South Canal Level	System Check Sat
00:00	Flow: Total:	Flow: Total:				
01:00	Flow: Total:	Flow: Total:				
02:00	Flow: Total:	Flow: Total:				
03:00	Flow: Total:	Flow: Total:				
04:00	Flow: Total:	Flow: Total:				
05:00	Flow: Total:	Flow: Total:				
06:00	Flow: Total:	Flow: Total:				
07:00	Flow: Total:	Flow: Total:				
08:00	Flow: Total:	Flow: Total:				
09:00	Flow: Total:	Flow: Total:				
10:00	Flow: Total:	Flow: Total:				
11:00	Flow: Total:	Flow: Total:				
12:00	Flow: Total:	Flow: Total:				
13:00	Flow: Total:	Flow: Total:				
14:00	Flow: Total:	Flow: Total:				
15:00	Flow: Total:	Flow: Total:				
16:00	Flow: Total:	Flow: Total:				
17:00	Flow: Total:	Flow: Total:				
18:00	Flow: Total:	Flow: Total:				
19:00	Flow: Total:	Flow: Total:				
20:00	Flow: Total:	Flow: Total:				
21:00	Flow: Total:	Flow: Total:				
22:00	Flow: Total:	Flow: Total:				
23:00	Flow: Total:	Flow: Total:				
23:59	Flow: Total:	Flow: Total:				

LESS THAN 504

NO WATER ALLOTTED

Nannette Sweeney

Nannette Sweeney

11/25/15

Pump Run 11/26

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 4

Event Log

Date / Time	EVENT LOG BOOK	Page _ of __
11/27 0500	inspected L-31 North & South For wildlife and	
___/___	trash	
___/0618	Reached 504 acre feet. Started L-31 North Pumps	
___/0623	started L-31 South Pumps	
___/0700	North Station Pumped	2,901,528 gals
___/0700	South Station Pumped	2,580,010 gals
___/0800	North Station Pumped	4,156,380 gals
___/0800	South Station Pumped	4,183,800 gals
___/0900	North Station Pumped	4,167,540 gals
___/0900	South Station Pumped	4,183,800 gals
___/1000	North Station Pumped	4,178,700 gals
___/1000	South station Pumped	4,183,800 gals
___/1100	North Station Pumped	4,190,040 gals
___/1100	South Station Pumped	4,183,800 gals
___/1150	South station Pumped	3,486,500 gals
___/1155	North Station Pumped	3,840,870 gals
___/___		
___/___		
___/___		
___/1200	Total Pumped North station	23,412,738 gals
___/1200	Total Pumped South Station	22,801,710 gals
___/___		
___/___		
___/___		
___/___		
___/___	Kenth Spiz	
___/___		
___/___		
___/___		
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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Author: Talar Ward **Date:** 11/25/15

Approved: Mark J. Murphy **Date:** 11/25/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure
Revision 8: Added requirement for validation CCS level margin prior to starting L31 pumps
Revision 9: A complete re-write of the procedure which includes L31 pump curves and calculation methodology.

North Station Pumped
23,412,738 gals

South Station Pumped
22,801,710 gals

North Pumping Station
Pump Run 11/26/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 4 North Pump Station

Event Log

Date / Time	EVENT LOG BOOK	Page _ of __
11/27/0500	Inspected L-31 North For wild life & Trash	
___/0618	started pumps 60 Hz, 576 RPM staff gauge .0	
___/0700	60 Hz, 578 RPM staff gauge .0	
___/0800	60 Hz, 578 RPM staff gauge .1	
___/0900	60 Hz, 578 RPM staff gauge .2	
___/1000	60 Hz, 578 RPM staff gauge .3	
___/1100	60 Hz, 578 RPM staff gauge .4	
___/1155	60 Hz, 578 RPM staff gauge .4	
___/___		
___/___		
___/___		
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___/___		
___/___		
___/___		

Pump Run 11/26

DATA SHEET 1*FPI PUMP SPREAD SHEET AND CURVES*Page 1 of 4

AXIAL FLOW PUMP - Daily Report

Date: 11/27/15

Location: L31 North Station

Permit No:

Site Description: Three 30" AAF Pumps pumping North to South

Pump Model: FPI AAF 30-26

Pump Drive Ratio: 1 : 3.14 Motor : Pump

Discharge Elevation 3.9 feet

System Loss See Chart Below

*Note: Static Head is the difference between the upstream staffgage reading and the Discharge Elevation, unless the discharge is submerged. If submerged discharge, the Static head is the difference between Upstream and Downstream staffgages.

Operator Initials	UpStream Staffgage Pump On		UpStream Staffgage Pump Off		Pump Run Time	Electric Motor Speed	Pump RPM	Up Stream Staffgage Reading	Down Stream Staffgage Reading	Static Head Difference*	System Loss for Chart Below	TDH (Static + System Loss)	Flow Rate Using Adjusted Pump Curve (gpm)	Number Pumps Running	Total Flow (gallons)	Notes:
	Date	Time	Date	Time	Hours											
Sample	1/15/2015	5:00:00 PM	1/15/2015	6:00:00 PM	1.00	1800	573	0.6	0.6	3.3	6.00	9.3	23,403	3	4,212,540	
AC	11/27	6:18	11/27	7:00	.42	1800	576	.0	.7	3.9	6.0	9.9	23,025	3	69,084 x 42 =	2,901,528
AC		7:00		8:00	1	1800	576	.1	.7	3.8	6.0	9.8	23,091	3	69,273 x 60 =	4,156,380
AC		8:00		9:00	1	1800	576	.2	.7	3.7	6.0	9.7	23,153	3	69459 x 60 =	4,167,540
AC		9:00		10:00	1	1800	576	.3	.7	3.6	6.0	9.6	23,215	3	69645 x 60 =	4,178,700
AC		10:00		11:00	1	1800	576	.4	.7	3.5	6.0	9.5	23,278	3	69834 x 60 =	4,190,040
AC		11:00		11:55	.55	1800	576	.4	.7	3.5	6.0	9.5	23,278	3	69834 x 55 =	3,840,870
							0			3.9		3.9			0	
							0			3.9		3.9			0	
							0			3.9		3.9			0	
							0			3.9		3.9			0	
							0			3.9		3.9			0	

Field Entry Columns

Total Flow = 23,412,738 gals gpm

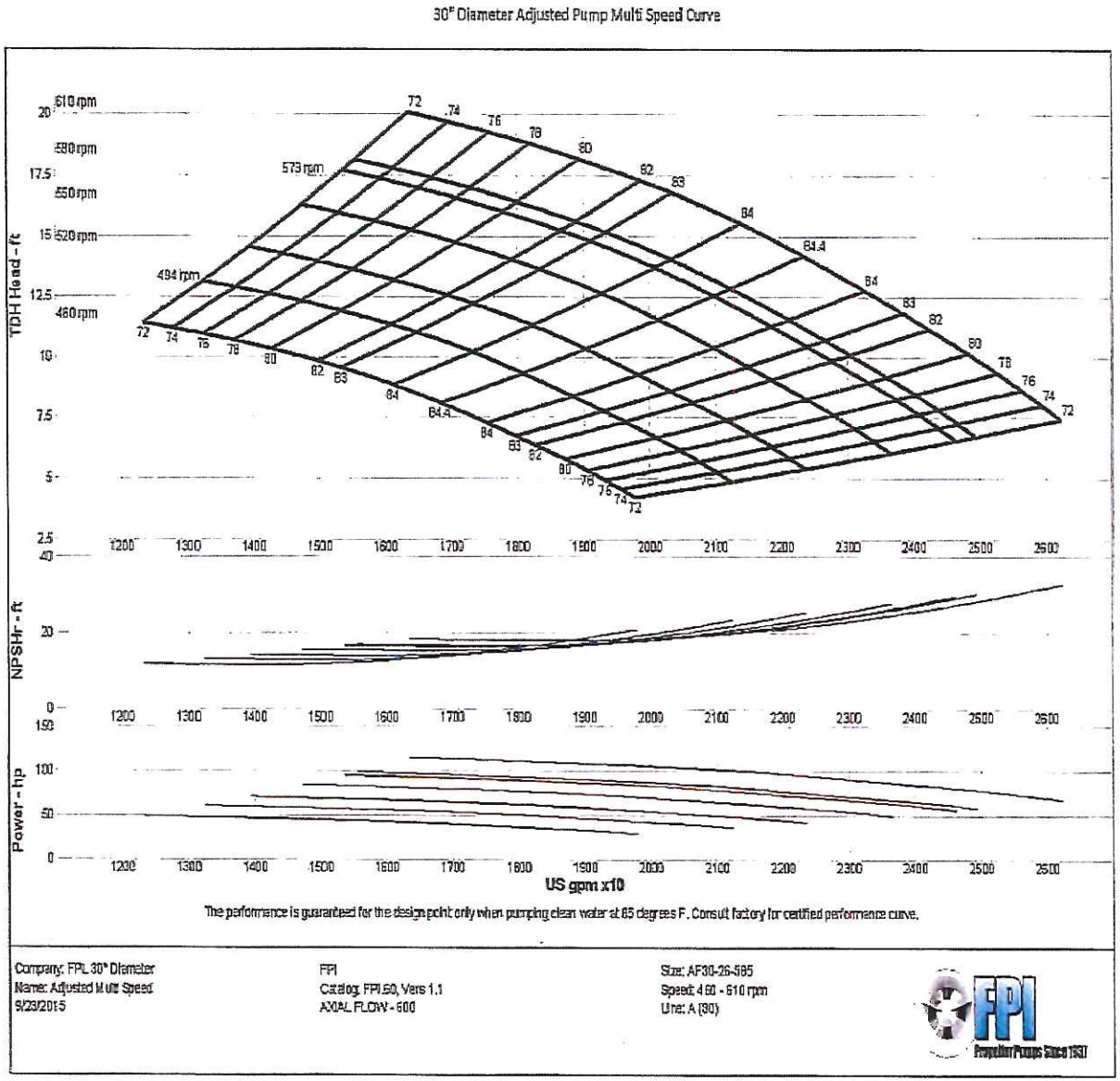
Total Pump Time = 5 hours 42 min.

System Loss Based on Field Test Data				
Pump rpm	Q	TDH	Static	System
578	22700	10.1	4.1	(6.0)
489	18800	8.25	4.1	4.15
460	17300	7.6	4.1	3.5

Use System Loss Nearest pump speed

example: 528 rpm use 4.15 system

DATA SHEET*FPI PUMP SPREAD SHEET AND CURVES*Page 2 of 4



Motor	1800 rpm	1550 rpm
Pump	573 rpm	494 rpm
TDH (ft)	Pump 100% Flow Rate (gpm)	Pump 86% Flow Rate (gpm)
7.4	24473	19559
7.5	24421	19486
7.6	24370	19414
7.7	24318	19341
7.8	24266	19267
7.9	24212	19192
8	24157	19017
8.1	24103	19042
8.2	24048	18967
8.3	23994	18892
8.4	23939	18817
8.5	23881	18737
8.6	23822	18658
8.7	23763	18578
8.8	23704	18499
8.9	23645	18419
9	23586	18340
9.1	23526	18260
9.2	23465	18181
9.3	23403	18101
9.4	23340	18016
9.5	23278	17929
9.6	23215	17842
9.7	23153	17754
9.8	23091	17667
9.9	23028	17580
10	22966	17493
10.1	22904	17405
10.2	22842	17318
10.3	22779	17215
10.4	22717	17111
10.5	22655	17007
10.6	22593	16903
10.7	22530	16799
10.8	22466	16695

Pump Run 11/26

DATA SHEET*FPI PUMP SPREAD SHEET AND CURVES*Page 3 of 4

AXIAL FLOW PUMP - Daily Report

Date: 11/27/15

Location: L31 South Station
Permit No:
Site Description: Two 36" AAF Pumps pumping West to East

Pump Model: FPI AAF 36-30
Pump Drive Ratio: 1 : 2.88 Motor : Pump
Discharge Elevation 4.1 feet
System Loss See Chart Below

*Note: Static Head is the difference between the upstream staffgage reading and the Discharge Elevation, unless the discharge is submerged. If submerged discharge, the Static head is the difference between Upstream and Downstream staffgages.

Operator Initials	Pump On Date	Pump On Time	Pump Off Date	Pump Off Time	Pump Run Time Hours	Electric Motor Speed	Pump RPM	Up Stream Staffgage Reading	Down Stream Staffgage Reading	Static Head Difference*	System Loss for Chart Below	TDH (Static + System Loss)	Flow Rate Using Adjusted Pump Curve (gpm)	Number Pumps Running	Total Flow (gallons)	Notes:
Sample	1/15/2015	5:00:00 PM	1/15/2015	6:00:00 PM	1.00	1760	611	0.6	0.25	3.5	14.9	18.4	34,791	2	4,174,920	
K.S.	11/27	6:23	11/27	7:00	.37	1760	630	.7	.7	3.4	18.3		34,865	2	69730	x37= 2,580,010
K.S.		700		8:00	1	1760	630	.7	.7	3.4	18.3		34,865	2	69730	x60= 4,183,800
K.S.		800		900	1	1760	630	.7	.7	3.4	18.3		34,865	2	69730	x60= 4,183,800
K.S.		900		1000	1	1760	630	.7	.7	3.4	18.3		34,865	2	69730	x60= 4,183,800
K.S.		1000		1100	1	1760	630	.7	.7	3.4	18.3		34,865	2	69730	x60= 4,183,800
K.S.		1100		1150	.50	1760	630	.7	.7	3.4	18.3		34,865	2	69730	x50= 3,486,500
							0			4.1		4.1			0	
							0			4.1		4.1			0	
							0			4.1		4.1			0	
							0			4.1		4.1			0	
							0			4.1		4.1			0	

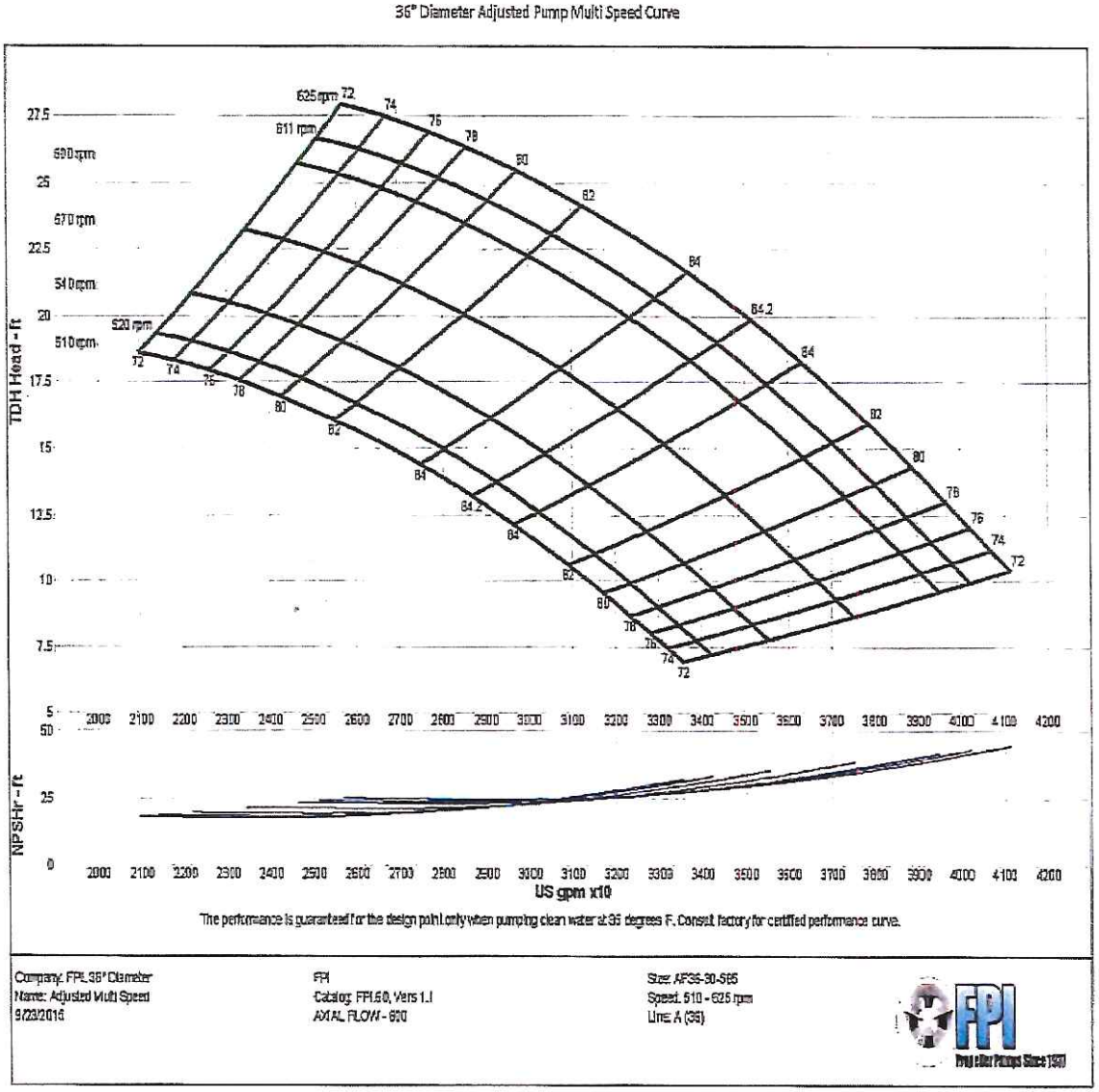
Total Flow = 22,801,710 gals
Total Pump Time = 5 hours 37mins

Field Entry Columns

System Loss Based on Field Test Data				
Pump rpm	Q	TDH	Static	System
630	32400	23.5	8.6	14.9
535	25800	18.3	8.6	9.7

Use System Loss Nearest pump speed
example: 430 rpm use 9.7 with system

DATA SHEET*FPI PUMP SPREAD SHEET AND CURVES*Page 4 of 4



Motor	1800 rpm	1760 rpm	1499 rpm
Pump	625 rpm	611 rpm	520 rpm
TDH (ft)	Pump 100% Flow Rate (gpm)	Pump 98% Flow Rate (gpm)	Pump 83% Flow Rate (gpm)
16.9	37225	35874	25734
17	37157	35805	25597
17.1	37090	35736	25459
17.2	37022	35666	25322
17.3	36955	35597	25185
17.4	36887	35528	25048
17.5	36820	35456	24911
17.6	36752	35382	24773
17.7	36684	35308	24622
17.8	36617	35235	24463
17.9	36549	35161	24304
18	36482	35087	24146
18.1	36414	35013	23987
18.2	36347	34939	23828
18.3	36277	34865	23657
18.4	36204	34791	23474
18.5	36132	34718	23292
18.6	36060	34644	23109
18.7	35988	34570	Do Not Operate
18.8	35916	34496	Do Not Operate
18.9	35843	34422	Do Not Operate
19	35771	34346	Do Not Operate
19.1	35699	34263	Do Not Operate
19.2	35627	34179	Do Not Operate
19.3	35555	34095	Do Not Operate
19.4	35482	34011	Do Not Operate
19.5	35410	33927	Do Not Operate
19.6	35338	33844	Do Not Operate
19.7	35266	33760	Do Not Operate
19.8	35194	33676	Do Not Operate
19.9	35117	33592	Do Not Operate
20	35036	33508	Do Not Operate
20.1	34954	33425	Do Not Operate
20.2	34872	3341	Do Not Operate
20.3	34790	33257	Do Not Operate

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

DATA SHEET 2

NORTH PUMPING STATION HOURLY LOG SHEET	Date: Month	Day	Year						
Time	**East Pump (107942)#3**	**Center Pump (107941)#2**	**West Pump (107940)#1**	**HZ/RPM East Pump**	**HZ/RPM Center Pump**	**HZ/RPM West Pump**	**N-Canal Level North of 344 St**	**S-Canal Level South of 344 St**	**System Checks Sat (Y/N)**
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~~ 6:18	Flow:	Flow:	Flow:	60/576	60/576	60/576	.0	.7	✓
~~6:00~~ 6:18	Total:	Total:	Total:						
7:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	.1	.7	✓
7:00	Total:	Total:	Total:						
8:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	.1	.7	✓
8:00	Total:	Total:	Total:						
9:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	.2	.7	✓
9:00	Total:	Total:	Total:						
10:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	.3	.7	✓
10:00	Total:	Total:	Total:						
11:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	.4	.7	✓
11:00	Total								
~~12:00~~ 11:55	Flow:	Flow:	Flow:	60/576	60/576	60/576	.4	.7	✓
~~12:00~~ 1155	Total:	Total:	Total:						

PUMP OPERATOR A. Cooper

Date 11/27/15

VERIFIED BY PUMP COORDINATOR [signature] Date: 11/27

Pump Run 11/26

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Author: [signature] **Date:** 11/25/15

Approved: [signature] **Date:** 11/25/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure
Revision 8: Added requirement for validation CCS level margin prior to starting L31 pumps
Revision 9: A complete re-write of the procedure which includes L31 pump curves and calculation methodology.

North station Pumped
23,412,738 gals

South Station Pumped
22,801,710 NC gals

South Pumping Station
Pump Run 11/26/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

South Pump station

ATTACHMENT 4

Event Log

Date / Time	EVENT LOG BOOK	Page _ of __
11/25/15/____		
____/____	Checked out pumps everything look good (Ready to start)	
____/____		
____/____	Checked area for wildlife before starting Pump (All clear)	
____/____		
____/~~0623~~ 0625	Pumps Running at 60 Hz with 630 RPM	
____/____		
____/0625	Contacted Jimmy at South Florida Water Management	
____/____	Explained we will run until 1200 hrs	
____/____		
____/0629	Sent out text message to all appropriate Individuals	
____/____		
____/____	Monitored pumps & area for wildlife during pump run	
____/____		
____/11:50	Pumps shut down	
____/____		
____/____		
____/____	All Breakers shut off	
____/____	Lights turned off & Cover box locked up	
____/____		
____/____		
____/____		
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INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

DATA SHEET 3

SOUTH PUMP STATION HOURLY LOG SHEET Month Day Year						
Time	North Pump (107944)	South Pump (107939)	HZ/RPM No.Pump	HZ/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~~ 6:23	Flow:	Flow:	60/630	60/630	.7	✓
~~6:00~~ 6:23	Total:	Total:	60/630	60/630	.7	✓
7:00	Flow:	Flow:	60/630	60/630	.7	✓
7:00	Total:	Total:	60/630	60/630	.7	✓
8:00	Flow:	Flow:	60/630	60/630	.7	✓
8:00	Total:	Total:	60/630	60/630	.7	✓
9:00	Flow:	Flow:	60/630	60/630	.7	✓
9:00	Total:	Total:	60/630	60/630	.7	✓
10:00	Flow:	Flow:	60/630	60/630	.7	✓
10:00	Total:	Total:	60/630	60/630	.7	✓
11:00	Flow:	Flow:	60/630	60/630	.7	✓
11:00	Total:	Total:	60/630	60/630	.7	✓
~~12:00~~ 11:50	Flow:	Flow:	60/630	60/630	.7	✓
~~12:00~~ 11:50	Total:	Total:	60/630	60/630	.7	✓

PUMP OPERATOR K. Sing

VERIFIED BY PUMP COORDINATOR K. Sing

11/27 Pump Run

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 4

Event Log

Date / Time	EVENT LOG BOOK	Page _ of __
11/28/0500	Inspected L-31 North & South pumps & VFD's for	
___/___	Wildlife and Trash	
___/0503	Reached 504 acre Feet. Started North pumps.	
___/0508	started South pumps.	
___/0515	Made all necessary contacts and SFWMD.	
___/0600	North Station pumped	3,895,209 gals
___/0600	South Station pumped	3,633,656 gals
___/0700	North Station pumped	4,100,220 gals
___/0700	South Station pumped	4,183,800 gals
___/0800	North station Pumped	4,111,560 gals
___/0800	South Station Pumped	4,183,800 gals
___/0900	North Station Pumped	4,145,040 gals
___/0900	South Station Pumped	4,183,800 gals
___/1000	North Station Pumped	4,156,380 gals
___/1000	South Station Pumped	4,183,800 gals
___/1100	North Station Pumped	4,167,540 gals
___/1100	South Station Pumped	4,183,800 gals
___/1150	South Station Pumped	3,486,500 gals
___/1155	North Station Pumped	3,830,475 gals
___/___		
___/___		
___/___		
___/1200	Total North station Pumped	28,406,424 gals
___/1200	Total South Station Pumped	28,039,156 gals
___/___		
___/___		
___/___		
___/___	Kenneth Spry	
___/___		
___/___		
___/___		

11/27/15 Pump Run

DATA SHEET 1*FPI PUMP SPREAD SHEET AND CURVES*Page 1 of 4

AXIAL FLOW PUMP - Daily Report

Date: 11/28/15

Location: L31 North Station

Permit No:

Site Description: Three 30" AAF Pumps pumping North to South

Pump Model: FPI AAF 30-26

Pump Drive Ratio: 1 : 3.14 Motor : Pump

Discharge Elevation 3.9 feet

System Loss See Chart Below

*Note: Static Head is the difference between the upstream staffgage reading and the Discharge Elevation, unless the discharge is submerged. If submerged discharge, the Static head is the difference between Upstream and Downstream staffgages.

Operator Initials	UpStream Staffgage Pump On		UpStream Staffgage Pump Off		Pump Run Time	Electric Motor Speed	Pump RPM	Up Stream Staffgage Reading	Down Stream Staffgage Reading	Static Head Difference*	System Loss for Chart Below	TDH (Static + System Loss)	Flow Rate Using Adjusted Pump Curve (gpm)	Number Pumps Running	Total Flow (gallons)	Notes:
	Date	Time	Date	Time	Hours											
Sample	1/15/2015	5:00:00 PM	1/15/2015	6:00:00 PM	1.00	1800	573	0.6	0.6	3.3	6.00	9.3	23,403	3	4,212,540	
AC	11/28	5:03	11/28	6:00	.57	1800	576	-.4	.8	~~4.~~4.3	6.0	~~9.~~10.3	22779	3	68337	×57= 3,895,209
AC		6:00		7:00	1	1800	576	-.4	.7	~~4.~~4.3	6.0	~~9.~~10.3	22779	3	68337	×60= 4,100,220
AC		7:00		8:00	1	1800	576	-.3	.7	~~4.~~4.2	6.0	~~9.~~10.2	22842	3	68526	×60= 4,111,560
AC		8:00		9:00	1	1800	576	.0	.7	~~4.~~3.9	6.0	~~9.~~9.9	23028	3	69084	×60= 4,145,040
AC		9:00		10:00	1	1800	576	.1	.7	~~4.~~3.8	6.0	~~9.~~9.8	23091	3	69273	×60= 4,156,380
AC		10:00		11:00	1	1800	576	.2	.7	~~4.~~3.7	6.0	~~9.~~9.7	23153	3	69459	×60= 4,167,540
AC		11:00		11:55	.55	1800	576	.3	.7	~~4.~~3.6	6.0	~~9.~~9.6	23215	3	69645	×55= 3,830,475
							0			3.9		3.9			0	
							0			3.9		3.9			0	
							0			3.9		3.9			0	
							0			3.9		3.9			0	

Field Entry Columns

Total Flow = 28,406,424 gpm

Total Pump Time = 6.52 hours

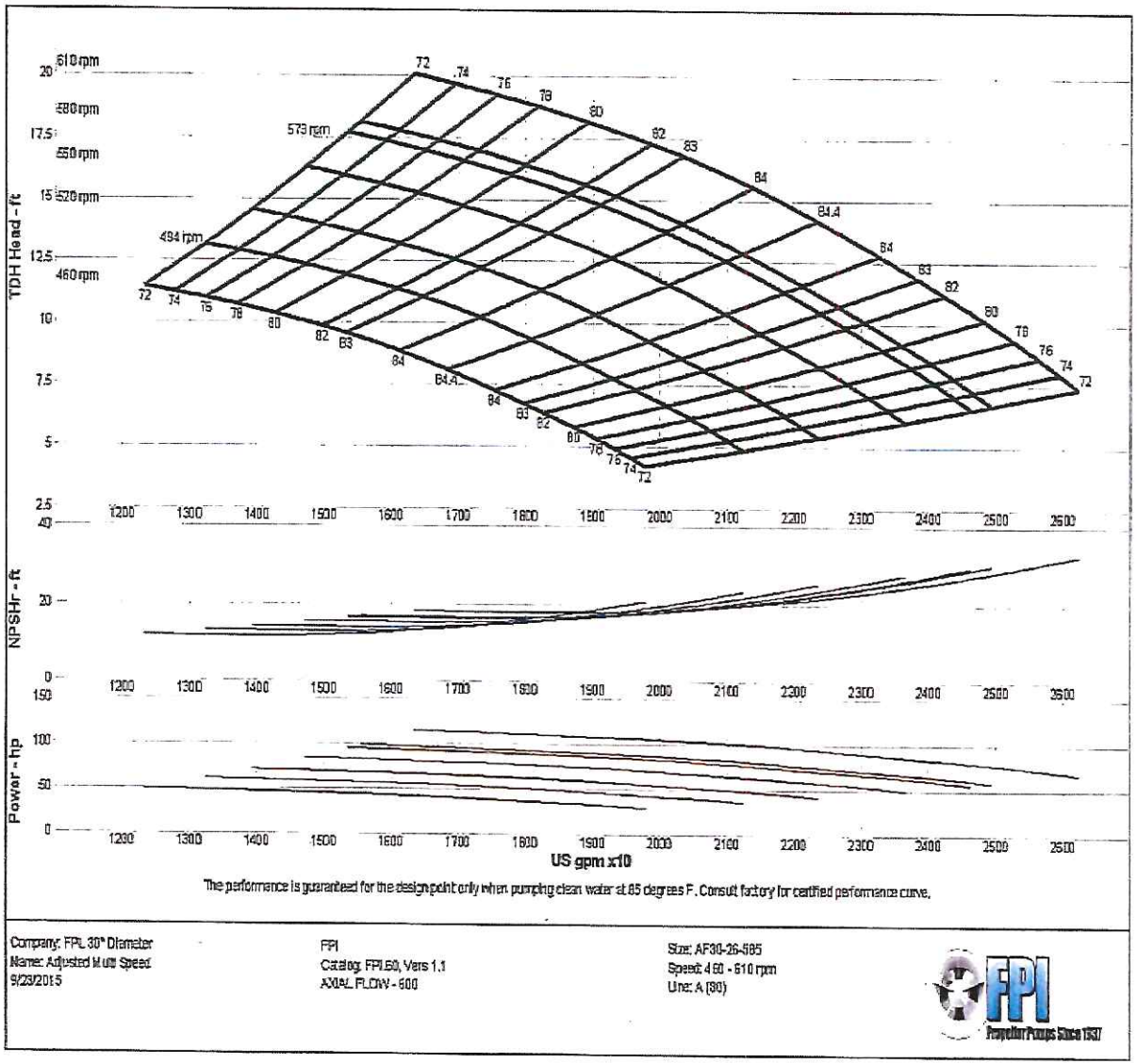
System Loss Based on Field Test Data				
Pump rpm	Q	TDH	Static	System
578	22700	10.1	4.1	6.0
489	18800	8.25	4.1	4.15
460	17300	7.6	4.1	3.5

Use System Loss Nearest pump speed

example: 528 rpm use 4.15 system

DATA SHEET*FPI PUMP SPREAD SHEET AND CURVES*Page 2 of 4

30" Diameter Adjusted Pump Multi Speed Curve



Motor	1800 rpm	1550 rpm
Pump	573 rpm	494 rpm
TDH (ft)	Pump 100% Flow Rate (gpm)	Pump 86% Flow Rate (gpm)
7.4	24473	19559
7.5	24421	19486
7.6	24370	19414
7.7	24318	19341
7.8	24266	19267
7.9	24212	19192
8	24157	19917
8.1	24103	19042
8.2	24048	18967
8.3	23994	18892
8.4	23939	18817
8.5	23881	18737
8.6	23822	18658
8.7	23763	18578
8.8	23704	18499
8.9	23645	18419
9	23586	18340
9.1	23526	18260
9.2	23465	18181
9.3	23403	18101
9.4	23340	18016
9.5	23278	17929
9.6	23215	17842
9.7	23153	17754
9.8	23091	17667
9.9	23028	17580
10	22966	17493
10.1	22904	17405
10.2	22842	17318
10.3	22779	17215
10.4	22717	17111
10.5	22655	17007
10.6	22593	16903
10.7	22530	16799
10.8	22466	16695

Pump Run 11/27/15

DATA SHEET*FPI PUMP SPREAD SHEET AND CURVES*Page 3 of 4

AXIAL FLOW PUMP - Daily Report

Date: 11/28/15

Location: L31 South Station
Permit No:
Site Description: Two 36" AAF Pumps pumping West to East

Pump Model: FPI AAF 36-30
Pump Drive Ratio: 1 : 2.88 Motor : Pump
Discharge Elevation 4.1 feet
System Loss See Chart Below

*Note: Static Head is the difference between the upstream staffgage reading and the Discharge Elevation, unless the discharge is submerged. If submerged discharge, the Static head is the difference between Upstream and Downstream staffgages.

Operator Initials	Pump On Date	Pump On Time	Pump Off Date	Pump Off Time	Pump Run Time Hours	Electric Motor Speed	Pump RPM	Up Stream Staffgage Reading	Down Stream Staffgage Reading	Static Head Difference*	System Loss for Chart Below	TDH (Static + System Loss)	Flow Rate Using Adjusted Pump Curve (gpm)	Number Pumps Running	Total Flow (gallons)	Notes:
Sample	1/15/2015	5:00:00 PM	1/15/2015	6:00:00 PM	1.00	1760	611	0.6	0.25	3.5	14.9	18.4	34,791	2	4,174,920	
K.S.	11/28	5:08	11/28	6:00	.52	1760	630	.8	.8	~~3.3~~	18.2	~~18.2~~	34939	2	69,878	×52 = 3,633,656
K.S.		6:00		7:00	1	1760	630	.7	.7	~~3.4~~	18.3	~~18.3~~	34865	2	69,730	×60 = 4,183,800
K.S.		7:00		8:00	1	1760	630	.7	.7	~~3.4~~	14.9	~~18.3~~	34865	2	69,730	×60 = 4,183,800
K.S.		8:00		9:00	1	1760	630	.7	.7	~~3.4~~	14.9	~~18.3~~	34865	2	69,730	×60 = 4,183,800
K.S.		9:00		10:00	1	1760	630	.7	.7	~~3.4~~	14.9	~~18.3~~	34865	2	69,730	×60 = 4,183,800
K.S.		10:00		11:00	1	1760	630	.7	.7	~~3.4~~	14.9	~~18.3~~	34865	2	69,730	×60 = 4,183,800
K.S.		11:00		11:50	.50	1760	630	.7	.7	~~3.4~~	14.9	~~18.3~~	34865	2	69,730	×50 = 3,486,500
							0			4.1		4.1			0	
							0			4.1		4.1			0	
							0			4.1		4.1			0	
							0			4.1		4.1			0	

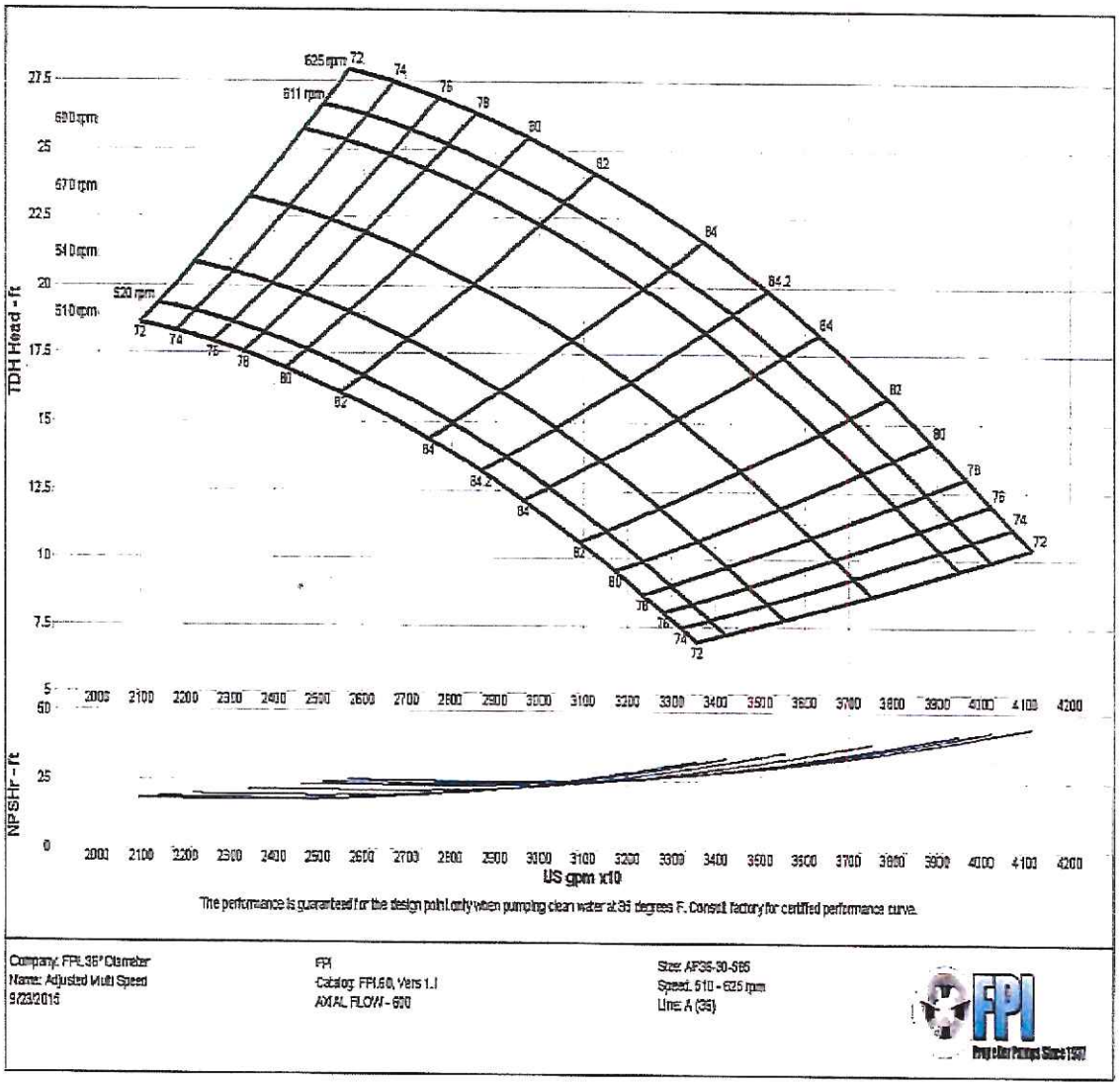
Total Flow = 28,039,156 gpm
Total Pump Time = 6.42 hours

Field Entry Columns

System Loss Based on Field Test Data				
Pump rpm	Q	TDH	Static	System
630	32400	23.5	8.6	14.9
535	25800	18.3	8.6	9.7

Use System Loss Nearest pump speed
example: 430 rpm use 9.7 with system

DATA SHEET*FPI PUMP SPREAD SHEET AND CURVES*Page 4 of 4



Motor	1800 rpm	1760 rpm	1499 rpm
Pump	625 rpm	611 rpm	520 rpm
TDH (ft)	Pump 100% Flow Rate (gpm)	Pump 98% Flow Rate (gpm)	Pump 83% Flow Rate (gpm)
16.9	37225	35874	25734
17	37157	35805	25597
17.1	37090	35736	25459
17.2	37022	35666	25322
17.3	36955	35597	25185
17.4	36887	35528	25048
17.5	36820	35456	24911
17.6	36752	35382	24773
17.7	36684	35308	24622
17.8	36617	35235	24483
17.9	36549	35161	24304
18	36482	35087	24146
18.1	36414	35013	23987
18.2	36347	34939	23828
18.3	36277	34865	23657
18.4	36204	34791	23474
18.5	36132	34718	23292
18.6	36060	34644	23109
18.7	35988	34570	Do Not Operate
18.8	35916	34496	Do Not Operate
18.9	35843	34422	Do Not Operate
19	35771	34346	Do Not Operate
19.1	35699	34263	Do Not Operate
19.2	35627	34179	Do Not Operate
19.3	35555	34095	Do Not Operate
19.4	35482	34011	Do Not Operate
19.5	35410	33927	Do Not Operate
19.6	35338	33844	Do Not Operate
19.7	35266	33760	Do Not Operate
19.8	35194	33676	Do Not Operate
19.9	35117	33592	Do Not Operate
20	35036	33508	Do Not Operate
20.1	34954	33425	Do Not Operate
20.2	34872	3341	Do Not Operate
20.3	34790	33257	Do Not Operate

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Author: Talar Ward **Date:** 11/25/15

Approved: Mark J. Murphy **Date:** 11/25/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure
Revision 8: Added requirement for validation CCS level margin prior to starting L31 pumps
Revision 9: A complete re-write of the procedure which includes L31 pump curves and calculation methodology.

North Station Total Pump
28,406,424 gals

South Station Total Pump
28,039,156 gals

North Pumping Station
11/27/15 Pump Run

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 4

Event Log

Date / Time	EVENT LOG BOOK	Page _ of __
11/28/ 0500	Inspected L-31 North & South pumps and VFD's for	
___/___	Wildlife & Trash.	
___/0503	Reached 504 acre Feet. Started L-31 North pumps	
___/0508	Started L-31 South pumps.	
___/0515	Made all necessary contacts and SFWMD.	
___/0600	North staff gauge -.4, South staff gauge .8	
___/___	North RPM's 576 Hz 60, South RPM's 630 @ 60 Hz	
___/0700	North staff gauge -.4, RPM's 576 @ 60 Hz	
___/0800	North staff gauge -.3, RPM's 576 @ 60 Hz	
___/0900	North staff gauge -.0, RPM's 576 @ 60 Hz	
___/1000	North staff gauge - .1, RPM's 576 @ 60 Hz	
___/1100	North staff gauge -.2, RPM's 576 @ 60 Hz	
___/___		
___/___		
___/___	Andren Cooper	
___/___		
___/___		
___/___		
___/___		
___/___		
___/___		
___/___		
___/___		
___/___		
___/___		
___/___		
___/___		
___/___		
___/___		
___/___		

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

DATA SHEET 2

NORTH PUMPING STATION HOURLY LOG SHEET	Date: Month Day Year								
Time	**East Pump (107942)#3**	**Center Pump (107941)#2**	**West Pump (107940)#1**	**HZ/RPM East Pump**	**HZ/RPM Center Pump**	**HZ/RPM West Pump**	**N-Canal Level North of 344 St**	**S-Canal Level South of 344 St**	**System Checks Sat (Y/N)**
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~~ 503	Flow:	Flow:	Flow:	60/576	60/576	60/576	-.4	.8	✓
~~5:00~~ 503	Total:	Total:	Total:						
6:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	-.4	.8	✓
6:00	Total:	Total:	Total:						
7:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	-.4	.7	✓
7:00	Total:	Total:	Total:						
8:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	-.3	.7	✓
8:00	Total:	Total:	Total:						
9:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	.0	.7	✓
9:00	Total:	Total:	Total:						
10:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	.1	.7	✓
10:00	Total:	Total:	Total:						
11:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	.2	.7	✓
11:00	Total								
~~12:00~~ 11:55	Flow:	Flow:	Flow:	60/576	60/576	60/576	.3	.7	✓
~~12:00~~ 11:55	Total:	Total:	Total:						

PUMP OPERATOR Andrew Cooper
Date 11/28/15

VERIFIED BY PUMP COORDINATOR Kenneth Sing Date: 11/28/15

11/27 Pump Run

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Author: Talan Ward **Date:** 11/25/15

Approved: Mark J Smyth **Date:** 11/25/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure
Revision 8: Added requirement for validation CCS level margin prior to starting L31 pumps
Revision 9: A complete re-write of the procedure which includes L31 pump curves and calculation methodology.

North Station Total Pump

28,406,424 gals

South station Total Pump

28,039,156 gals

South Pumping Station
11/27/15 Pump Run

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Pump Run 11/27/15

ATTACHMENT 4

Event Log

Date / Time	EVENT LOG BOOK	Page _ of __
11/25/15 / 4:45		
___/___	Checked out pumps and work area! (Pumps good work area no trash)	
___/___	Checked Area for Wildlife (Ready No wildlife in area)	
___/___		
11/28/15 / 5:08	Started pumps (Everything going good contacted north end)	
___/___	Pumps running at 60 Hz with 630 RPM	
___/___		
___/___	Made sure pumps was at 60 Hz & RPM's at 630 during run time	
___/___		
___/___	Made sure pump area was free of debris & wildlife during	
___/___	Pump run.	
___/___		
___/___	Called North station to tell pump operator South pumps going off.	
11/28/15 / 11:50	South pumps shut down	
___/___		
___/___		
___/___		
11/26/15 / 11:55	All Breakers turned off	
11/28/15 / 11:55	Conex box locked up secured	
___/___		
___/___		
___/___	Kenneth Spring	
___/___		
___/___		
___/___		
___/___		
___/___		
___/___		
___/___		
___/___		
___/___		

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

DATA SHEET 3

SOUTH PUMP STATION HOURLY LOG SHEET Month 11 Day 28 Year 2015

Time	North Pump (107944)	South Pump (107939)	HZ/RPM No.Pump	HZ/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~~ 5:08	Flow:	Flow:	60/630	60/630	.8	✓
~~5:00~~ 5:08	Total:	Total:	60/630	60/630	.8	✓
6:00	Flow:	Flow:	60/630	60/630	.8	✓
6:00	Total:	Total:	60/630	60/630	.8	✓
7:00	Flow:	Flow:	60/630	60/630	.7	✓
7:00	Total:	Total:	60/630	60/630	.7	✓
8:00	Flow:	Flow:	60/630	60/630	.7	✓
8:00	Total:	Total:	60/630	60/630	.7	✓
9:00	Flow:	Flow:	60/630	60/630	.7	✓
9:00	Total:	Total:	60/630	60/630	.7	✓
10:00	Flow:	Flow:	60/630	60/630	.7	✓
10:00	Total:	Total:	60/630	60/630	.7	✓
11:00	Flow:	Flow:	60/630	60/630	.7	✓
11:00	Total:	Total:	60/630	60/630	.7	✓
~~12:00~~ 11:50	Flow:	Flow:	60/630	60/630	.7	✓
~~12:00~~ 11:50	Total:	Total:	60/630	60/630	.7	✓

PUMP OPERATOR Kenth Spiro

Date 11/28/15

VERIFIED BY PUMP COORDINATOR Kenth Spiro

Date 11/28/15

11/28 Pump Run

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

ATTACHMENT 4

Event Log

Date / Time	EVENT LOG BOOK	Page _ of __
11/29/0500	Inspected L-31 North & South For Wildlife and Trash	
___/0518	Reached 504 acre feet. started North Pumps @ 60 Hz	
___/0523	Started South pumps @ 60 Hz	
___/0533	Made all necessary contacts and SFWMD.	
___/0600	North Station Pumped	2,870,154 gals
___/0600	South Station Pumped	2,580,010 gals
___/0700	North Station Pumped	4,100,220 gals
___/0700	South Station Pumped	4,183,800 gals
___/0800	North Station pumped	4,100,220 gals
___/0800	South Station Pumped	4,183,800 gals
___/0900	North station Pumped	4,111,560 gals
___/0900	South Station Pumped	4,183,800 gals
___/1000	North Station Pumped	4,133,880 gals
___/1000	south Station Pumped	4,183,800 gals
___/1100	North Station Pumped	4,145,040 gals
___/1100	South Station Pumped	4,183,800 gals
___/1150	South station Pumped	3,486,500 gals
___/1155	North Station Pumped	3,810,015 gals
___/___		
___/___		
___/___		
___/1200	Total North Station Pumped	27,271,089 gals
___/1200	Total South Station Pumped	26,985,510 gals
___/___		
___/___		
___/___		
___/___		Kenneth Spring
___/___		
___/___		
___/___		

11/28 Pump Run

DATA SHEET 1*FPI PUMP SPREAD SHEET AND CURVES*Page 1 of 4

AXIAL FLOW PUMP - Daily Report

Date: 11/29/15

Location: L31 North Station

Permit No:

Site Description: Three 30" AAF Pumps pumping North to South

Pump Model: FPI AAF 30-26

Pump Drive Ratio: 1 : 3.14 Motor : Pump

Discharge Elevation 3.9 feet

System Loss See Chart Below

*Note: Static Head is the difference between the upstream staffgage reading and the Discharge Elevation, unless the discharge is submerged. If submerged discharge, the Static head is the difference between Upstream and Downstream staffgages.

Operator Initials	UpStream Staffgage Pump On		UpStream Staffgage Pump Off		Pump Run Time	Electric Motor Speed	Pump RPM	Up Stream Staffgage Reading	Down Stream Staffgage Reading	Static Head Difference*	System Loss for Chart Below	TDH (Static + System Loss)	Flow Rate Using Adjusted Pump Curve (gpm)	Number Pumps Running	Total Flow (gallons)	Notes:
	Date	Time	Date	Time	Hours											
Sample	1/15/2015	5:00:00 PM	1/15/2015	6:00:00 PM	1.00	1800	573	0.6	0.6	3.3	6.00	9.3	23,403	3	4,212,540	
AC	11/29	5:18	11/29	6:00	.42	1800	576	.4	.7	~~4.3~~	6.00	~~10~~3	22779	3	68337	x.42= 2,870,154
AC		6:00		7:00	1	1800	576	.4	.7	~~4.3~~	6.00	~~10~~3	22779	3	68337	x 60= 4,100,220
AC		7:00		8:00	1	1800	576	.4	.7	~~4.3~~	6.00	~~10~~3	22779	3	68337	x 60= 4,100,220
AC		8:00		9:00	1	1800	576	.3	.7	~~4.2~~	6.00	~~10~~2	22842	3	685[illegible]6	x60= 4,111,560
AC		9:00		10:00	1	1800	576	.1	.7	~~4.~~	6.00	~~10~~	22966	3	68898	x60= 4,133,880
AC		10:00		11:00	1	1800	576	.0	.7	~~3.9~~	6.00	~~9.9~~	23028	3	69084	x60= 4,145,040
AC		11:00		11:55	.55	1800	576	.1	.7	~~3.8~~	6.00	~~9.8~~	23091	3	69273	x55= 3,810,015
							0			3.9		3.9			0	
							0			3.9		3.9			0	
							0			3.9		3.9			0	
							0			3.9		3.9			0	

Field Entry Columns

Total Flow = 27,271,089 gpm

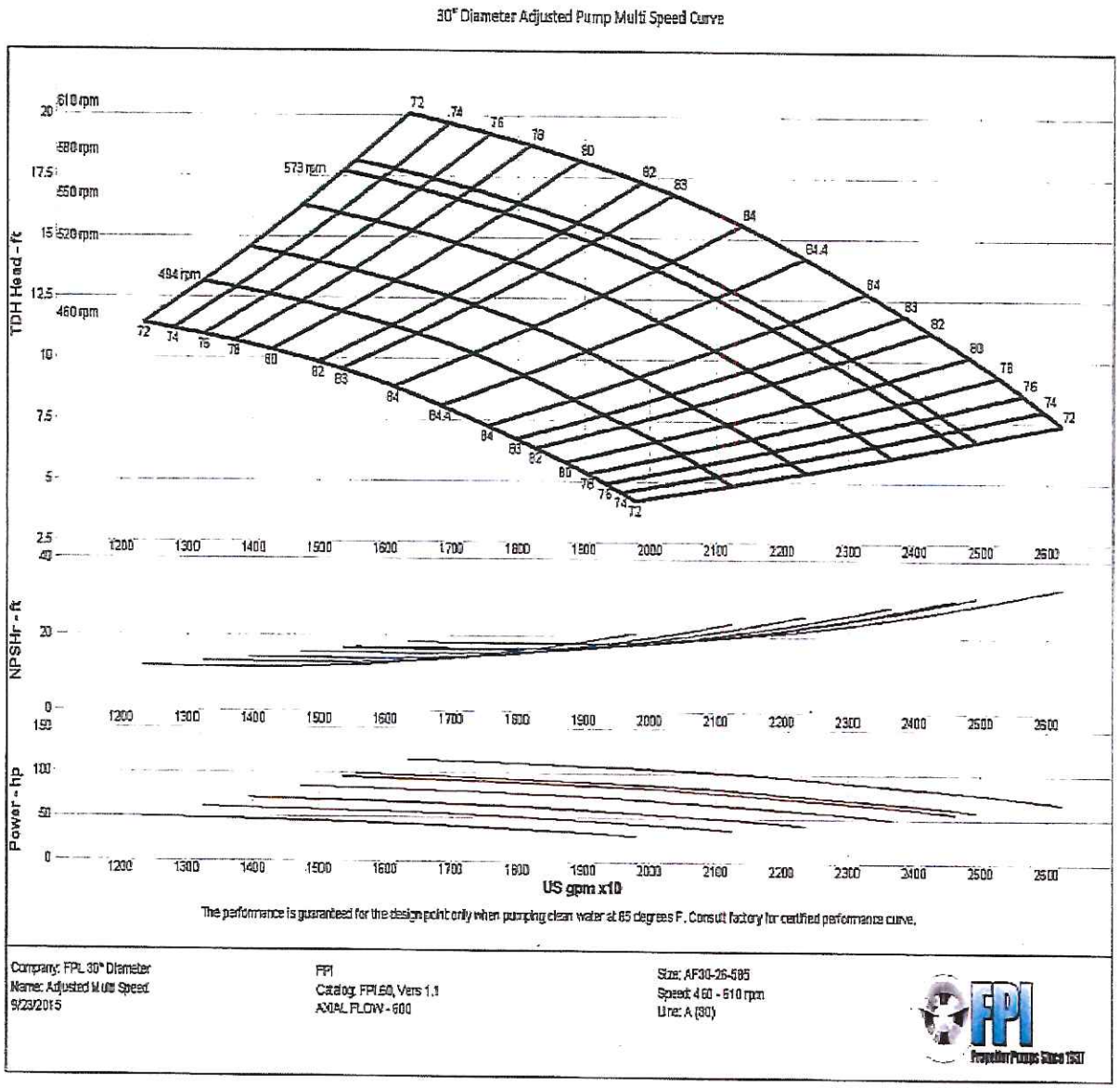
Total Pump Time = 6.23 hours

System Loss Based on Field Test Data				
Pump rpm	Q	TDH	Static	System
578	22700	10.1	4.1	6.0
489	18800	8.25	4.1	4.15
460	17300	7.6	4.1	3.5

Use System Loss Nearest pump speed

example: 528 rpm use 4.15 system

DATA SHEET*FPI PUMP SPREAD SHEET AND CURVES*Page 2 of 4



Motor	1800 rpm	1550 rpm
Pump	573 rpm	494 rpm
TDH (ft)	Pump 100% Flow Rate (gpm)	Pump 86% Flow Rate (gpm)
7.4	24473	19559
7.5	24421	19486
7.6	24370	19414
7.7	24318	19341
7.8	24266	19267
7.9	24212	19192
8	24157	19917
8.1	24103	19042
8.2	24048	18967
8.3	23994	18892
8.4	23939	18817
8.5	23881	18737
8.6	23822	18658
8.7	23763	18578
8.8	23704	18499
8.9	23645	18419
9	23586	18340
9.1	23526	18260
9.2	23465	18181
9.3	23403	18101
9.4	23340	18016
9.5	23278	17929
9.6	23215	17842
9.7	23153	17754
9.8	23091	17667
9.9	23028	17580
10	22966	17493
10.1	22904	17405
10.2	22842	17318
10.3	22779	17215
10.4	22717	17111
10.5	22655	17007
10.6	22593	16903
10.7	22530	16799
10.8	22466	16695

11/28/15 Pump Run

DATA SHEET*FPI PUMP SPREAD SHEET AND CURVES*Page 3 of 4

AXIAL FLOW PUMP - Daily Report

Date: 11/29/15

Location: L31 South Station

Permit No:

Site Description: Two 36" AAF Pumps pumping West to East

Pump Model: FPI AAF 36-30

Pump Drive Ratio: 1 : 2.88 Motor : Pump

Discharge Elevation 4.1 feet

System Loss See Chart Below

*Note: Static Head is the difference between the upstream staffgage reading and the Discharge Elevation, unless the discharge is submerged. If submerged discharge, the Static head is the difference between Upstream and Downstream staffgages.

Operator Initials	Pump On Date	Pump On Time	Pump Off Date	Pump Off Time	Pump Run Time Hours	Electric Motor Speed	Pump RPM	Up Stream Staffgage Reading	Down Stream Staffgage Reading	Static Head Difference*	System Loss for Chart Below	TDH (Static + System Loss)	Flow Rate Using Adjusted Pump Curve (gpm)	Number Pumps Running	Total Flow (gallons)	Notes:
Sample	1/15/2015	5:00:00 PM	1/15/2015	6:00:00 PM	1.00	1760	611	0.6	0.25	3.5	14.9	18.4	34,791	2	4,174,920	
K.S.	11/29	5:23	11/29	6:00	.37	1760	630	.7	.7	~~3.4~~	14.9	~~18.3~~	34865	2	69,730	x37= 2,580,010
K.S.		6:00		7:00	1	1760	630	.7	.7	~~3.4~~	14.9	~~18.3~~	34865	2	69,730	x60= 4,183,800
K.S.		7:00		8:00	1	1760	630	.7	.7	~~3.4~~	14.9	~~18.3~~	34865	2	69,730	x60= 4,183,800
K.S.		8:00		9:00	1	1760	630	.7	.7	~~3.4~~	14.9	~~18.3~~	34865	2	69,730	x60= 4,183,800
K.S.		9:00		10:00	1	1760	630	.7	.7	~~3.4~~	14.9	~~18.3~~	34865	2	69,730	x60= 4,183,800
K.S.		10:00		11:00	1	1760	630	.7	.7	~~3.4~~	14.9	~~18.3~~	34865	2	69,730	x60= 4,183,800
K.S.		11:00		11:50	1	1760	630	.7	.7	~~3.4~~	14.9	~~18.3~~	34865	2	69,730	x50= 3,486,500
							0			4.1		4.1			0	
							0			4.1		4.1			0	
							0			4.1		4.1			0	
							0			4.1		4.1			0	

Total Flow = 26,985,510 gpm

Total Pump Time = 6.13 hours KS

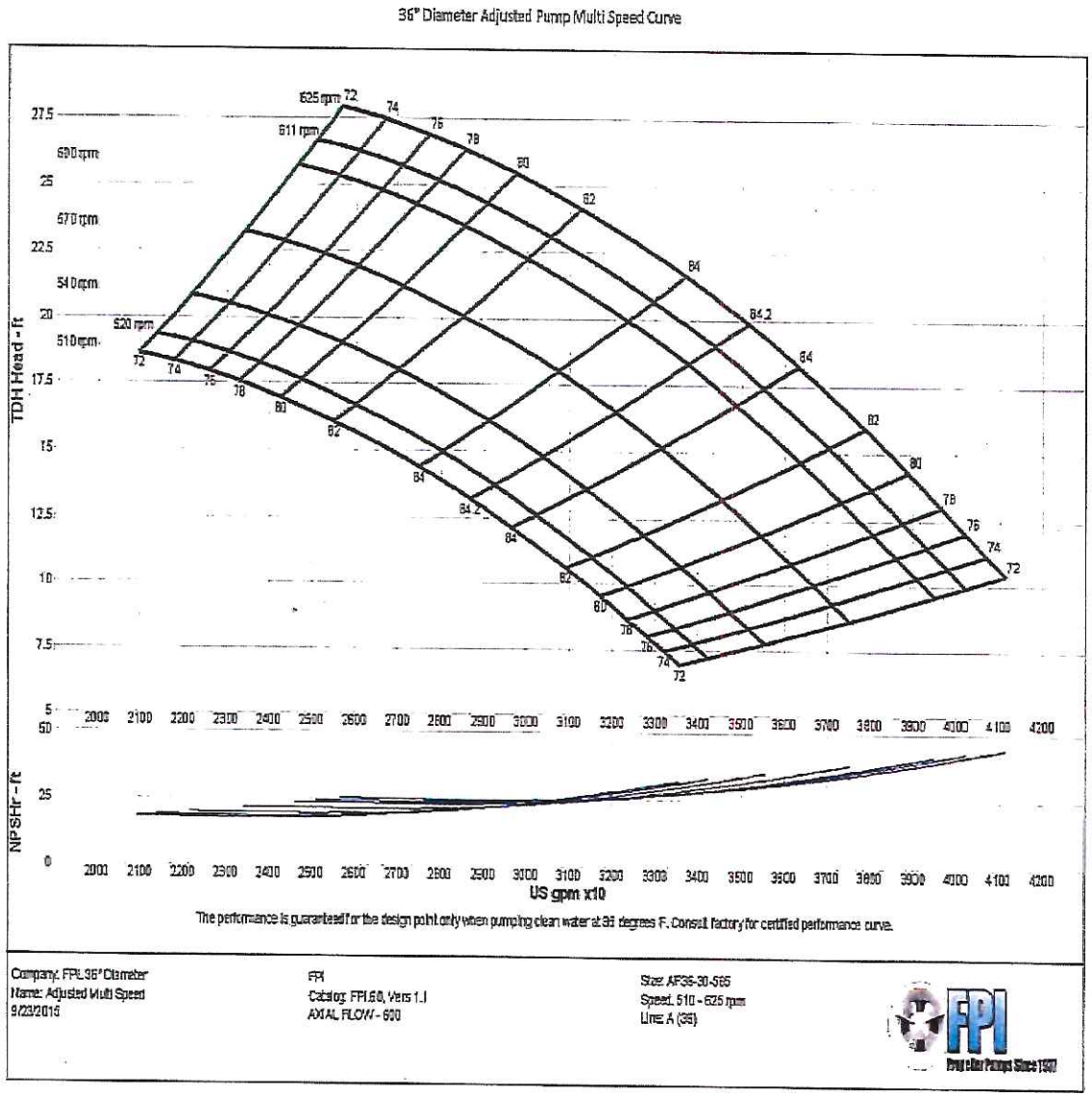
Field Entry Columns

System Loss Based on Field Test Data				
Pump rpm	Q	TDH	Static	System
630	32400	23.5	8.6	14.9
535	25800	18.3	8.6	9.7

Use System Loss Nearest pump speed

example: 430 rpm use 9.7 with system

DATA SHEET*FPI PUMP SPREAD SHEET AND CURVES*Page 4 of 4



Motor	1800 rpm	1760 rpm	1499 rpm
Pump	625 rpm	611 rpm	520 rpm
TDH (ft)	Pump 100% Flow Rate (gpm)	Pump 98% Flow Rate (gpm)	Pump 83% Flow Rate (gpm)
16.9	37225	35874	25734
17	37157	35805	25597
17.1	37090	35736	25459
17.2	37022	35666	25322
17.3	36955	35597	25185
17.4	36887	35528	25048
17.5	36820	35456	24911
17.6	36752	35382	24773
17.7	36684	35308	24632
17.8	36617	35235	24463
17.9	36549	35161	24304
18	36482	35087	24146
18.1	36414	35013	23987
18.2	36347	34939	23828
18.3	36277	34865	23657
18.4	36204	34791	23474
18.5	36132	34718	23292
18.6	36060	34644	23109
18.7	35988	34570	Do Not Operate
18.8	35916	34496	Do Not Operate
18.9	35843	34422	Do Not Operate
19	35771	34346	Do Not Operate
19.1	35699	34263	Do Not Operate
19.2	35627	34179	Do Not Operate
19.3	35555	34095	Do Not Operate
19.4	35482	34011	Do Not Operate
19.5	35410	33927	Do Not Operate
19.6	35338	33844	Do Not Operate
19.7	35266	33760	Do Not Operate
19.8	35194	33676	Do Not Operate
19.9	35117	33592	Do Not Operate
20	35036	33508	Do Not Operate
20.1	34954	33425	Do Not Operate
20.2	34872	3341	Do Not Operate
20.3	34790	33257	Do Not Operate

Pump Run 11/28

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Author: Talar Ward **Date:** 11/25/15

Approved: Mark J. Smyth **Date:** 11/25/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure
Revision 8: Added requirement for validation CCS level margin prior to starting L31 pumps
Revision 9: A complete re-write of the procedure which includes L31 pump curves and calculation methodology.

North Total Pumped
27,271,089 gals

South Total Pumped
26,985,510 gals

North Pumping Station
Pump Run 11/28/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

DATA SHEET 2

NORTH PUMPING STATION HOURLY LOG SHEET	Date: Month Day Year								
Time	East Pump (107942)#3	Center Pump (107941)#2	West Pump (107940)#1	HZ/RPM East Pump	HZ/RPM Center Pump	HZ/RPM West Pump	N-Canal Level North of 344 St	S-Canal Level South of 344 St	System Checks Sat (Y/N)
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~~ 5:18	Flow:	Flow:	Flow:	60/576	60/576	60/576	.4	.7	✓
~~5:00~~ 5:18	Total:	Total:	Total:						
6:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	.4	.7	✓
6:00	Total:	Total:	Total:						
7:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	.4	.7	✓
7:00	Total:	Total:	Total:						
8:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	.4	.7	✓
8:00	Total:	Total:	Total:						
9:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	.3	.7	✓
9:00	Total:	Total:	Total:				.		
10:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	.1	.7	✓
10:00	Total:	Total:	Total:						
11:00	Flow:	Flow:	Flow:	60/576	60/576	60/576	.0	.7	✓
11:00	Total								
~~12:00~~ 11:55	Flow:	Flow:	Flow:	60/576	60/576	60/576	.1	.7	✓
~~12:00~~ 11:55	Total:	Total:	Total:						

PUMP OPERATOR Andrew Cooper

Date 11/29/15

VERIFIED BY PUMP COORDINATOR [illegible] Date: 11/29/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

DATA SHEET 2

NORTH PUMPING STATION HOURLY LOG SHEET			Date: Month	Day	Year				
Time	**East Pump (107942)#3**	**Center Pump (107941)#2**	**West Pump (107940)#1**	**HZ/RPM East Pump**	**HZ/RPM Center Pump**	**HZ/RPM West Pump**	**N- Canal Level North of 344 St**	**S-Canal Level South of 344 St**	**System Checks Sat (Y/N)**
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:_____

11/28 Pump Run 11-29-15 YASIEL MOLINA

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

Author: _____ **Date:** 11/25/15

Approved: _____ **Date:** 11/25/15

Revision 7: Added RPM Columns for North and South Pumping Stations in Procedure
Revision 8: Added requirement for validation CCS level margin prior to starting L31 pumps
Revision 9: A complete re-write of the procedure which includes L31 pump curves and calculation methodology.

North Total Pumped
27,271,089 gals

South Total Pumped
26,985,510 gals

South Pumping Station
Pump Run 11/28/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

11/26/15 Pump Run

ATTACHMENT 4

Event Log

Date / Time	EVENT LOG BOOK	Page _ of __
11/29 / 5:00	Check for willife, check for grass and garbage
/	Turn on switch everything ok ready to start pumps.
11/29 / 5:23	START PUMPS check the PTube where working
/	good check for vibration everything is ok
/	60 HZ 630 RPM
/	
/	Checked Area for Wildlife & Floating debris during
/	Pump run.
/	
/	All Pumps Running good during pump run.
/	
11/29/15 / 11:50	South Pump station shut off
/	Contact North Pump station that south is off..
/	
/ 11:53	All Main breakers & switches shut off!
/	Conex box locked up & secure
/	
/ ~~11:53~~	
/	
/	
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/	
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/	

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

DATA SHEET 3

SOUTH PUMP STATION HOURLY LOG SHEET Month 11 Day 29 Year 2015						
Time	North Pump (107944)	South Pump (107939)	HZ/RPM No.Pump	HZ/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~~ 5:23	Flow:	Flow:	60/630	60/630	.7	✓
5:00	Total:	Total:				
6:00	Flow:	Flow:	60/630	60/630	.7	✓
6:00	Total:	Total:				
7:00	Flow:	Flow:	60/630	60/630	.7	✓
7:00	Total:	Total:				
8:00	Flow:	Flow:	60/630	60/630	.7	✓
8:00	Total:	Total:				
9:00	Flow:	Flow:	60/630	60/630	.7	✓
9:00	Total:	Total:				
10:00	Flow:	Flow:	60/630	60/630	.7	✓
10:00	Total:	Total:				
11:00	Flow:	Flow:	60/630	60/630	.7	✓
11:00	Total:	Total:				
~~12:00~~ 11:50	Flow:	Flow:	60/630	60/630	.7	✓
~~12:00~~	Total:	Total:				

PUMP OPERATOR Kenneth Spiz

Date 11/29/15

VERIFIED BY PUMP COORDINATOR Kenneth Spiz

Date: 11/29/15

INJECTION OF L31 CANAL WATER INTO THE CANAL COOLING SYSTEM PROCEDURE

DATA SHEET 3

SOUTH PUMP STATION HOURLY LOG SHEET Month Day Year						
Time	North Pump (107944)	South Pump (107939)	HZ/RPM No.Pump	HZ/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: