Appendix B

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-001**	Approval Date: Revision Dates: Approved by:	Effective Date:

SUBJECT: Emergency Response Procedures for California Run Wastewater Station

<u>GENERAL INFORMATION</u>:

California Run Pump Station Data:

Station Address	22317 Valley View Drive, Great Mills, MD 20634
First likely SSO point	Manhole # GIAA26X. (Directions…)
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	<u>**24 hours on a single tank of fuel**</u>
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 196,500	Approximately four hours
Average: 219,300	**Approximately three hours**
Maximum: 265,800	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a diesel generator backup.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be wetwell. This will require the setting up a bypass pump use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the 277/<u>480-volt</u> switchgear at the pump station. Voltage should read <u>480</u> volts +/- on all three phases. 277/480 3 phase
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **<u>Instrumentation and Control Fault</u>**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

<u>STATION OPERATION</u>

1. At no time under shall any person without the proper wastewater license operate, control or change any settings of the wastewater facility that the Metropolitan Commission owns or operates.
2. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
3. Enter the station's control building. Note anything unusual.
4. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.

5. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
6. Verify that any sump pumps are in operating condition. If not, attempt to remedy or contact the Superintendent.
7. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
8. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
9. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
10. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

<u>WETWELL PUMP LEVEL ADJUSTMENT</u>

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-002	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for Piney Point Wastewater Station

<u>GENERAL INFORMATION</u>:

Piney Point Effluent Pump Station Data:

Station Address	**45271 Bloch Avenue, Piney Point, MD**
First likely SSO point	**Pond, in the back side on site. Within the fenced in area.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Flow Rate	Estimated storage Time
<u>Minimum:</u>	
<u>Average:</u>	
<u>Maximum:</u>	

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.

- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single three-phase 277/480 kilovolt-ampere emergency generator.
- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the 277/<u>480-volt</u> switchgear at the pump station. Voltage should read 277/<u>480</u> volts +/- on all three phases.
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are

operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.

c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.

d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.

e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?

   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**

1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;

   a) Attempt to reboot the local SCADA RTU module,

   b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.

   c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

ST. MARY’S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-003**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for St Georges Peninsula Wastewater Station

<u>GENERAL INFORMATION</u>:

St Georges Peninsula Pump Station Data:

Station Address	18550 Peninsulas Court, Piney Point, MD 20674
First likely SSO point	**Manhole in the grass in front of the station.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 15,300	**Approximately five hours**
Average: 28,000	**Approximately four hours**
Maximum: 65,900	**Approximately three hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 120/240-volt switchgear at the pump station. Voltage should read 120/240 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.

5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

<u>WETWELL PUMP LEVEL ADJUSTMENT</u>

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.

13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-004	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for St Marys City Wastewater Station

GENERAL INFORMATION:

St Marys City Pump Station Data:

Station Address	47610 College Drive, St Mary's City, MD 20686
First likely SSO point	**Manhole outside of station, and wet well inside station.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 35,200	**Approximately five hours**
Average: 66,300	**Approximately four hours**
Maximum: 97,700	**Approximately three hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be wetwell. This will require the setting up a bypass pump use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 277/480 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. At no time under shall any person without the proper wastewater license operate, control or change any settings of the wastewater facility that the Metropolitan Commission owns or operates.
2. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
3. Enter the station's control building. Note anything unusual.
4. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.

5. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
6. Verify that any sump pumps are in operating condition. If not, attempt to remedy or contact the Superintendent.
7. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
8. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
9. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
10. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

7. The wetwell may be inspected on a monthly basis.
8. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
9. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
10. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
11. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
12. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
13. Carefully remove any floats or transducers that are in the wetwell.
14. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
15. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
16. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
17. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
18. Cleanup any trash or mess that is left, return switches to their original position and lock station.
19. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-005**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Forest Run Wastewater Station

GENERAL INFORMATION:

Forest Run Pump Station Data:

Station Address	**21451 Great Mills Road, Great Mills, MD 20634**
First likely SSO point	Manhole #GIAA33Q. Straight outside the door, in the grass.
Channel Storage Capacity	
Est. Generator Run Time	24 hours on a single tank of fuel.
Influent Flow Rate	Estimated storage Time
Minimum: 640,430	**Approximately four hours**
Average: 720,121	**Approximately 2.5 hours**
Maximum: 847,837	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.

- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single XXX kilovolt-ampere emergency generator.
- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>480-volt</u> switchgear at the pump station. Voltage should read <u>480</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are

operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
   e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-006	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for Dunleigh Wastewater Station

GENERAL INFORMATION:

Dunleigh Pump Station Data:

Station Address	22548 Dunleigh Drive, Lexington Park, MD 20653
First likely SSO point	Manhole #G1AA78U. Manhole directly in driveway in front of station.
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd 2023)	Estimated storage Time
Minimum: 4,500	**Approximately five hours**
Average: 5,800	**Approximately three hours**
Maximum: 7,900	**Approximately two Hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 480 volts +/- on all three phases. 277/480 3 phase
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-weekly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-007**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for St Marys Square Wastewater Station

<u>GENERAL INFORMATION</u>:

St Marys Square Pump Station Data:

Station Address	21592 Great Mills Road, Great Mills, MD 20634
First likely SSO point	**Manhole #G1AA89W. When exiting from station to parking lot, manhole is 226 feet between buildings.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 13,200	**Approximately three hours**
Average: 15,900	**Approximately two hours**
Maximum: 19,700	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 277/480 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **<u>Instrumentation and Control Fault</u>**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-008**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Essex South Wastewater Station

<u>GENERAL INFORMATION</u>:

Essex South Pump Station Data:

Station Address	21591 South Essex Drive, Lexington Park, MD 20653
First likely SSO point	**Manhole #G1AC25R. When leaving station, manhole is on the right side of South Essex Drive.**
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Flow Rate	Estimated storage Time
Minimum: 117,000	**Approximately three hours**
Average: 149,000	**Approximately two hours**
Maximum: 208,260	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 208 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 208-volt switchgear at the pump station. Voltage should read 208 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

<u>STATION OPERATION</u>

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.
j.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-weekly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-009	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for Lynn Drive Wastewater Station

GENERAL INFORMATION:

Lynn Drive Pump Station Data:

Station Address	21325 Lynn Drive, Lexington Park, MD 20653
First likely SSO point	**Manhole #G1AA73L. Manhole at right side of station entrance.**
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 11,300	**Approximately four hours**
Average: 14,250	**Approximately three hours**
Maximum: 18,200	**Approximately two hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 three-phase kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>277/480-volt</u> switchgear at the pump station. Voltage should read 277/<u>480</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **<u>Instrumentation and Control Fault</u>**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **<u>Emergency Bypass Operation (pump around)</u>**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-weekly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-010**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Joy Chapel Wastewater Station

GENERAL INFORMATION:

Joy Chapel Pump Station Data:

Station Address	44060 East Leola Court, Hollywood, MD 20636
First likely SSO point	**Manhole #G1AB65Y; In the center of the station, inside the fenced area.**
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2013)	Estimated storage Time
Minimum: 361	Approximately five hours
Average: 12,800	Approximately three hours
Maximum: 14,500	Approximately 2.5 hours

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single-phase 120/208 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all phases by checking the metering on the 120/208-volt switchgear at the pump station. Voltage should read 120/208 volts +/- on all phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system.
   e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

<u>STATION OPERATION</u>

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-011**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT:	Emergency Response Procedures for Spring Valley Wastewater Station

<u>GENERAL INFORMATION</u>:

Spring Valley Pump Station Data:

Station Address	46485 Rosewood Drive, Lexington Park, MD 20653
First likely SSO point	**Manhole inside the center of the station, in the fenced-in area.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 45,500	**Approximately three hours**
Average: 54,700	**Approximately two hours**
Maximum: 63,600	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 120/240-volt switchgear at the pump station. Voltage should read 120/240 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	**Volume in 1 foot**
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-weekly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-012**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Glebe Run Wastewater Station

GENERAL INFORMATION:

Glebe Run Pump Station Data:

Station Address	24511 Point Lookout Road, Leonardtown, MD 20650
First likely SSO point	Manhole on right side of Point Lookout Road, from station.
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 535	**Approximately four hours**
Average: 18,400	**Approximately two hours**
Maximum: 32,500	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 102/208 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 102/208-volt switchgear at the pump station. Voltage should read 208 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 3.
4. Open Wet Well;

a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.

5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4' (48")	93 gallons
5' (60")	146 gallons
6' (72")	211 gallons
8' (96")	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-013**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for St Clements Shores Wastewater Station

GENERAL INFORMATION:

St Clements Shores Pump Station Data:

Station Address	36973 Lady Baltimore Avenue, Leonardtown, MD 20650
First likely SSO point	**Manhole #G1AB93K. When leaving the station, make a left on Nomoni Street, and then a left on Lady Baltimore. Manhole is on the right side of the road.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 0	**Approximately three hours**
Average: 21,000	**Approximately two hours**
Maximum: 29,700	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.

- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.
- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 120/240-volt switchgear at the pump station. Voltage should read 480 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are

operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.

c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.

d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.

e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.

4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

<u>WETWELL PUMP LEVEL ADJUSTMENT</u>

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-annual basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.

13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-014**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Evergreen Park Wastewater Station

<u>GENERAL INFORMATION</u>:

Evergreen Park Pump Station Data:

Station Address	48823 Evergreen Park Road, Lexington Park, MD 20653
First likely SSO point	Manhole #GIAB125. Manhole on right at entrance to Station+Evergreen Park Rd.
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 1,900	**Approximately three hours**
Average: 2,950	**Approximately two hours**
Maximum: 4,600	**Approximately 1.5 hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single-phase 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all phases by checking the metering on the <u>120/240-volt</u> switchgear at the pump station. Voltage should read <u>240</u> volts +/-.
        b) If power is not present on all phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

<u>STATION OPERATION</u>

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T= 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V=TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-015**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT:	Emergency Response Procedures for Great Mills Wastewater Station

GENERAL INFORMATION:

Great Mills Pump Station Data:

Station Address	20254 Point Lookout Road, Great Mills, MD 20634
First likely SSO point	Manhole #G1AB990; At the right of the station, in the fenced area.
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 3,700	**Approximately five hours**
Average: 100,800	**Approximately three hours**
Maximum: 127,500	**Approximately two hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be wetwell. This will require the setting up a bypass pump use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 277/480 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

    b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
    c) Because the station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
    d) Investigate possible failure of the transducer level control system.
    e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. At no time under shall any person without the proper wastewater license operate, control or change any settings of the wastewater facility that the Metropolitan Commission owns or operates.
2. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
3. Enter the station's control building. Note anything unusual.
4. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 3.

5. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
6. Verify that any sump pumps are in operating condition. If not, attempt to remedy or contact the Superintendent.
7. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
8. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
9. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
10. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-weekly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-016**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Patuxent Park West Wastewater Station

<u>GENERAL INFORMATION</u>:

Patuxent Park West Pump Station Data:

Station Address	21637 Liberty Street, Lexington Park, MD 20653
First likely SSO point	**Manhole #G1AA96Y. Manhole to the right of station, behind second set of townhouses.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 26,000	**Approximately three hours**
Average: 34,100	**Approximately two hours**
Maximum: 41,500	**Approximately one hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 277/480 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system.
   e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-weekly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-017	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for Hilton Run Wastewater Station

GENERAL INFORMATION:

Hilton Run Pump Station Data:

Station Address	46840 Hilton Drive, Lexington Park, MD 20653
First likely SSO point	**Manhole# G1AA984. Manhole located on right side of station.**
Channel Storage Capacity	Limited in- line storage
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 38,900	**Approximately three hours**
Average: 52,000	**Approximately two hours**
Maximum: 65,700	**Approximately two hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 480-volt switchgear at the pump station. Voltage should read 480 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4
4. Open Wet Well;

   a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
   b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
   a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
   f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

<u>WETWELL PUMP LEVEL ADJUSTMENT</u>

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	**Volume in 1 foot**
4' (48")	93 gallons
5' (60")	146 gallons
6' (72")	211 gallons
8' (96")	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-weekly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.

13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date:	Effective Date:
OPS-24-018	Revision Dates: Approved by:	

SUBJECT: Emergency Response Procedures for Bradley Boulevard Wastewater Station

<u>GENERAL INFORMATION</u>:

Bradley Boulevard Pump Station Data:

Station Address	46971 Bradley Boulevard, Lexington Park, MD 20653
First likely SSO point	Manhole #G1AB17K, 1st manhole on right exiting station
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**<u>24 hours on a single tank of fuel</u>**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 28,300	**Approximately three hours**
Average: 38,600	**Approximately two hours**
Maximum: 52,300	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 240 volt 3 phase kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be dump in the interceptor manhole on FDR Blvd by 21677 FDR Blvd (Lexington Park Library). This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the <u>240-volt</u> switchgear at the pump station. Voltage should read <u>240</u> volts +/- on all three phases.
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

    b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
    c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
    d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
    e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
    a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

<u>WETWELL PUMP LEVEL ADJUSTMENT</u>

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

7. The wetwell may be inspected on a bi-weekly basis.
8. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
9. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
10. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
11. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
12. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
13. Carefully remove any floats or transducers that are in the wetwell.
14. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
15. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
16. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
17. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
18. Cleanup any trash or mess that is left, return switches to their original position and lock station.
19. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-019	Revision Dates: Approved by: E. Hogan	

SUBJECT:	Emergency Response Procedures for Waters Edge Wastewater Station

<u>GENERAL INFORMATION</u>:

Waters Edge Pump Station Data:

Station Address	48400 Surfside Drive, Lexington Park, MD 20653
First likely SSO point	**Manhole #GAA525. Manhole is 106 feet across Surfside Drive, in the grass.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 15,200	**Approximately three hours**
Average: 19,500	**Approximately two hours**
Maximum: 24,200	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>120/240-volt</u> switchgear at the pump station. Voltage should read <u>120/240</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system.
   e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-020**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Rosebank Wastewater Station

<u>GENERAL INFORMATION</u>:

Rosebank Pump Station Data:

Station Address	21980 Rosebank Court, Leonardtown, MD 20650
First likely SSO point	**<u>First likely overflow point is at wet well at station</u>**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 0	**Approximately four hours**
Average: 1,300	**Approximately three hours**
Maximum: 1,800	**Approximately two hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 single-phase kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
  1. Does the station have power?
     a) Verify the station has power on all phases by checking the metering on the 120/240-volt switchgear at the pump station. Voltage should read 120/240 volts +/- on all phases.
     b) If power is not present on all phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

<u>STATION OPERATION</u>

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T= 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V=TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-annual basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-021**	Approval Date08/19/2024: Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Southgate Wastewater Station

<u>GENERAL INFORMATION</u>:

Southgate Pump Station Data:

Station Address	21111 Three Notch Road, Lexington Park, MD 20653
First likely SSO point	**Manhole #G1AB13C. Located in front of 47762 Devin Circle, out of the back side of the station.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 265	**Approximately four hours**
Average: 7,100	**Approximately 2.5 hours**
Maximum: 10,500	**Approximately 1.5 hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/208 single-phase kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
  1. Does the station have power?
     a) Verify the station has power by checking the metering on the <u>120/208-volt</u> switchgear at the pump station. Voltage should read <u>120/208</u> volts +/- on all phases.
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

WETWELL PUMP LEVEL ADJUSTMENT

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5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

<u>MAINTENANCE AND INSPECTION</u>

1. The wetwell may be inspected on a monthly basis.

2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: OPS-24-022	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Hickory Hills Wastewater Station

GENERAL INFORMATION:

Hickory Hills Pump Station Data:

Station Address	45599 Amber Drive, Great Mills, MD 20634
First likely SSO point	**Manhole #G1AA58G; At the front of the station, in the fenced area.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 19,500	**Approximately four hours**
Average: 23,300	**Approximately three hours**
Maximum: 25,500	**Approximately two hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 277/<u>480-volt</u> switchgear at the pump station. Voltage should read 277/<u>480</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 3.
4. Open Wet Well;

    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

<u>STATION EMERGENCY OPERATIONS (HIGH FLOWS)</u>

10. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
11. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
12. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

13. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
14. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.
    a.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.

13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-023**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Wicomico Shores #1 Wastewater Station

GENERAL INFORMATION:

Wicomico Shores #1 Pump Station Data:

Station Address	26051 Sycamore Drive, Mechanicsville, MD 20659
First likely SSO point	**Manhole #G1AB92V, Manhole located in front of the station.**
Channel Storage Capacity	**Limited in -line storage**
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 21,300	**Approximately four hours**
Average: 27,600	**Approximately three hours**
Maximum: 35,400	**Approximately two hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>120/240-volt</u> switchgear at the pump station. Voltage should read <u>120/240</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-024**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Picketts Harbor Wastewater Station

<u>GENERAL INFORMATION</u>:

Picketts Harbor Pump Station Data:

Station Address	48251 Picketts Harbor Court, Lexington Park, MD 20653
First likely SSO point	**<u>Manhole #G1AA25Q</u>**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 3,000	**Approximately three hours**
Average: 14,000	**Approximately two hours**
Maximum: 19,900	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/208 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>120/208-volt</u> switchgear at the pump station. Voltage should read 120/<u>208</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system.
   e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

<u>STATION EMERGENCY OPERATIONS (HIGH FLOWS)</u>

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T= 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V=TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-025	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for Piney Point Landings Wastewater Station

GENERAL INFORMATION:

Piney Point Landings Pump Station Data:

Station Address	17999 Driftwood Drive, Tall Timbers, MD 20690
First likely SSO point	**Manhole #G1AA11A. Manhole next to the wet well in fenced in area.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 19,400	**Approximately three hours**
Average: 28,500	**Approximately two hours**
Maximum: 35,400	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single three-phase 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 120/240-volt switchgear at the pump station. Voltage should read 120/240 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-026**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Wildewood #2 Wastewater Station

<u>GENERAL INFORMATION</u>:

Wildewood #2 Pump Station Data:

Station Address	44572 Aspen Lane, California, MD 20619
First likely SSO point	**Manhole right next to the wet well.**
Channel Storage Capacity	**Limited in-line storage**
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 14,600	**Approximately three hours**
Average: 16,300	**Approximately two hours**
Maximum: 19,100	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>120/240-volt</u> switchgear at the pump station. Voltage should read <u>120/240</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-027**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for St Marys Industrial Park Wastewater Station

<u>GENERAL INFORMATION</u>:

St Marys Industrial Park Pump Station Data:

Station Address	23751 Three Notch Road, Hollywood, MD 20636
First likely SSO point	**Manhole #G1AA62T. Located 25 feet from left of the station.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 0	**Approximately three hours**
Average: 76,500	**Approximately two hours**
Maximum: 91,500	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 277/480 volts +/- on all three phases.
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4' (48")	93 gallons
5' (60")	146 gallons
6' (72")	211 gallons
8' (96")	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-annual basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-028	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for Moorings Wastewater Station

GENERAL INFORMATION:

Moorings Pump Station Data:

Station Address	48261 Keel Drive, Lexington Park, MD 20653
First likely SSO point	**Manhole #G1AA25K. Manhole is across Keel Drive, in the front yard.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2013)	Estimated storage Time
Minimum: 7,600	**Approximately three hours**
Average: 10,200	**Approximately two hours**
Maximum: 13,700	**Approximately 1.5 hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>120/240-volt</u> switchgear at the pump station. Voltage should read <u>120/240</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.

d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.

e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-029	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for Greenbrier Wastewater Station

<u>GENERAL INFORMATION</u>:

Greenbrier Pump Station Data:

Station Address	47133 Schwartzkopf Drive, Lexington Park, MD 20653
First likely SSO point	**Manhole #G1AA7K; On the right side of station, when exiting, at the end of Schwartzkopf Drive.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 40,200	**Approximately three hours**
Average: 55,000	**Approximately two hours**
Maximum: 67,000	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 277/<u>480-volt</u> switchgear at the pump station. Voltage should read 277/<u>480</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system.
   e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 3.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-030**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for St Georges Island Wastewater Station

<u>GENERAL INFORMATION</u>:

St Georges Island Pump Station Data:

Station Address	16668 Piney Point Road, Valley Lee, MD 20692
First likely SSO point	**Wet well at the station.**
Channel Storage Capacity	
Est. Generator Run Time	
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 15,300	
Average: 28,000	
Maximum: 65,900	

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>120/240-volt</u> switchgear at the pump station. Voltage should read <u>120/240</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.

d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.

e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 3.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-031	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for Laurel Glen Wastewater Station

GENERAL INFORMATION:

Laurel Glen Pump Station Data:

Station Address	26693 S. Laurel Glen Road, California, MD 20619
First likely SSO point	**Manhole #G1AA56N. At entrance to court on right side of Laurel Glen Drive.**
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 200	**Approximately five hours**
Average: 7,200	**Approximately four hours**
Maximum: 9,400	**Approximately three hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 3-phase kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>120/240-volt</u> switchgear at the pump station. Voltage should read <u>120/240</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

    b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
    c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
    d) Investigate possible failure of the transducer level control system.
    e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.
j.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$\boldsymbol{T = 4V/Q}$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$\boldsymbol{V = TQ/4}$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-032**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Wildewood #3 Wastewater Station

GENERAL INFORMATION:

Wildewood #3 Pump Station Data:

Station Address	44437 Redwood Lane, California, MD 20619
First likely SSO point	**Manhole G1AC19N. At station, inside the fence.**
Channel Storage Capacity	**Limited in-line storage**
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 8,500	**Approximately three hours**
Average: 216,200	**Approximately two hours**
Maximum: 272,500	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be wetwell. This will require the setting up a bypass pump use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 277/<u>480-volt</u> switchgear at the pump station. Voltage should read 277/<u>480</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **<u>Instrumentation and Control Fault</u>**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

<u>STATION OPERATION</u>

1. At no time under shall any person without the proper wastewater license operate, control or change any settings of the wastewater facility that the Metropolitan Commission owns or operates.
2. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
3. Enter the station's control building. Note anything unusual.
4. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.

5. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
6. Verify that any sump pumps are in operating condition. If not, attempt to remedy or contact the Superintendent.
7. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
8. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
9. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
10. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4' (48")	93 gallons
5' (60")	146 gallons
6' (72")	211 gallons
8' (96")	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date:	Effective Date:
OPS-24-033	Revision Dates: Approved by:	

SUBJECT: Emergency Response Procedures for Cedar Cove Wastewater Station

GENERAL INFORMATION:

Cedar Cove Pump Station Data:

Station Address	48151 Long Lane, Lexington Park, MD 20653
First likely SSO point	Manhole ID # G1AA53K first manhole 36 ft. behind station
Channel Storage Capacity	**Limited in-line storage**
Est. Generator Run Time	24 hours on a single tank of fuel
Influent Q Rate (gpd, 2023)	Estimated storage Time
Minimum: 25,500	**Approximately four hours**
Average: 33,000	**Approximately three hours**
Maximum: 46,000	**Approximately 1.5 hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 70 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a diesel back up generator.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the 120/240-<u>volt</u> switchgear at the pump station. Voltage should read 120/240 volts +/- on all three phases.
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system.
   e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **<u>Instrumentation and Control Fault</u>**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **<u>Emergency Bypass Operation (pump around)</u>**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

<u>MAINTENANCE AND INSPECTION</u>

1. The wetwell may be inspected on a bi-weekly basis.

2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-034**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Hunting Quarters Wastewater Station

<u>GENERAL INFORMATION</u>:

Hunting Quarters Pump Station Data:

Station Address	20881 Hunting Quarters Drive, Callaway, MD 20620
First likely SSO point	**Manhole #G1AA184. On the corner of station entrance and Hunting Quarters Dr.**
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 25,400	**Approximately 3.5 hours**
Average: 33,100	**Approximately 2.5 hours**
Maximum: 42,200	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>120/240-volt</u> switchgear at the pump station. Voltage should read <u>120/240</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails.
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.

13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-035**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Planters Court Wastewater Station

GENERAL INFORMATION:

Planters Court Pump Station Data:

Station Address	46839 Planters Court, Lexington Park, MD 20653
First likely SSO point	**Manhole# G1AA72A. On the left side of Planters Court, when leaving station.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 12,900	**Approximately three hours**
Average: 15,700	**Approximately two hours**
Maximum: 18,400	**Approximately one hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single three-phase 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>120/240-volt</u> switchgear at the pump station. Voltage should read <u>120/240</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system.
   e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **<u>Instrumentation and Control Fault</u>**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **<u>Emergency Bypass Operation (pump around)</u>**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-036**	Approval Date:08/24/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/24/2024

SUBJECT:	Emergency Response Procedures for Black Duck Wastewater Station

<u>GENERAL INFORMATION</u>:

Black Duck Pump Station Data:

Station Address	20979 Black Duck Court, Callaway, MD 20620
First likely SSO point	Manhole #GIAA19Q, first manhole on left outside of station.
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 3,200	**Approximately three hours**
Average: 6,100	**Approximately 1.5 hours**
Maximum: 7,800	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/208 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be dumping in the interceptor manhole on FDR Blvd by 21677 FDR Blvd (Lexington Park Library). This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 120/208-volt switchgear at the pump station. Voltage should read 208 volts +/- on all three phases. 120/208 3 phase
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system.
   e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	**Volume in 1 foot**
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

7. The wetwell may be inspected on a monthly basis.

8. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
9. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
10. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
11. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
12. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
13. Carefully remove any floats or transducers that are in the wetwell.
14. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
15. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
16. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
17. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
18. Cleanup any trash or mess that is left, return switches to their original position and lock station.
19. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-037**	Approval Date: 08/24/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/24/2024

SUBJECT:	Emergency Response Procedures for Breton Bay Wastewater Station

GENERAL INFORMATION:

Breton Bay Pump Station Data:

Station Address	40541 Breton View Court, Leonardtown, MD 20650
First likely SSO point	Manhole #G1AB39V. Manhole straight across the street in Grass.
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 1,900	**Approximately four hours**
Average: 28,900	**Approximately three hours**
Maximum: 43,200	**Approximately 1.5 hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a diesel emergency generator for uninterrupted power.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be dumping in the interceptor manhole on FDR Blvd by 21677 FDR Blvd (Lexington Park Library) This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>240-volt</u> switchgear at the pump station. Voltage should read <u>240</u> volts +/- on all phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

    b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
    c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
    d) Investigate possible failure of the transducer level control system.
    e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 3.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$\boldsymbol{T = 4V/Q}$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

$$\boldsymbol{V = TQ/4}$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

7. The wetwell may be inspected on a monthly basis.
8. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
9. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
10. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
11. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
12. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
13. Carefully remove any floats or transducers that are in the wetwell.
14. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
15. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
16. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
17. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
18. Cleanup any trash or mess that is left, return switches to their original position and lock station.
19. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-038**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT:	Emergency Response Procedures for Piney Point Influent Wastewater Station

<u>GENERAL INFORMATION</u>:

Piney Point Influent Pump Station Data:

Station Address	**45271 Bloch Avenue, Piney Point, MD**
First likely SSO point	**The back side of the overflow pond. Pond is on site in the fenced in area.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Flow Rate	Estimated storage Time
Minimum: 5,051	**Approximately four hours**
Average: 141,433	**Approximately two hours**
Maximum: 189,539	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.

- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single three phase 277/480 kilovolt-ampere emergency generator.
- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 277/480 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are

operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
   e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-039**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Wicomico Shores #2 Wastewater Station

GENERAL INFORMATION:

Wicomico Shores #2 Pump Station Data:

Station Address	35410 Army Navy Drive, Mechanicsville, MD 20659
First likely SSO point	**Manhole #G1AB45V. Across Army Navy Drive, in the driveway.**
Channel Storage Capacity	**Limited in-line storage**
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 13,800	**Approximately four hours**
Average: 32,100	**Approximately three hours**
Maximum: 39,300	**Approximately two hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 277/<u>480-volt</u> switchgear at the pump station. Voltage should read 277/<u>480</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
   e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.

13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-040	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for Esperanza Farms Wastewater Station

GENERAL INFORMATION:

Esperanza Farms Pump Station Data:

Station Address	45888 Millstone Landing Road, Lex Park, MD 20653
First likely SSO point	Manhole #GIAB15K, Directly behind station
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 5,100	**Approximately two hours**
Average: 8,000	**Approximately 1.5 hours**
Maximum: 18,600	**Approximately .5 hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- <u>**Electrical Fault**</u>
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>120/240-volt</u> switchgear at the pump station. Voltage should read <u>240</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- <u>**Mechanical Fault**</u>
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

<u>WETWELL PUMP LEVEL ADJUSTMENT</u>

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-annual basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-041**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT:	Emergency Response Procedures for Sheehan Wastewater Station

GENERAL INFORMATION:

Sheehan Pump Station Data:

Station Address	17831 St Georges Park Road, Tall Timbers, MD 20690
First likely SSO point	**Manhole #G1AA11G, located 260 ft directly behind station, along the woods line.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 9,500	**Approximately three hours**
Average: 13,300	**Approximately two hours**
Maximum: 15,900	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single-phase 240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all phases by checking the metering on the <u>240-volt</u> switchgear at the pump station. Voltage should read <u>240</u> volts +/- on all phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system.
   e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-042**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Widgeon Wastewater Station

GENERAL INFORMATION:

Widgeon Pump Station Data:

Station Address	44919 Widgeon Place, Callaway, MD 20620
First likely SSO point	**Manhole #G1AA21N. Straight outside the station, first manhole in court.**
Channel Storage Capacity	Limited **in-line storage**
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 2,300	**Approximately three hours**
Average: 3,300	**Approximately two hours**
Maximum: 4,200	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- <u>**Electrical Fault**</u>
    1. Does the station have power?
        a) Verify the station has power on all phases by checking the metering on the <u>120/240-volt</u> switchgear at the pump station. Voltage should read <u>120/240</u> volts +/- on all phases.
        b) If power is not present on all phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- <u>**Mechanical Fault**</u>
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

<u>WETWELL PUMP LEVEL ADJUSTMENT</u>

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T= 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V=TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.

13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-043	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for First Colony #2 Wastewater Station

GENERAL INFORMATION:

First Colony #2 Pump Station Data:

Station Address	23017 FDR Boulevard, California MD 20619
First likely SSO point	Manhole in front of station. In the grass b/w FDR Blvd and paved entrance to station.
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 43,600	**Approximately three hours**
Average: 49,500	**Approximately two hours**
Maximum: 62,400	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/208 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available,.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 208 -volt switchgear at the pump station. Voltage should read 208 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.

5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-044**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Rue Woods Wastewater Station

GENERAL INFORMATION:

Rue Woods Pump Station Data:

Station Address	22666 Sylvan Way, Lexington Park, MD 20653
First likely SSO point	**ID# G1AA78U Manhole directly across the street in front of station**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 3,700	**Approximately three hours**
Average: 5,600	**Approximately two hours**
Maximum: 8,000	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all phases by checking the metering on the <u>120/240-volt</u> switchgear at the pump station. Voltage should read <u>120/240</u> volts +/- on all phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-045	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for First Colony #1 Wastewater Station

GENERAL INFORMATION:

First Colony #1 Pump Station Data:

Station Address	23137 FDR Boulevard, Lexington Park, MD 20653
First likely SSO point	Manhole #GIAA891. Manhole behind station, on the side of FDR Blvd.
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 17,500	Approximately four hours
Average: 23,900	Approximately three hours
Maximum: 28,300	Approximately two hours

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>120/240-volt</u> switchgear at the pump station. Voltage should read <u>240</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

    b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
    c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
    d) Investigate possible failure of the transducer level control system.
    e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

    power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-046**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Elizabeth Hills Wastewater Station

GENERAL INFORMATION:

Elizabeth Hills Pump Station Data:

Station Address	45563 Fox Field Lane, California, MD 20619
First likely SSO point	**Manhole #G1AB93L. First manhole on the left side of P… road.**
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 32,500	**Approximately three hours**
Average: 36,500	**Approximately two hours**
Maximum: 41,200	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the 277/<u>480-volt</u> switchgear at the pump station. Voltage should read <u>480</u> volts +/- on all three phases. 277/480 3 phase
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

    b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
    c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
    d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
    e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
    a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **<u>Instrumentation and Control Fault</u>**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

<u>STATION OPERATION</u>

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

   a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
   b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
   a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
   f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY’S COUNTY METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-047**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Pegg Road Wastewater Station

<u>GENERAL INFORMATION</u>:

Pegg Road Pump Station Data:

Station Address	21895 Pegg Road, Lexington Park, MD 20653
First likely SSO point	**Manhole #G1AA411. Manhole in the woods behind 40471 Rosewood Drive**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 6,900	**Approximately two hours**
Average: 9,800	**Approximately 1.5 hours**
Maximum: 23,200	**Approximately .5 hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/208 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 120/208-volt switchgear at the pump station. Voltage should read 120/208 volts +/- on all phases.
        b) If power is not present, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

    b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
    c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
    d) Investigate possible failure of the transducer level control system.
    e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-weekly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date 08/19/2024:
OPS-24-048		

SUBJECT: Emergency Response Procedures for Meadow Lake Wastewater Station

GENERAL INFORMATION:

Meadow Lake Pump Station Data:

Station Address	45484 Columbine Place, Great Mills, MD 20634
First likely SSO point	**Manhole #G1AB145. Manhole in center of the court outside the station.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 14,500	**Approximately four hours**
Average: 19,000	**Approximately three hours**
Maximum: 47,500	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 277/480 volts +/- on all three phases.
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system.
   e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T= 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V=TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-weekly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-049	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for Wicomico Shores #3 Wastewater Station

<u>GENERAL INFORMATION</u>:

Wicomico Shores #3 Pump Station Data:

Station Address	35277 Golf Course Drive, Mechanicsville, MD 20659
First likely SSO point	**Manhole #G1AB51L. When taking a left from the station, it is in the middle of the court on Gold Course Drive.**
Channel Storage Capacity	**<u>Limited in-line storage</u>**
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 7,900	**Approximately three hours**
Average: 12,100	**Approximately two hours**
Maximum: 18,600	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.

- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.
- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 277/480 volts +/- on all three phases.
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are

operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.

4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

<u>STATION EMERGENCY OPERATIONS (HIGH FLOWS)</u>

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.

13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-050	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for Villages at Leonardtown Wastewater Station

GENERAL INFORMATION:

Villages at Leonardtown Pump Station Data:

Station Address	23699 Robert Way, Leonardtown, MD 20650
First likely SSO point	**Manhole straight out of the gate, 26 feet away.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 10,400	**Approximately four hours**
Average: 11,800	**Approximately three hours**
Maximum: 13,100	**Approximately two hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/208 single-phase kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all phases by checking the metering on the <u>120/208-volt</u> switchgear at the pump station. Voltage should read <u>120/208</u> volts +/- on all phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

    b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
    c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
    d) Investigate possible failure of the transducer level control system.
    e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T= 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V=TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-051**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Willow Woods Wastewater Station

<u>GENERAL INFORMATION</u>:

Willow Woods Pump Station Data:

Station Address	46687 Sandalwood Street, Lexington Park, MD 20653
First likely SSO point	**Manhole just outside of gate and fenced in area.**
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 5,300	**Approximately three hours storage**
Average: 7,500	**Approximately two hours**
Maximum: 9,000	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/208 single phase kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all phases by checking the metering on the 120/208-volt switchgear at the pump station. Voltage should read 120/208 volts +/- on all phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

<u>STATION OPERATION</u>

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T= 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

$$V=TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-052**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for River Bay Wastewater Station

<u>GENERAL INFORMATION</u>:

River Bay Pump Station Data:

Station Address	48053 Spinnaker Circle, Lexington Park, MD 20653
First likely SSO point	**Manhole# G1AA93L. Manhole next to the generator.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 29,900	**Approximately four hours**
Average: 36,500	**Approximately three hours**
Maximum: 50,800	**Approximately two hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single three-phase 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 277/480 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

<u>STATION OPERATION</u>

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T= 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

$$V=TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-weekly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-053**	Approval Date: Revision Dates: Approved by:	Effective Date:

SUBJECT: Emergency Response Procedures for Airport Drive Wastewater Station

GENERAL INFORMATION:

Airport Drive Pump Station Data:

Station Address	44142 Airport Road, Hollywood, MD 20636
First likely SSO point	Manhole #G1AA63B, first manhole on left outside of station.
Channel Storage Capacity	
Est. Generator Run Time	24 hours on a single tank of fuel.
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 1,000	**Approximately two hours**
Average: 1,400	**Approximately 1.5 hours**
Maximum: 2,500	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a generator back up power source.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be dumping in the interceptor manhole on FDR Blvd by 21677 FDR Blvd (Lexington Park Library).
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all phases by checking the metering on the 120/240-volt switchgear at the pump station. Voltage should read 240 volts +/- on each phase. 120/240 Single phase
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 3.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

7. The wetwell may be inspected on an annual basis.
8. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
9. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
10. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
11. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
12. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
13. Carefully remove any floats or transducers that are in the wetwell.
14. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
15. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
16. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
17. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
18. Cleanup any trash or mess that is left, return switches to their original position and lock station.
19. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-054**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Pembrooke #1 Wastewater Station

GENERAL INFORMATION:

Pembrooke #1 Pump Station Data:

Station Address	20540 Pershing Drive, Lexington Park, MD 20653
First likely SSO point	**Manhole #G1AB31Y. Manhole to the right of well, on the edge of the woods.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 43,400	**Approximately four hours**
Average: 56,700	**Approximately 2.5 hours**
Maximum: 67,700	**Approximately 1.5 hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single three-phase 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 277/480 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/21/2024	Effective Date: 08/21/2024
OPS-24-055	Revision Dates:	
	Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for Cecil's Mill Wastewater Station

<u>GENERAL INFORMATION</u>:

Cecil's Mill Pump Station Data:

Station Address	45585 Pleasant Mill Drive, Great Mills, MD 20634
First likely SSO point	Manhole #G1AA79X. First manhole at right of station in the grass.
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 14,000	**Approximately 2.5 hours**
Average: 16,500	**Approximately two hours**
Maximum: 22,000	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/208 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be to dump in the interceptor manhole on FDR Blvd by 21677 FDR Blvd (Lexington Park Library) This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 208-volt switchgear at the pump station. Voltage should read 208 volts +/- on all three phases.120/208
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 3.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T= 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

$$V=TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4' (48")	93 gallons
5' (60")	146 gallons
6' (72")	211 gallons
8' (96")	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-056**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT:	Emergency Response Procedures for Westbury Wastewater Station

<u>GENERAL INFORMATION</u>:

Westbury Pump Station Data:

Station Address	21572 Croaker Court, Lexington Park, MD
First likely SSO point	**Manhole #G1AB15V. Located on blacktop, 11 feet from station gate.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 60,800	**Approximately three hours**
Average: 67,400	**Approximately two hours**
Maximum: 79,700	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.

- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 kilovolt-ampere emergency generator.
- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the <u>120/240-volt</u> switchgear at the pump station. Voltage should read <u>120/240</u> volts +/- on all three phases.
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are

operating and incoming power is available, attempt manual start of any one pump at the MCC.
    b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
    c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
    d) Investigate possible failure of the transducer level control system.
    e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of

bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.

d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.

e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.

    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.

g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T= 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V=TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.

6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-057**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Kingston Wastewater Station

GENERAL INFORMATION:

Kingston Pump Station Data:

Station Address	45101 Woodhaven Drive, California, MD 20619
First likely SSO point	**Manhole #G1AB35F. Entrance to station and Woodhaven Drive.**
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 19,400	**Approximately four hours**
Average: 29,700	**Approximately three hours**
Maximum: 34,000	**Approximately 2.5 hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single three-phase 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 277/480 volts +/- on all three phases.
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

    b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
    c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
    d) Investigate possible failure of the transducer level control system.
    e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.

d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.

e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

<u>STATION EMERGENCY OPERATIONS (HIGH FLOWS)</u>

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T= 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V=TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4' (48")	93 gallons
5' (60")	146 gallons
6' (72")	211 gallons
8' (96")	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on an annual basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-058	Revision Dates: Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for Hunting Creek Wastewater Station

<u>GENERAL INFORMATION</u>:

Hunting Creek Pump Station Data:

Station Address	46775 Crimson Drive, Lexington Park, MD 20653
First likely SSO point	**Manhole # G1AB420. Located behind station, to the right. Through double chain-link fence.**
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	24 hours on a single tank of fuel
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 19,300	**Approximately three hours**
Average: 23,400	**Approximately two hours**
Maximum: 27,200	**Approximately 1.5 hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single-phase 120/208 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all phases by checking the metering on the <u>120/208-volt</u> switchgear at the pump station. Voltage should read <u>120/208</u> volts +/- on all phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system.
   e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.

i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T= 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V=TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a bi-weekly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-059	Revision Dates: Approved by: E. Hogan	

SUBJECT:	Emergency Response Procedures for Wildewood #1 Wastewater Station

GENERAL INFORMATION:

Wildewood #1 Pump Station Data:

Station Address	23251 Laurel Hill Drive, California, MD 20619
First likely SSO point	**Manhole #G1AA97K. When leaving station, manhole is on Laurel Hill Drive, 108 feet away.**
Channel Storage Capacity	**Limited in-line storage**
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 44,500	**Approximately three hours**
Average: 53,100	**Approximately two hours**
Maximum: 63,300	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 277/480 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

<u>STATION EMERGENCY OPERATIONS (HIGH FLOWS)</u>

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-060**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Myrtle Point #5 Wastewater Station

<u>GENERAL INFORMATION</u>:

Myrtle Point #5 Pump Station Data:

Station Address	45460 Myrtle Glen Way, California, MD 20619
First likely SSO point	**Manhole #G1AC1115. Manhole in fenced in area, next to well.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 520	**Approximately four hours**
Average: 8,600	**Approximately three hours**
Maximum: 11,300	**Approximately two hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 277/480 volts +/- on all three phases.
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system.
   e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

   b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
   a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
   a. Check generator and Godwin Pump, if station has one.
   b. Fill out Weekly Checkoff Sheet for Generator.
   c. Check the macerator at stations that have them; ensure that it is functioning correctly.
   d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
   e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
   a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
   b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
   c. Shut off power to the station by using the main disconnect.
   d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
   e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
   f. After the checklist is completed transfer power back to main supply.
   g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T= 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V=TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-061**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT:	Emergency Response Procedures for Pembrooke #2 Wastewater Station

<u>GENERAL INFORMATION</u>:

Pembrooke #2 Pump Station Data:

Station Address	46982 Pembrooke Street, Lexington Park, MD 20653
First likely SSO point	**Manhole # G1AB54C. Next to the wet well in the fenced in area.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 23,100	**Approximately three hours**
Average: 27,400	**Approximately two hours**
Maximum: 30,900	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 480-volt switchgear at the pump station. Voltage should read 480 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

   b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
   c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
   d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
   e) Attempt to return at least one pump to service.
3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

<u>STATION EMERGENCY OPERATIONS (HIGH FLOWS)</u>

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

<u>WETWELL PUMP LEVEL ADJUSTMENT</u>

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T= 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V=TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-062**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Abberly Crest Wastewater Station

<u>GENERAL INFORMATION</u>:

Abberly Pump Station Data:

Station Address	46891 Morning Dew Lane, Lexington Park, MD 20653
First likely SSO point	Manhole #G1AB675; 1st manhole exiting station on left.
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	NA / Diesel backup pump
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 12,500	**Approximately three hours**
Average: 15,800	**Approximately two hours**
Maximum: 19,900	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/240 3 phase kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric-drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: Station has mounted diesel back up pump.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking through metering on the <u>240-volt</u> switchgear at the pump station. Voltage should read <u>240</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

<u>STATION EMERGENCY OPERATIONS (HIGH FLOWS)</u>

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T= 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V=TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

7. The wetwell may be inspected on a bi-weekly basis.
8. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
9. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
10. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
11. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
12. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
13. Carefully remove any floats or transducers that are in the wetwell.
14. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
15. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
16. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
17. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
18. Cleanup any trash or mess that is left, return switches to their original position and lock station.

19. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-064**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Broad Creek Wastewater Station

GENERAL INFORMATION:

Broad Creek Pump Station Data:

Station Address	24598 Broad Creek Drive, Hollywood, MD 20636
First likely SSO point	**Manhole outside of the fence, to the right of the station.**
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	24 hours on a single tank of fuel
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 38,100	**Approximately three hours**
Average: 43,000	**Approximately two hours**
Maximum: 47,200	**Approxmently 1.5 hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/208 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with an emergency diesel back up power source.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be to dump in the interceptor manhole on FDR Blvd by 21677 FDR Blvd (Lexington Park Library). This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>120/208-volt</u> switchgear at the pump station. Voltage should read 120/208 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

<u>STATION EMERGENCY OPERATIONS (HIGH FLOWS)</u>

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

7. The wetwell may be inspected on a bi-weekly basis.
8. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
9. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
10. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
11. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
12. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
13. Carefully remove any floats or transducers that are in the wetwell.
14. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
15. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
16. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
17. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
18. Cleanup any trash or mess that is left, return switches to their original position and lock station.
19. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-067**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Woodmore Wastewater Station

<u>GENERAL INFORMATION</u>:

Woodmore Pump Station Data:

Station Address	24098 Woodmore Drive, Hollywood, MD 20636
First likely SSO point	**Manhole just outside of the gate, in the court.**
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 181	**Approximately four hours**
Average: 4,700	Approximately three hours
Maximum: 7,100	**Approximately two hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/208 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
  1. Does the station have power?
     a) Verify the station has power on all phases by checking the metering on the 120/208-volt switchgear at the pump station. Voltage should read 120/208 volts +/- on all phases.
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY’S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-068**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Oak Crest Wastewater Station

GENERAL INFORMATION:

Oak Crest Pump Station Data:

Station Address	44870 Oak Crest Road, California, MD 20619
First likely SSO point	**Manhole #G1AA51F. Manhole behind station, inside fence.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 47	**Approximately four hours**
Average: 1,800	**Approximately three hours**
Maximum: 3,700	**Approximately 1.5 hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 208 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the <u>208-volt</u> switchgear at the pump station. Voltage should read <u>208</u> volts +/- on all phases.
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

<u>STATION EMERGENCY OPERATIONS (HIGH FLOWS)</u>

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T= 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V=TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	**Volume in 1 foot**
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-069**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Camp Merryelande Wastewater Station

GENERAL INFORMATION:

Oak Crest Pump Station Data:

Station Address	15914 Camp Merrylande Road, Piney Point, MD 20674
First likely SSO point	**Station wetwell**
Channel Storage Capacity	
Est. Generator Run Time	**N/A.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 850	**Approximately five hours**
Average: 2500	**Approximately three hours**
Maximum: 8,000	**Approximately 1.5 hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder.
- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.

- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the 208-volt switchgear at the pump station. Voltage should read 208 volts +/- on all phases.
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.
     b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.

c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **Emergency Bypass Operation (pump around)**
  1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
  2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
  3. A bypass may also be set up in preparation for expected high flows.
  4. To set up for a Bypass Operation:
     a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
     b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.
     c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie

around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.

d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.

e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).

6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
    h. Finally, ensure that main power supply is connected and the station is functioning properly.

i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when

adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.

2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4' (48")	93 gallons
5' (60")	146 gallons
6' (72")	211 gallons
8' (96")	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.

3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024	Effective Date: 08/19/2024
OPS-24-070	Revision Dates:	
	Approved by: E. Hogan	

SUBJECT: Emergency Response Procedures for Myrtle Point #4 Wastewater Station

<u>GENERAL INFORMATION</u>:

Myrtle Point #4 Pump Station Data:

Station Address	23750 Patuxent Boulevard, California, MD 20619
First likely SSO point	**Manhole just outside of the station gate.**
Channel Storage Capacity	
Est. Generator Run Time	**24 hours on a single tank of fuel**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum: 420	**Approximately three hours**
Average: 10,333	**Approximately two hours**
Maximum: 16,200	**Approximately one hour**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 277/480 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **Electrical Fault**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the 277/480-volt switchgear at the pump station. Voltage should read 277/480 volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **Mechanical Fault**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
    a) Verify that there are no issues with the transducer, leading to a faulty reading. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **<u>Instrumentation and Control Fault</u>**
    1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
    2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
    3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
    4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
        a) Attempt to reboot the local SCADA RTU module,
        b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
        c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

- **<u>Emergency Bypass Operation (pump around)</u>**
    1. A Bypass Operation (or pump around) is the use of a gas- or diesel-powered pump to bypass the automatically controlled pumping system in a wastewater station or treatment facility.
    2. A pump around may be set up anytime a pump is taken out of service at this wastewater station.
    3. A bypass may also be set up in preparation for expected high flows.
    4. To set up for a Bypass Operation:
        a) Get bypass pump i.e.: Godwin Pump kept at the Larry K. Petty Operations Annex Building and all equipment needed hook up the bypass pump. Suction hoses with one containing a strainer end, hard pipe for discharge, and 45- and 90-degree elbows, and float tree to control bypass pump all stored at Piney Point Landings WWLS.
        b) Position bypass pump so that the hard pipe (discharge pipe) is hooked up to force main mounted Bauer fitting and into the discharge side of bypass pump. Ensure all Bauer clamps are zip tied or pinned locked so clamps will not vibrate loose while pump is running.

c) Hook suction hose to suction side of bypass pump, adjust suction hoses until hoses are in wet well to maintain a on and off level so that bypass pump will run while keeping a safe level in wet well. The first suction hose in wet well will be the hose with the strainer end. Use a rope to tie around the end of suction hose behind strainer end and tie other end off to something secure and stationary just in case hose comes apart, preventing hose from sinking to bottom of wet well.
d) Hook up float tree in proper place on bypass pump if being used for back up. Emergency situations the bypass pump will be run in hand. Position the on and off float in wet well so the well level can be maintained as close as possible to normal operational settings.
e) Once bypass work is complete ensure all valves and switches are back in their normal operating positions. Return bypass pump and all equipment to their home locations.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted, contact the Superintendent.
2. Enter the station's control building. Note anything unusual.
3. Check Scada/TCU Panel
    a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
    b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
    c. Calculate average daily flow and compare to previous report averages.
    d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;
    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.

    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
7. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
8. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.
    b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
    c. Shut off power to the station by using the main disconnect.
    d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
    e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
    f. After the checklist is completed transfer power back to main supply.
    g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended

power outages due to hurricanes, snow or accidents are possible at any time.

h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point (influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.**
4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

   $$T = 4V/Q$$

   Where:
   T = Pump cycle time in minutes (time between pump starts)
   V = Volume of wetwell between lead pump start and pump stop, (gallons)
   Q = Pump rate of the lead pump, (gallons per minute)

   This equation can be changed, using the same parameters to the following:

   $$V = TQ/4$$

   This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number: **OPS-24-071**	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024

SUBJECT: Emergency Response Procedures for Charlotte Hall Wastewater Station

<u>GENERAL INFORMATION</u>:

Charlotte Hall Pump Station Data:

Station Address	37765 Mount Wolf Road, Charlotte Hall, MD 20659
First likely SSO point	**Manhole between fenced area and Smith & Loveless/Wet well.**
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single fuel tank.**
Influent Q (gpd, 2023)	Estimated storage Time
Minimum:	
Average:	
Maximum:	

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** Station is equipped with a single utility feeder with automatic transfer switchgear and a single 120/208 kilovolt-ampere emergency generator.

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
  1. Does the station have power?
     a) Verify the station has power on all three phases by checking the metering on the <u>120/208-volt</u> switchgear at the pump station. Voltage should read <u>120/208</u> volts +/- on all three phases.
     b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
     c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
  2. Do the pumps and auxiliary equipment have power?
     a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
     b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
     c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
  1. Is the dry well flooded?
     a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
  2. Is there a high wet well alarm?
     a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
e) Attempt to return at least one pump to service.

3. Is there a low wet well alarm?
   a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
     a) Attempt to reboot the local SCADA RTU module,
     b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
     c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.

STATION OPERATION

1. On arrival at site look at the grounds, control panel, tower and antenna, etc. for any type of abnormal problems, i.e., vandalism, gates open, wet well not secured, etc. If anything unusual is noted contact the Superintendent.
2. Enter stations' control building. Note anything unusual.
3. Check Scada/TCU Panel
   a. Log Totalizer or Flow Meter readings. Log the pump run time meter readings on the daily sheet (for each pump).
   b. Indicate gallons pumped on stations' Weekly Checkoff Sheet.
   c. Calculate average daily flow and compare to previous report averages.
   d. Report any mechanical issues to the Superintendent and generate any work orders that are needed. Any changes to SCADA are to be logged in the station's logbook as well as on the comment screen in HyperTac 4.
4. Open Wet Well;

    a. Look for any unusual odors or potential hazardous discharges. Check the level of water in Wet Well.
    b. Check Transducer and Floats, and confirm they are well secured at the proper height. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    c. Turn each pump on hand to determine if pumps are running smoothly and pumping properly.
5. In the control panel, check condition of controls and motor starters and other electrical components. Check for burnt wires and signs of excessive heat.
    a. If problems are found, write your findings in the logbook and write a work order for needed repairs. Report findings ASAP.
    b. Note hour meter readings, wetwell levels and other pertinent data is noted in the logbook at the station, along with date and time. Make sure all entries are signed and dated in black ink (non-smearing).
6. Ensure that the vacuum assist operating system is operational. This includes the vacuum pumps, globes and probes and all related equipment.
7. Make sure all controls are back in the automatic position or the position that were originally set to.
    a. Lock SCADA/TCU panel door, wet well cover, and gate before you leave the site.
8. **Weekly checks**:
    a. Check generator and Godwin Pump, if station has one.
    b. Fill out Weekly Checkoff Sheet for Generator.
    c. Check the macerator at stations that have them; ensure that it is functioning correctly.
    d. Check and clean floats and transducer. Rags, grease and other unmentionables can build up, causing these items to function improperly. When any wetwell hatch is open, exercise caution—accidents can and do happen unexpectedly. Be aware of your surroundings.
    e. Open Smith & Loveless cycle pumps to be sure they are running smoothly and quietly. Look for any leaks and wiring issues.
    f. Maintain housekeeping in and around station. Keep stations clean and swept—although these are wastewater facilities, they are to be kept in a neat and tidy manner. Make sure trash around stations is picked up, trash cans are emptied on a regular basis and spiderwebs are removed. Operators are expected to take ownership of these facilities and treat them accordingly.
9. **Monthly Checks**:
    a. Once a month the emergency generators will be tested. Prior to doing so, call operations and inform them of your location and that

you are testing the generator. This should be completed early in the week to address any problems that may arise during the test.

b. Prior to starting generator, check the oil. If necessary, add the required oil. Ensure that it is the appropriate weight for that unit.
c. Shut off power to the station by using the main disconnect.
d. The generator should start up after a brief delay. (For monthly checks, if the station is so equipped, the ADAS should call out, and verify that the operations department receives the call from the ADAS). **If the generator does not start after few minutes, return power back to normal. Contact the Superintendent.**
e. After approximately 10 to 15 minutes of run time, the generator should be up to operating nominally. At this time complete the weekly generator checklist sheet; once a month, complete the monthly generator checklist.
f. After the checklist is completed transfer power back to main supply.
g. Once generator has timed out (this time varies from station to station), write down the runtime, runtime hours and the fuel levels. It is important that the operator monitors the fuel level, as extended power outages due to hurricanes, snow or accidents are possible at any time.
h. Finally, ensure that main power supply is connected and the station is functioning properly.
i. If there are any discrepancies or problems found during the testing, create a work order for maintenance and contact the Superintendent.

STATION EMERGENCY OPERATIONS (HIGH FLOWS)

1. Once a high well level alarm is received, the alarm will be relayed to the operator responsible for the station or stations that are in high level. If after hours on standby, the high-level alarm will come directly to the standby phone or the SCADA system, report to the station immediately. Depending on the amount and duration of rainfall, daily volume, and capacity of station, haulers may need to be called immediately.
2. Once at the station, the operator is to assess the amount of inflow coming into station. If both pumps are running together and keeping up with flow pumping well down to the off point, monitor station on SCADA for a period of time. If both pumps are running together and the well level is still rising, haulers will need to be called in.
3. For haulers, determine the number of haulers needed per station, the responding Operator then contact Wastewater Superintendent or Phone Standby. When calling for haulers, factor in how many stations are in high level, amount, and duration of weather event; as well as future forecasted weather for the next 5-7 hours. In the event that several stations are in high level, Prioritize Critical Stations first. Critical stations are stations that receive large amounts of inflow or are in critical areas i.e. **Piney Point**

(influent and effluent stations), Forrest Run, Great Mills, Essex South, California Run, and St. George's Island.

4. Once haulers arrive, start pumping out of stations' wet well or Equalization Basin at Piney Point Effluent. Once haulers are full, they will need to dump in the interceptor manhole on **FDR Blvd by 21677 FDR Blvd (Lexington Park Library)**. If Rt. 5 is closed due to flooding use Interceptor manhole south of Wildwood BLVD, on South bound Rt. 235 in the grass near the guard rail. Keep haulers pumping until pumps are able to cycle (on to off) with no assistance from haulers, and future weather shows that the weather event will be subsiding (or clear weather). Keep hauler load count including company name of hauler in the hauler logbooks kept at Piney Point and Forest Run. All other stations keep hauler load count in the station logbook.
5. In the event that a Sanitary Sewer Overflow (SSO) happens at a station, call and report to the Wastewater Superintendent immediately. Follow OPS-11-02.

WETWELL PUMP LEVEL ADJUSTMENT

1. According to the MetCom Design Manual, wastewater wetwells should be designed to run a minimum of 15 minutes per cycle and the detention time should not exceed 30 minutes. This procedure is to be followed when adjusting the setpoints to maximize run time and efficiency. These procedures are not tailored to each individual station, but general guidelines as how to check stations consistently, as well as to ensure safe and consistent operating procedures.
2. If you try to adjust the setpoints in a wetwell, do not change the high level point or the low level point. Try to expand the range within these points. The high level is set to meet MDE rules addressing a 2 hour storage time within the wetwell (new stations must have a 24 hour storage capacity).
3. According to the MetCom Design Manual, wetwells should be designed to run a minimum of 15 minutes per cycle. The detention time should not exceed 30 minutes. This is calculated by using the following equation:

$$T = 4V/Q$$

Where:
T = Pump cycle time in minutes (time between pump starts)
V = Volume of wetwell between lead pump start and pump stop, (gallons)
Q = Pump rate of the lead pump, (gallons per minute)

This equation can be changed, using the same parameters to the following:

$$V = TQ/4$$

This will allow you to calculate the volume of the maximum 30 minute span.

4. Once the volume is calculated for the 30 minute detention time, the span in feet can then be determined. This can be accomplished by taking V and dividing it by the number of gallons in one foot of a given wetwell.

Diameter of wetwell	Volume in 1 foot
4’ (48”)	93 gallons
5’ (60”)	146 gallons
6’ (72”)	211 gallons
8’ (96”)	375 gallons

5. Once the setpoints are changed, make all of the appropriate notes in the log book and in the comment log in SCADA.
6. Monitor the station over the following few weeks and particularly during any storms or high flow events. Return station to previous setpoints if there are any issues.

MAINTENANCE AND INSPECTION

1. The wetwell may be inspected on a monthly basis.
2. If the Operator believes that the station should be cleaned prior to the inspection date, inform the Superintendent.
3. Once a wetwell has been identified as needing cleaning, the operator of the vacuum truck will then pull as close to the well as possible to allow for cleaning.
4. MetCom personnel will ensure that any safety equipment necessary (safety harness, restraint lanyards, PPE) is on hand prior to beginning any work.
5. Exercise caution when opening any wetwell hatch. Hydrogen sulfide may be present.
6. Notify the Operations Administrative staff that the wet well is going to be cleaned to ensure that they are aware of any false callouts or alarms.
7. Carefully remove any floats or transducers that are in the wetwell.
8. Using the vacuum hoses and high-pressure hoses from the vacuum truck breakup and remove all floating debris and grease. Scrape walls if any buildup is present within the wetwell. Remove any residual trash.
9. If it is necessary to physically enter the wetwell, all confined space regulations will be followed.
10. Once cleaning is completed, floats will be placed back into the wetwell, Operations Administrative Staff will be notified that the wetwell has been cleaned, and the appropriate entries will be noted in the logbook (date, time, work completed, initials).
11. Test high level float for operation and call out by lifting float to engage alarm. This checks for float operation and the ability of the SCADA to recognize and call out alarms.
12. Cleanup any trash or mess that is left, return switches to their original position and lock station.
13. This is by no means a comprehensive guide to all the situations in which a water system valve may need to be operated. If there are any questions or

problems please consult the above referenced materials or the Superintendent.

ST. MARY'S COUNTY
METROPOLITAN COMMISSION

STANDARD PROCEDURES & POLICIES

SP Number:	Approval Date: 08/19/2024 Revision Dates: Approved by: E. Hogan	Effective Date: 08/19/2024
OPS-24-099		

SUBJECT: Emergency Response Procedures for Davnor Wastewater Station

GENERAL INFORMATION:

Davnor Pump Station Data:

Station Address	**27763 Baptist Church Road, Mechanicsville, MD 20659**
First likely SSO point	**First Likely S S O point is at wet well at station**
Channel Storage Capacity	Limited in-line storage
Est. Generator Run Time	**24 hours on a single tank of fuel.**
Influent Flow Rate	Estimated storage Time
Minimum: 84 GPD	**Approximately four hours**
Average: 136 GPD	**Approximately 2.5 hours**
Maximum: 271 GPD	**Approximately 1.5 hours**

- **Station:** The station is not continuously staffed and is the control point for the Supervisory Control and Data Acquisition (SCADA) system.
- **Redundant power:** NA

- **Portable gas detection:** Portable gas detection equipment is stored in the Operations Building.
- **Pumps:** Two electric drive sewage pumps are available, with a third diesel driven emergency pump.
- **Force main:** One force main is in service.
- **Emergency bypass availability**: The nearest structure to bypass into would be the Main Outfall Interceptor several miles west of the station along Eastern Avenue. This will require the use of an on-call pumping contractor.
- **Likely collection system overflow point:** The first indication of an SSO will be within the station as the wet well overflows and floods the wet well. The structure that is likely to experience an SSO first (outside the pump station) is the sanitary sewer.
- **<u>Electrical Fault</u>**
    1. Does the station have power?
        a) Verify the station has power on all three phases by checking the metering on the <u>120-volt</u> switchgear at the pump station. Voltage should read <u>120</u> volts +/- on all three phases.
        b) If power is not present on all three phases, immediately request an qualified maintenance personnel to respond. The station switchgear should only be operated by a qualified electrician.
        c) Loss of the utility feed should automatically transfer load to the emergency generator. The station generators should start and transfer load. If manual starting of the generators is required, this can only be done by authorized operations personnel at controls in the Generator Building.
    2. Do the pumps and auxiliary equipment have power?
        a) Check that all circuit breakers are closed at the Motor Control Center (MCC).
        b) Check that the motor starters have power on all phases. In the event of failure of the soft-start control failure, the equipment should automatically revert to auxiliary direct-on-line starters.
        c) Check for power to the seal water pumps and vacuum prime pump system. Check for vacuum on the common vacuum header gauge. Remember that the pumps cannot start on bubbler wet well level control unless and until the vacuum prime and seal water pumps are operating.

- **<u>Mechanical Fault</u>**
    1. Is the dry well flooded?
        a) Inspect the pump deck. Any appreciable amount of water indicates a pipe break or equipment leak. If necessary, stop all sewage pumps and allow the sump pump to dewater the dry well. In most cases, it should be possible to isolate the leak or break by closing the appropriate valves and re-starting the station.
    2. Is there a high wet well alarm?
        a) This indicates that the sewage pumps are not operating or are not conveying sufficient flow to the force main. If none of the pumps are operating and incoming power is available, attempt manual start of any one pump at the MCC.

    b) If the pump motor(s) are drawing current and no/low flow is still indicated on the station flowmeter, investigate valve positions, including check and isolation valves.
    c) Because the Station has no screening for solids, investigate possible ragging of the pump volute, discharge line, or check valves.
    d) Investigate possible failure of the transducer level control system, including a blocked bubbler tube.
    e) Attempt to return at least one pump to service.
  3. Is there a low wet well alarm?
    a) Verify the 12-in. wet well isolation sluice gate is in the open position. If there appears to be little flow entering the station, begin checking upstream manholes for either a break or obstruction in the gravity sewer upstream of the station.

- **Instrumentation and Control Fault**
  1. Alarm conditions reported via SCADA or station alarm are self-explanatory. See the stations' O&M Manual for troubleshooting and repair of specific systems.
  2. Note: A failure of the transducer level indicator will cause the station to run off of float controls.
  3. The wastewater station operates under local control. Polling loop failure or loss of telemetry will not interrupt the normal operation of the station.
  4. The wastewater station local control is provided by the station SCADA system. This system has multiple redundant features. If the SCADA controls fails;
    a) Attempt to reboot the local SCADA RTU module,
    b) If the RTU cannot be rebooted, replace the RTU and reprogram based on programming sheet at station.
    c) If the replacement RTU is unable to function, the station should be staffed continuously until the controls are returned to service.