Engineering PROCEDURE	Title: WATER TREATMENT PLANT OPERATIONS PLAN			Number: UTI-P-0004	
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SUBJECT **WATER TREATMENT PLANT OPERATIONS PLAN**

TABLE OF CONTENTS

PURPOSE....2
SCOPE AND APPLICABILITY....2
PROCESS....2
1. PPE....2
2. DAILY COLORIMETER CALIBRATION CHECK....2
3. DAILY FLOW READING....2
4. DAILY WATER OPERATOR CHECKLIST....2
5. N6-1010 PRESSURE SUSTAINING PUMP SYSTEM OPERATION....3
6. CHLORINE INJECTION SYSTEMS OPERATION....3
7. AMMONIA INJECTION SYSTEM OPERATION....4
8. CHEMICAL ANALYSIS, N6-1010....5
9. CHEMSCAN ANALYZER, N6-1010....5
10. AUTOMATIC FLUSH STATIONS....6
11. CHEMSCAN ANALYZER, L6-0093....6
12. W-5 PUMP STATION AND GROUND STORAGE TANK, K6-0896 & K6-0993....7
13. DISTRIBUTION SYSTEM MONITORING....7
14. REPORTING A MALFUNCTION (ENVIRONMENTAL COMPLIANCE ONLY)....8
15. CHANGE TO CONFIGURATION....8
16. ENVIRONMENTAL PERMITTING OF MODIFICATIONS....8
APPENDIX A: CHEMICAL ANALYSES....9
APPENDIX Z: EMERGENCY INSTRUCTIONS....12
RECORDS....13
AFFECTED DIVISIONS/ OFFICES....13
MANAGEMENT ROLES AND RESPONSIBILITIES....13
FUNCTIONAL ROLES AND RESPONSIBILITIES....14
REFERENCE DOCUMENTS....14
ACRONYMS....14
DEFINITIONS....15
REVISION RECORD....15
DOCUMENT APPROVALS....15

PURPOSE

This procedure defines operational activities for BOSS's operation of the potable water treatment and distribution system at Kennedy Space Center (KSC) as identified in this procedure to meet customer requirements and maintain compliance with State Statutes.

SCOPE AND APPLICABILITY

This procedure is applicable to the KSC potable water system, Public Water System #3054024. All operational requirements specified in this procedure will be performed by an operator possessing a Florida Class "C" (or higher) Drinking Water Operator's License.

PROCESS

FSEU Water and Wastewater Department will perform the following operations, maintenance, monitoring and testing of the KSC Water Treatment and Distribution system in accordance with FAC 62-550 and FAC 62-555, Florida Statutes.

1. PPE

Eye protection, in the form of goggles or safety glasses with side shields (including prescription safety glasses), is always required when an eye hazard (chemical or impact) exists.

2. DAILY COLORIMETER CALIBRATION CHECK

Before starting daily operations, perform a calibration check on the colorimeter being used. Check meter accuracy utilizing Hach gel standards for chlorine, located W-1 Pump Station, N6-1010. Record the results of the check on the Colorimeter Daily Calibration Log, UTI-F-2000. At the end of the month, file form UTI-F-2000 at N6-1010.

3. DAILY FLOW READING

Read the City of Cocoa flow meter and calculate the number of gallons that have flowed in the previous twenty-four (24) hours. This data should be recorded on Form UTI-F-2002, Daily Flow Readings and Remote Chlorine Residual, and in the Water Plant Operations Logbook.

4. DAILY WATER OPERATOR CHECKLIST

Perform checks of the various equipment/systems listed on the Daily Water Operator Checklist, Form UTI-F-0004B. This includes checks at W-1 Pump Station, L6-0093 ChemScan Analyzer Building and Pad B Remote Sample site. Ensure this form is dated and signed by the Operator each day and brought back to the Water & Waste shop at the end of the day. Ensure remarks/issues are clearly identified and explained at the bottom of the form for reporting to the Supervisor. The Supervisor will take the appropriate action based on discussions with the Operator and/or Supervision or System Engineering. If a work order is needed to address the issue, the Supervisor will submit the EWR. The Supervisor will review the form for any actions regarding ordering chlorine or ammonia to ensure enough

chemicals are on hand to support the chlorination process. This form will be kept at K6-1246.

5. N6-1010 PRESSURE SUSTAINING PUMP SYSTEM OPERATION

Observe the operation of the pressure sustaining pumps at N6-1010. Assure that the pumps are being smoothly modulated by the Variable Frequency Drive (VFD) to maintain the pressure set point indicated in the Programmable Logic Controller (PLC). Notify the Supervisor of any abnormal operation.

6. CHLORINE INJECTION SYSTEMS OPERATION

WARNING: Chlorine used at the W-1 Pump Station is an 12.5% solution of sodium hypochlorite. Use care when handling and follow all pertinent safety rules and regulations. See Appendix Z for Emergency Instructions.

If incoming City of Cocoa water Total Chloramine levels drop below 2.5 ppm and the remote sample site (Pad B) is not able to maintain adequate chlorine residual consistently, addition of both Chlorine and Ammonia at N6-1010 may be necessary. The Operator notifies the Supervisor when this occurs so that the levels can be monitored and evaluated. The Supervisor and SE will determine the need to begin adding chemicals and will advise the Operator when this should be initiated. The following specifies daily operational checks made of the chlorine injection system located at N6-1010 when chlorine injection is initiated:

- Observe operation of the chlorine pump. Check for any leaks or abnormal operating conditions. Repair minor leaks or operating problems. If a major leak exists, notify the Supervisor for assistance in restoring normal operations.
- Check the stroke setting of the pump. Record which pump is in operation and the pump stroke setting in the Water Plant Operations Logbook.
- Based on the results of the chlorine and free ammonia analysis, manipulate the stroke of the pump to assure adequate chlorine residual entering the KSC distribution system.
- Weekly and prior to hazardous operations, check the operation of the safety shower/eyewash unit(s) by flushing 3 – 5 minutes and record in the Water Plant Operations Logbook and on the Eyewash Inspection Tag (KSC Form 20-202, KSC Emergency Eyewash/Shower Inspect Tag) attached to the unit. Notify the Supervisor of any problems associated with the units.
- Weekly (on Wednesday of each week), check the concentration of the chlorine feed solution utilizing the bleach test kit below. Fill in the concentration and Chlorine bulk tank level on Form UTI-F-0004B.
- Fill the test tube to 10 ml line with tap water
- Use the 0.5 ml pipet to add 0.5 ml of concentrated chlorine sample to the test tube containing tap water.
- Use the 1.0 ml pipet to add 1.0 ml of Hypochlorite Reagent A. Swirl to mix.
- Use the 0.1 gram spoon to add 0.1 gram of Potassium Iodide crystals. Swirl to mix.

- Fill the Direct Reading Titrator with Hypochlorite Reagent D. Insert the Titrator tip into the center hole of the test tube cap.
- While gently swirling the tube, slowly depress the plunger to titrate the sample until the solution changes from brown to colorless and remains colorless for one (1) minute. Read the test result directly from the scale where the large ring on the Titrator meets the Titrator barrel. Record as Percent Chlorine. Note: The solution will go through an intermediate yellow stage.
- Record the result of testing in the Water Plant Operations Logbook. As chlorine concentration decreases, increase the stroke of the chlorine pump as needed.
- Record all changes and anomalies to the system in the Water Plant Operations Logbook. Ensure any issues that require management direction or follow-on repair work, are addressed on Form UTI-F-0004B, in the "Remarks/issues to report to Management" section.
- Record the chlorine feed meter reading and calculate the amount of chlorine used in the previous 24-hour period. Record amount used in the Water Plant Operations Logbook.
- Observe the display of the chlorine feed meter to confirm that chlorine is being fed.

- Note: As indicated on Form UTI-F-0004B, the chlorine feed pump status and weekly checks for leaks shall be performed and reported on the form regardless of whether they are in operation or not.

7. AMMONIA INJECTION SYSTEM OPERATION

WARNING: Ammonia is a hazardous and dangerous chemical. Take extreme care when handling and follow all pertinent safety rules and regulations. See Appendix Z for Emergency Instructions.

If incoming City of Cocoa water Total Chloramine levels drop below 2.5 ppm consistently and the remote sample site (Pad B) is not able to maintain adequate chlorine residual, addition of both Chlorine and Ammonia at N6-1010 may be necessary. The Operator notifies the Supervisor when this occurs so that the levels can be monitored and evaluated. The Supervisor and SE will determine the need to begin adding chemicals and will advise the Operator when this should be initiated. The following specifies daily operational checks made of the ammonia injection system located at N6-1010 when ammonia injection is initiated:

- Check the display of the PLC to verify ammonia leak detector is operational and malfunction light is not on. If malfunction light is on, notify Supervisor for assistance.
- Check the display of the PLC to verify ammonia alarm system is not in alarm. If alarm is on, **DO NOT ENTER ROOM** until it has been properly ventilated and alarm has cleared. If this cannot be accomplished, notify the Supervisor to obtain assistance with restoring normal operations. If a leak exists, call the Duty Office at 861-5050 to alert them of the alarm status and notify the Supervisor for assistance in restoring normal operations.

- Verity exhaust fan is on and operating.
- Observe operation of the ammonia pump. Check for any leaks or abnormal operating conditions.
- Check the stroke setting of the pump. Record which pump is in operation and the pump stroke setting in the Water Plant Operations Logbook.
- Based on the results of the chlorine and ammonia analysis; manipulate the stroke of the pump to assure adequate chlorine residual entering the KSC distribution system with minimal free ammonia.
- Verify adequate ammonia in the ammonia feed container. If the level in the container is 5 gallons or less, replace with a full container.
- Record in the Water Plant Operations Logbook when a container is changed out.
- Do not dispose of the container until, using a hand pump, remainder of the container is pumped into the new container (after a portion of the new container has been used).
- Record all changes and anomalies to system in the Water Plant Operations Logbook. Ensure any issues that require management direction or follow-on repair work, are addressed on the Daily Water Operator Checklist, Form UTI-F-0004B, in the “Remarks/issues to report to Management” section.
- Note: As indicated on Form UTI-F-0004B, the ammonia feed pump status and weekly checks for leaks are performed and reported on the form regardless of whether they are in operation or not.

8. CHEMICAL ANALYSIS, N6-1010

The following steps detail the chemical analysis to be performed on the KSC potable water system daily at the W-1 Pump Station, N6-1010. Ensure these analyses are performed using a Hach DR-850 or equivalent colorimeter.

- Open valve on upstream sample point and downstream sample point until a full flow of water is coming out.
- After approximately ten (10) minutes of run time, collect a sample of the potable water from upstream and downstream sample points. Close the valves on the sample points. Note: Collect samples in glass bottle sample containers.
- Perform chemical analysis of the samples as directed in Appendix A of this procedure on both the influent (upstream) and effluent (downstream) samples.
- Record the results of the chemical analyses in the Water Plant Operations Logbook. Also record this data on Form UTI-F-0004B each day.

9. CHEMSCAN ANALYZER, N6-1010

Make the following checks daily or as noted of the ChemScan Analyzer located in N6-1010:

- Check unit for any abnormal operation.

- Check fan assembly on the inside upper part of the cabinet. This fan should always be running.
- Check power supply for green light in the upper right-hand corner of the cabinet.
- Check reading on ChemScan Analyzer to the Operator reading each day.
- Monthly, or as needed, check the flow regulator, and clear it of any debris. Record this action in the Water Plant Operations Logbook.
- For reference, note settings to be maintained on unit:
    - Slope = 1.0
    - Flush time = 90 seconds

- Change out the zero and cleaning solutions as described in the O&M manual when needed.
- Fill in Form UTI-F-0004B, with the status of the ChemScan Analyzer and the total chlorine residual reading daily.

10. AUTOMATIC FLUSH STATIONS

The Operator conducts weekly checks on each of the four (4) Automatic Flush Stations located at the following sites:

- Flush Station #1 - Visitors Center, M6-0306, southwest of the building
- Flush Station #2 - North Fire Station #2, J6-2370, northeast parking lot
- Flush Station #3 – Pad B, Northeast corner of Pad B Operations Building,J7-0689
- Flush Station #4 – Pad A, Just outside the Pad A entrance gate, East of J8-2007

Weekly checks include analysis of combined chlorine residual in accordance with section 12.0 of this procedure, inspection for proper operation, and inspection for leaks or other anomalies. Report any anomalies observed to the Supervisor.

11. CHEMSCAN ANALYZER, L6-0093

Make the following checks daily or as noted of the ChemScan Analyzer located in L6-0093:

- Check unit for any abnormal operation.
- Check fan assembly on the inside upper part of the cabinet. This fan should always be running.
- Check power supply for green light in the upper right-hand corner of the cabinet.
- Check reading on ChemScan Analyzer to the Operator reading each day.
- Monthly, or as needed, check the flow regulator, and clear it of any debris. Record this action in the Water Plant Operations Logbook.
- For reference, note settings to be maintained on unit:
- Slope = 1.0
- Flush time = 90 seconds

- Change out the zero and cleaning solutions as described in the O&M manual when needed.
- Fill in Form UTI-F-0004B, with the status of the ChemScan Analyzer and the total chlorine residual reading daily.

12. W-5 PUMP STATION AND GROUND STORAGE TANK, K6-0896 & K6-0993

Check the following each weekday and record findings, issues or any maintenance activities in the W-5 Pump Station Logbook:

- Check for any alarms on the control panel in the southwest control room
- Check level in tank (should be greater than 17 feet and less than 27 feet)
- Check for proper operation of the pumps (typically jockey pumps keep up with day-to-day usage and main pumps are off)

Report any anomalies to the Supervisor. Record tank level, issues noted, and maintenance actions taken in the Water Plant Operations Logbook.

13. DISTRIBUTION SYSTEM MONITORING

The following steps specifies the monitoring/sampling requirements for the KSC distribution system:

- At Launch Complex 39B remote tap site, perform free and total chlorine residual analyses (See Appendix A).
- Calculate combined chlorine residual by subtracting free from total chlorine and record in the field logbook.
- When combined chlorine residual is below 0.6 mg/L, flush distribution system until the minimum 0.6 mg/L combined chlorine residual is obtained. Record flushing event on the Flushing Log.
  - Note: If flushing does not bring the chlorine residual level up to 0.6 mg/L within two (2) hours, notify the Supervisor. A flushing plan may have to be initiated to allow compliance with the minimum chlorine residual level while staying above 25 psi within the water main.
- The Pad B chlorine residual reading should be recorded on Form UTI-F-2002 in addition to the Water Distribution Logbook.
- Fill out Form UTI-F-0004B, with Pad B remote chlorine residual reading each day.
- Perform sampling of Automatic Flush Stations, Saturn V (north of building), and W-5 ground storage tank weekly for combined chlorine residual and record results on the Chlorine Residual Data Sheet, Form UTI-F-0004A. Keep this form in a binder located in N6-1010. Record any issues in the Notes section of the form. The form is initialed by the Operator each week.
- Fill in Form UTI-F-0004B with the Pad B Flush Station total chlorine residual reading each day.
- Perform additional sampling and flushing throughout the distribution system as necessary based on Supervisory direction or known problem areas. Record all flushing on the Flushing Log. Record chlorine and ammonia results in the Water Distribution Logbook.

- Record distribution system chlorine residuals in the Water Distribution Logbook.

14. REPORTING A MALFUNCTION (ENVIRONMENTAL COMPLIANCE ONLY)

Report anomalies involving permitted or regulated standards, noncompliance with the minimum chlorine residual requirement and certain water line breaks/outages as a Malfunction Report to the FDEP within twenty-four (24) hours of the incident/non-conformance. Report anomalies to the Supervisor who will confer with the SE and/or the BOSS SMA representative to determine if a Malfunction Report is required. If required, the SE will notify FDEP of the incident and prepare the Malfunction Report. The SE will submit the form electronically to FDEP and copy the BOSS SMA department. The BOSS SMA representative will submit the report to the NASA Environmental Assurance Branch by the next work day. If required, the Supervisor will also report the incident through the BOSS Event Reporting system. Refer to SMA-P-0016 for applicability.

15. CHANGE TO CONFIGURATION

Any change to configuration (form, fit or function) must be coordinated and approved by System Engineering prior to the change being performed to assure compliance with Florida Statutes, existing operating permits, and configuration control.

16. ENVIRONMENTAL PERMITTING OF MODIFICATIONS

When a change or modification to the system requires an environmental construction permit, the Engineer of Record will prepare the appropriate documentation for submittal to the FDEP for approval. Once approved, the project may be constructed. Upon completion of the work, the Engineer of Record must approve the construction and apply for a certificate of completion from the FDEP prior to the system being placed in service. All documentation (e.g., permit application, certificate of completion, etc.) must be submitted to NASA Environmental Assurance Branch for submittal to FDEP through the BOSS SMA department.

APPENDIX A: CHEMICAL ANALYSES

Free Chlorine Analysis

A. To Turn On: Press **EXIT/**
B. Press **PRGM** → **9** → **ENTER**
C. The display will show **mg/L, Cl_2** and the **ZERO** icon.
D. Fill a cell with 10 ml of sample (the blank).
E. Place the blank into the cell holder.
F. Tightly cover the sample cell with the instrument cap.
G. Press: **ZERO** The cursor will move to the right, then display will show: **0.00 mg/L Cl_2** ***Note:*** *The Reagent Blank Correction is on, the display will flash "limit".*
H. Zero each meter.
I. Fill another cell with 10 ml of sample
J. Add the contents of DPD Free Pillow Powder to sample cell.
K. Cap the cell and swirl vigorously to dissolve the powder. (**Note:** *It is not that all the powder dissolves.*
L. Immediately place the prepared sample into the cell holder.
M. Tightly cover the sample cell with the instrument cap.
N. Press: **READ** - The cursor will move to the right, then the result in mg/L free chlorine will be displayed.

NOTE**:** *If the sample temporarily turns yellow after reagent addition, or the display flashes "limit", it is due to high chlorine levels. Dilute a fresh sample and repeat the test. A slight loss of chlorine may occur during dilution. Multiply the result by the dilution factor as in the following chart.*

Sample Volume (ml)	Ml Distilled Water Used to bring the Volume to 10 ml	Multiplication Factor
10.0	0.0	1
5.0	5.0	2

Total Chlorine Analysis

A. To Turn On: Press **EXIT/**
B. Press **PRGM** → **9** → **ENTER**
C. The display will show **mg/L, Cl_2** and the **ZERO** icon
D. Fill a cell with 10 ml of sample (the blank)
E. Place the blank into the cell holder
F. Tightly cover the sample cell with the instrument cap
G. Press: **ZERO** The cursor will move to the right, then display will show: **0.00 mg/L Cl_2** ***Note:*** *The Reagent Blank Correction is on, the display will flash "limit".*
H. Fill another cell with 10 ml of sample
I. Add the contents of DPD Total Pillow Powder to sample cell
J. Cap the cell and swirl vigorously to dissolve the powder. (**Note:** *It is not that all the powder dissolves)*
K. Press: **TIMER** → **ENTER** A three-minute reaction period will begin

L. After the timer beeps, wipe sample cell with lint-free tissue and place in cell holder.
M. Tightly cover the sample cell with the instrument cap.
N. Press: **READ**
O. Record results.

NOTE: *If the sample temporarily turns yellow after reagent addition, or the display flashes "limit", it is due to high chlorine levels. Dilute a fresh sample and repeat the test. A slight loss of chlorine may occur during dilution. Multiply the result by the dilution factor as in the following chart.*

Sample Volume (ml)	Ml Distilled Water Used to bring the Volume to 10 ml	Multiplication Factor
10.0	0.0	1
5.0	5.0	2

Free ammonia and chloramine (mono)

***NOTE*:** *For the most accurate chloramine results, determine a reagent blank for each lot of reagent using distilled water instead of sample. Subtract the blank value from the final chloramine result.*

A. To Turn On: Press **EXIT/**
B. Press **PRGM** → **110** → **ENTER**
C. The display will show **mg/L, Cl_2** and the **ZERO** icon
D. Fill two (2) cells with 10 ml of sample.
E. Label one (1) cell "Free Ammonia" and one (1) cell "Monochloramine
F. Place the Monochloramine cell into the instrument so that the cell tab is at the two o'clock position. Make sure the sample cell tab is completely seated in the cell holder slot. Tightly cover the sample cell with the instrument cap.
G. Press: **ZERO**
H. The cursor will move to the right, then the display will show: **0.00 mg/L Cl_2**
I. Remove the cell from the instrument.
J. Add the contents of one pillow of Monochlor F to the cell for the Monochloramine measurement.
K. Cap the cell and shake for twenty (20) seconds to dissolve the reagent. A green color will form if monochloramine is present
L. Add one drop of Free Ammonia Reagent Solution to the cell for Free Ammonia measurement.
M. Cap the reagent bottle to maintain reagent performance and stability.
N. Cap the cell and mix.
O. Press: **TIMER** → **ENTER** A five-minute reaction period will begin. (**Note**: For accurate results allow the full reaction period to occur)
P. Press: **TIMER** → **ENTER** A five-minute reaction period will begin. **(Note:** *For accurate results allow the full reaction period to occur.*

Q. When the timer expires, place the Monochloramine cell into the instrument so that the cell tab is in the two o'clock position. Make sure the sample cell tab is completely seated in the cell holder slot.

R. Tightly cover the sample cell with the instrument cap.

S. Press: **READ**

T. The cursor will move to the right, then the result in mg/L Monochloramine (as Cl_2 or chosen units) will be displayed.

U. Leave the cell in the instrument.

V. Enter the stored program number for Free Ammonia. Press: **PRGM**

W. The display will show **PRGM**

X. Press: **46 ENTER**

Y. The display will show NH_3-N and the zero icon.

Z. With the Monochloramine sample still in the cell holder, press **ZERO.**

AA. The cursor will move to the right, then the display will show: 0.00 mg/L NH_3-N

BB. Remove the cell from the instrument.

CC. Add the contents of one pillow of Monochlor F to the cell for the Free Ammonia measurement.

DD. Cap and shake the cell about twenty (20) seconds to dissolve the reagent. **(Note:** *The reaction period of five (5) minutes must be complete before the addition of Monochlor F to the cell for free ammonia measurement.*

EE. Cap and shake the cell about twenty (20) seconds to dissolve the reagent. A green color will form if ammonia or monochloramine is present.

FF. Press: **TIMER** **ENTER** A five-minute reaction period will begin.

GG. After the timer has expired, press: **EXIT**

HH. Place the Free Ammonia cell into the instrument so that the cell tab is at the two o'clock position. Make sure the sample cell tab is completely seated in the cell holder slot.

II. Tightly cover the sample cell with the instrument cap.

JJ. Press: **READ** The cursor will move to the right, then the result in mg/L free ammonia as nitrogen will be displayed.

APPENDIX Z: EMERGENCY INSTRUCTIONS

COMPONENT RUPTURE, LEAK OR SPILL

1. Terminate operations and if it can be accomplished safely, secure leak or isolate source.
2. Evacuate the area upwind of the leak.
3. Dial 911 (cell phone 867-7911).
4. Notify Supervision and Safety and proceed as directed.
5. Dispose of spilled fluid as directed by BOSS Environmental Assurance Branch.
6. Supervisor files an Initial Incident Report.

TOXIC OR CORROSIVE FLUID CONTACT WITH PERSONNEL

1. Immediately flush affected areas with water for at least fifteen (15) minutes. Remove affected clothing. Give first aid as required. If liquid enters eye(s), do not rub. Flush with water for at least fifteen (15) minutes, lifting upper and lower eyelids frequently to ensure complete irrigation.
2. Dial 911 (cell phone 867-7911). Continue water wash until medical assistance arrives.
3. Transport person to OHF.
4. Notify Supervision and Safety and proceed as directed.
5. Wash clothing before reuse or dispose of affected clothing in an approved container for contaminated waste.
6. Supervisor files an Initial Incident Report.

TOXIC VAPOR EXPOSURE

1. Immediately move victim to fresh air.
2. Dial 911 (cell phone 867-7911). Request medical support if necessary.
3. If breathing has stopped, administer CPR until voluntary respiration resumes or medical help arrives.
4. Notify Supervision and Safety and proceed as directed.
5. Supervisor files an Initial Incident Report.

VEHICLE ACCIDENT

1. Dial 911 (cell phone 867-7911).
2. Notify Supervision and Safety and proceed as directed.
3. Supervisor files an Initial Incident Report.

RECORDS

The following records are retained by the organizations listed below.

Record	Responsible Organization
Flushing Log	FSEU OM&E Water & Wastewater Utilities Department
Malfunction Report	BOSS SMA
UTI-F-0004A, Chlorine Residual Data Sheet	FSEU OM&E Water & Wastewater Utilities Department
UTI-F-0004B, Daily Water Operator Checklist	FSEU OM&E Water & Wastewater Utilities Department
UTI-F-2000, Colorimeter Daily Calibration Log	FSEU OM&E Water & Wastewater Utilities Department
UTI-F-2002, Daily Flow Readings and Remote Chlorine Residual	FSEU OM&E Water & Wastewater Utilities Department
Water Distribution Logbook	FSEU OM&E Water & Wastewater Utilities Department
Water Plant Operation Logbook	FSEU OM&E Water & Wastewater Utilities Department

AFFECTED DIVISIONS/ OFFICES

FSEU OM&E
Engineering
Safety & Mission Assurance

MANAGEMENT ROLES AND RESPONSIBILITIES

FSEU OM&E Division Manager: Ensures compliance within the division level to the requirements stated in this procedure.

FSEU OM&E Branch Managers: Ensures compliance within the branch level to the requirements stated in this procedure.

FSEU OM&E Supervisors: Ensures compliance at the shop level to the requirements stated in this procedure.

FUNCTIONAL ROLES AND RESPONSIBILITIES

FSEU Water & Wastewater Utilities Supervisor: Responsible for assigning personnel and support services as needed to assure compliance with applicable State mandated maintenance/operation of the KSC water treatment and distribution system.

FSEU Water & Wastewater Licensed Operator: Responsible for the day-to-day operation and maintenance of the KSC water treatment and distribution system.

System Engineer (SE): The SE provides support to the Operators and Supervisor as needed to assure operations comply with all regulatory requirements. SE is also responsible for notification of regulators and customers in the event of an anomaly/malfunction.

Safety & Mission Assurance (SMA): Ensures operations meet regulatory and permitted requirements and provides notification of changes to these requirements.

REFERENCE DOCUMENTS

The following documents are referenced in this procedure:

Document Number	Title
Chapter 62-550, FAC	Drinking Water Standards, Monitoring, and Reporting
Chapter 62-555, FAC	Permitting, Construction, Operation and Maintenance of Public Water Systems
KSC Form 20-202	KSC Emergency Eyewash/Shower Inspect Tag
SMA-P-0016	Event and Near Miss Reporting
UTI-F-0004A	Chlorine Residual Data Sheet
UTI-F-0004B	Daily Water Operator Checklist
UTI-F-2000	Colorimeter Daily Calibration Log
UTI-F-2002	Daily Flow Readings and Remote Chlorine Residual

ACRONYMS

FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FSEU OM&E	Facilities, Systems, Equipment, Utilities Operation Maintenance and Engineering
BOSS	Base Operations and Spaceport Services
KSC	Kennedy Space Center
PLC	Programmable Logic Controller
PPE	Personal Protection Equipment
SE	System Engineer
SMA	BOSS Safety & Mission Assurance
VFD	Variable Frequency Drive

DEFINITIONS

Combined Chlorine – Chlorine that is combined with ammonia nitrogen to form a compound (chloramines) that has disinfectant capability.
FDEP – Florida Department of Environmental Protection
Free Ammonia – Ammonia (NH3) that exists in water not combined with chlorine or other chemicals.
PPE – Personal Protective Equipment
Total Chlorine Residual – Combination of the combined chlorine and free available chlorine residuals.
Water Distribution Logbook – A hardbound book with sequentially numbered pages, maintained at the Water & Wastewater shop, K6-1246, to document water distribution system monitoring.
Water Plant Operations Logbook – A hardbound book with sequentially numbered pages, maintained on site (W-1 Pump Station, N6-1010 and W-5 Pump Station, K6-0896) as required by Florida Administrative Code, Chapter 62-550.

REVISION RECORD

The following revisions have been applied to this document:

Revision Number	Change Description	Date
5	Complete revision to incorporate ISC Document Control Requirements	10/30/2009
6	Complete revision to incorporate new requirements with revised water distribution system components	2/15/2017
7	Revised to incorporate new form and operator checks.	9/19/2017
8	Administrative change only. Document updated to remove branding of previous contract.	04/01/19
9	Building number change, N6-1010	5/30/23

DOCUMENT APPROVALS

X

Manager, FSEU OM&E

Signature on file