MEMORANDUM

To: Mary Massad, Manager/CEO, SWA
From: Andrew Erickson, Water Distribution Manager, SWA
Date: January 30, 2017
Subject: 2016 Operations and Maintenance Report for Treatment and Distribution

This report is a summary of operations and maintenance activities performed by personnel within the water treatment and water distribution departments during calendar year 2016. Further detailed reports are maintained at the water treatment plants, distribution system pumping stations, prefabricated steel vaults, O&M Center files, and within operator's daily activity journals.

SOUTHWEST PIPELINE PROJECT

2016 OPERATIONS AND MAINTENANCE REPORT

Prepared by Andrew Erickson
Water Distribution Manager
Southwest Water Authority

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WATER DISTRIBUTION SYSTEM

OPERATIONS AND MAINTENANCE SUMMARY

MEMORANDUM

To: Mary Massad, Manager/CEO, SWA

From: Andrew Erickson, Water Distribution Manager, SWA

Subject: 2016 Water Distribution Operations and Maintenance Summary

Date: January 20, 2017

Following is a list of activities performed by the water distribution staff in 2016 that would not be considered normal daily routine. These items are also included in the bimonthly reports in Section 3 of this report.

<u>January and February</u>

1. Found leak downstream of the Beulah PRV near Kelly Neuberger's meter pit in Contact 7-9C. Northern Improvement Company completed the warranty repair.
2. Southwest Water Authority (SWA) staff removed Intake PB3 motor and hauled to Great Plain Technical Services (GPTS) because of noise the motor was making due to a loose internal shroud. The motor was returned to service once GPTS was done with it. Installed a new mechanical seal on PB3.
3. SWA staff removed Dodge BPS pump 5 and hauled to GPTS for bearing replacement. Return the motor to service once GPTS was done with it.
4. SWA staff removed Intake PB2 motor and hauled to GPTS for bearing replacement. Return the motor to service once GPTS was done with it. Installed new mechanical seal and throttle bushing on PB2.
5. Remove Center BPS P1 motor and haul to GPTS to clean up excess oil that had overflowed onto the windings before the oil damaged a bearing. GPTS felt the vault supplier had overfilled the oil compartment during initial startup many years previous. Return the motor to service once GPTS was done with it.
6. Found and fixed a leak on the Gerald Streitz 2" PVC service line in Contract 7-8B. The pipe had a 12" split in it.
7. The city of South Heart was complaining that SWA equipment was causing their city tank to overflow. Found an 8-12 tablespoon per minute leak in South Heart's piping that was

causing the SWA control valve to start and stop repeatedly when South Heart's tank was already full. This constant starting and stopping was creating pressure surges on the inlet line of the South Heart Meter Vault. South Heart circumvented their check valve to replenish the water lost by the leak allowing the SWA equipment to work properly. Pressure recorders were used to gather information about South Heart's system. Their system is now working as intended, filling their elevated tank 3 times in 5 days.

8. Found a metered one GPM leak in a crawl space under the old house at Lavelle Nelson's in Contract 7-7A.
9. Stelter Repair fixed a leak in the New Leipzig Meter Vault.
10. Found a metered leak for Randy Brown in Contract 7-7A.
11. Replaced the frost plate on David Swenson's raw water pasture tap meter held in Contract 2-2C air vac manhole as it was cracked and leaking.
12. Removed Intake PA3 motor with the assistance of Black Hills Trucking's crane and sent to GPTS for cleaning and inspection. GPTS found PA3 motor in need of rewinding. Staff replaced the mechanical seal and throttle bushing in preparation for return of PA3. The PA3 motor was returned to service once GPTS was finished with the repairs.
13. Removed Intake PA2 motor with the assistance of Black Hills Trucking's crane and sent to GPTS for cleaning and inspection
14. Discovered that the 1" poly line was pinched off between the curb stop and Jesse Maier's basement meter setter in Contract 7-9F. Eatherly Constructors excavated the line and found a kink five feet downstream of the curb stop.
15. Staff investigated customer Derrick Kessler's complaint of low flow from the meter pit service in Contract 7-9D. Meter pit flows were found to be typical. The 1" poly line between the meter pit and Kessler's home contained rocks and mud.
16. Staff found a small metered leak at Randy Schmidt's in Contract 7-9F.
17. Telemetry flows indicated a possible leak past the Bucyrus PRV. Further investigation found flows higher than normal at the Hettinger East PRV. This led to the discovery of a leak on subsequent user Jack Richardson's line in Contract 7-4.
18. Telemetry indicated a low inlet pressure alarm at the Dunn Center BPS caused by a leak at a 16" X 14" hymax connection. Carstensen Contracting Inc. repaired the leak under warranty once a new hymax coupling was obtained.
19. Replace the mechanical seal and throttle bushing on Pump 2 at the Bucyrus BPS and on Pump 1 at Richardton BPS.
20. Replaced the surge relief valve at the Richardton BPS. Dukes Welding modified the existing piping to accommodate the lay length of the new Surge Relief Valve that is 3 ¾" longer than the original valve which is no longer available.
21. Shut water off at Luke Trotter's in Contract 7-8G so that a metered leak could be repaired.

March and April

1. Looked for leak in Contract 2-8F. Found the bypass valve at the Dunn Center BPS was sending water back toward the Oliver Mercer North Dunn (OMND) Water Treatment Plant (WTP). The surge relief valve at the OMND WTP was slightly open. The surge relief valve at the OMND WTP was cleaned and adjusted to close. The bypass valve setting at the Dunn Center BPS was turned down a couple pounds.
2. Staff replaced a leaking mechanical seal and throttle bushing on Pump 2 at the Burt BPS.
3. Contacted the Theodore Roosevelt Medora Foundation in Contract 7-8A and Dakota West Farms in Contract 7-2 informing them of their high water usage identified by the Informational Data Technologies (IDT) website. They called back saying that they found a toilet running and a frozen hydrant.
4. Responded to no water complaint by Bill Sauter in Contract 7-9C. Found a warranty leak repaired by Northern Improvement Company. A bell and spigot joint had separated.
5. Replaced the Center Elevated Tank vent by wrapping the vent in blankets and pulling it up the outside of the tank. Landmark Structures falsely claimed that their replacement vent would fit through the center of the tank. The damaged photo eye and coax cable were also repaired on the Center Elevated Tank.
6. Hauled Intake PA2 from GPTS and put back into service with the help of Black Hills Trucking's crane. Replaced the throttle bushing.
7. Removed Intake PA1 with the help of Black Hills Trucking's crane and hauled to GPTS for cleaning and testing. Replaced the leaking mechanical seal and put back into service once GPTS was done with it.
8. Respond to no water complaint from Ken Musick in Contract 7-8G. Upon excavation, pieces of a foam pig were found in the meter pit flex coil hose. This is the third pig found in this area.
9. Repaired a 2" road bore leak on Brian Roth's service line in Contract 7-6A.
10. Shut water off for subsequent user Baranko Brothers in Contract 7-1B so that they could fix a metered leak.
11. Found a 2 GPM metered leak at subsequent American Colloid in Contract 7-4.
12. Shut water off for subsequent Martin Anchondo so he could repair a metered leak at a yard hydrant in Contract 7-1A.
13. Removed Intake PB3 motor and hauled it back to GPTS because the previous repair for a noise in the motor returned. GPTS found a piece of varnish inside the motor that was creating the noise. The motor was returned to service after GPTS was done with it.
14. Replaced a leaking Cla-val 3" diaphragm in the city of Mott Meter Vault.

15. Found a metered leak at subsequent Sharon Raffteseth's in Contract 7-6B. The 5 GPM flow restrictor had a crack in it. Raffteseth's bill was credited for the water loss as the SWA equipment failed.
16. Found a metered leak at subsequent Bureau of Land Management trailer # 2. The bathroom toilet was filling constantly.
17. Replaced the leaking 3" diaphragm and cover on the Cla-val at the HWY 21 PRV # 2.
18. Repaired a leak on the inlet pipe of Pump 1 at the Mott Pneumatic VFD.
19. Removed Bucyrus BPS Pump 3 and hauled it to GPTS to replace the upper bearing per vibration testing results and failed balancing attempt.
20. Removed intake PB1 and hauled it to GPTS for cleaning and testing. Placed back into service once GPTS was done with it.

May and June

1. Shut water off at Richard Bowman's pasture tap so that he could replace a leaking ball valve in his well pit in Contract 7-7B. Service was turned back on after repairs were made.
2. Shut water off at Jeff Brown and subsequent Colby Schumacher's in Contract 7-7A, Hettinger Research Center in Contract 7-4, Gary Jilek and subsequent Northern Improvement Company in Contract 7-1B, and subsequent Ken Abrahamson in Contract 7-7B, so that they could repair their metered leaks. Service was turned back on after repairs were made.
3. Shut water off for subsequent Conoco Phillips in Contract 7-1B as they damaged their own water line attempting to move their meter pit to accommodate additional water storage. Service was turned back on after repairs were made.
4. Repaired a 3" CL 200 PVC pull apart leak four miles west of Killdeer in Contract 7-9B.
5. Repaired a 2" leak caused by insufficient flagging of a locate request by Donovan Urban in Contract 7-1B.
6. Found Contract 2-8E warranty leak north of Halliday that was repaired by Carstensen Contracting.
7. Found Contract 7-9E warranty leak in a road bore that Kamphuis Pipeline Company repaired.
8. Look for a leak in Contract 2-5B between the Medora PRV and the Beach BPS. Found a metered leak at the West Medora Campground.
9. Duke's Welding repaired a leak at the Bac-T sampling faucet in Zoe Life PRV.
10. Stelter Repair fixed a leak in the city of Regent Meter Vault in Contract 2-6A.
11. Look for a leak downstream of the Scranton BPS. Found farmers and ranchers consuming water faster than the Scranton BPS can put water in the Bowman Reservoir. Adjusting the city of Scranton flow rate from 70 GPM to 30 GPM along with water conservation efforts

prevented the Bowman Reservoir from going empty. SWA plans to limit flow to Standard and High Consumption 1 customers to 10 GPM, High Consumption 2 customers to 12 GPM, and High Consumption 3 customers to 15 GPM. Staff moved a portable generator to the Scranton BPS and hard wired it in to shorten the response time if thunderstorms knocked out power in the area.

12. Respond to request to shut water off at Tracie Wiffler's in Contract 7-7B as their dirt floor basement had 2 feet of water in it.
13. Shut water off at Jim Powell's curb stop in Contract 7-7A so customer can repair a leak on their service line.
14. Installed a CDHS18 (flow control valve) and a 1.2" orifice plate for flow control at the city of Scranton Meter Vault. Set the flow rate at 50 GPM and the pressure sustaining valve at 80 PSI.
15. Respond to no water complaint in the city of Dunn Center. Found their clear well to be empty due to a phase loss prior to the vaults electrical panel. Staff bypassed the electrical controls in the vault to allow the Dunn Center control valve to open and begin filling the City of Dunn Center clear well. Bartlett & West were notified of need for warranty repairs to the electric supply line to the vault.
16. Install Pump 3 at Bucyrus BPS after GPTS changed out upper motor bearing.
17. Respond to low pressure at Lois Vandenburg's in Contract 7-6A. Found broken CRD spring in the Type 2 PRV # 36-1. Replaced the spring and the PRV was holding pressure at the design level.
18. Respond to no water complaint from Bruce Benz in East Weidner Bay in Contract 7-9D. Found that a resident of East Weidner Bay had damaged the line downstream of the SWPP meter knocking out water service.
19. Found a leak between the service line valve and meter pit for subsequent customer Francis Martin in Contract 7-2.
20. Replace the mechanical seal on Pump 2 at Richardton BPS. Adjusted the tension on the rebuilt seal to stop the leakage.
21. Repaired a 2" leak caused by wet tap error for subsequent Ty Victor in Contract 7-9C. SWA operator inadvertently drilled through both sides of the pipe while performing the wet tap.
22. Shut valve to allow Contract 7-9F customer Minnkota Power Plant's contractor to fix a leak they created by digging to closely to the meter pit. The pressure on the inlet side of the meter pit pushed the meter pit downstream causing a leak.
23. Respond to Ray Christenson Pump Station (RCPS) south zone pump failing on low discharge pressure. Found a 16" leak on the Contract 2-3E main transmission line south east of the Dickinson Airport. Replace a 30" segment of ductile iron pipe using two mechanical joint repair sleeves. Found considerable evidence of corrosion on the ductile iron pipeline that

was exposed during the repair. Made adjustments to equipment to increase system tank levels in the south zone.

24. Respond to water flowing out of a pasture tap meter pit at subsequent Max Schmelling Jr.'s in Contract 7-8B. Replaced a cracked 5 GPM flow restrictor.
25. Respond to no water complaint from Tim Dvirnak in Contract 7-9B. A contractor installing a natural gas line damaged the water line while attempting to cross the line. The line was repaired and flushed prior to the return to service.
26. Responded to a high water billing at Eugene Kuntz in Contract 7-6A. Found metered toilet leaks.

July and August

1. Found and repaired a 6" CL 160 PVC leak in Contract 7-1A caused by city of Dickinson contractor installing sewer lines beneath the SWPP line years previous.
2. Respond to a potential leak at Brian Woehl's in Contract 7-1B. Found a metered leak.
3. Respond to no water complaint from Ed Egly in Contract 7-8E. Found that 4" of rain had carried away the soil holding the 2" CL 200 service line together, allowing the pipeline to separate. Request cost quotes from contractors to relocate 1900 feet of 2" PVC pipeline out of the bottom of the draw where it was initially installed to restore service to Egly. Open and shut valves to assist Cordova Construction with flushing and Bac-T sample. Seed grass in areas that were excavated by open cut method. Survey relocated line onto GIS and pass information onto Bartlett & West.
4. Respond to no water complaint from Jim Anderson in Contract 7-1B. Found the "Tooz PRV" had floated out of the ground because the anchors that secured the vault to the cement pad had corroded away. One and half inches of rain had saturated the HWY 22 ditch ROW where the "Tooz PRV" is located. The uplift of the "Tooz PRV" sheared the 4" X 8" repair sleeve into pieces on the discharge side of the vault. An 8" gate valve was installed upstream of the "Tooz PRV" allowing all customers to be back fed through the County Line PRV. The schedule # 40 inlet and outlet piping of "Tooz PRV" was replaced with schedule # 80 pipe. The "Tooz PRV was re-installed and anchored with ¾" X 8" redheads and stainless steel straps, the vault rails were extended 3 feet, and cement was poured 2' long X 2' wide X 1' thick around each rail.
5. Respond to no water complaint at Tyrone Hamby's in Contract 7-9C. Found a blockage after the basement meter setter in a redundant series of in-house filters.
6. Respond to Halliday Reservoir losing excess water through the night. Contact Kamphuis Pipeline Company questioning if they are flushing overnight. Kamphuis was not flushing. Found 2" construction leak 1 mile north and 2 ¼ miles east of Halliday Reservoir.
7. Respond to questionable data from Jung Lake BPS after an electrical storm. Found the telemetry personality module had been damaged resulting in no SCADA system control at

the pump station. Found 54500COM 3 board was damaged. Ran pump station manually until repairs could be made. Ordered replacement parts from Micro-Comm.

8. Found metered leak at Vernon Polensky's in Contract 7-8E while checking water quality. Vernon requested water to be shut off until repairs can be made.
9. Found metered leak at Marvin Pleger's pasture tap in Contract 7-9F while checking on a pressure complaint. Found stock tank float was out of adjustment.
10. Shut subsequent Dennis Hulsing's service line valve so he can repair his leak in Contract 7-1B.
11. Shut water off at Cody Thiel's service line valve in Contract 7-9E. Thiel hit the SWPP 2" CL 200 PVC waterline while connecting his meter pit to an existing well pit. The SWPP line was repaired and flushed by a licensed contractor.
12. Shut water off at Kelly Dolyniuk's meter pit in Contract 7-8B as his basement repair contractor damaged the waterline. Turned water back on after repairs were made.
13. Contact Randy Christman in Contract 7-9C and Verda Draeb in Contract 7-9E regarding their high water usage identified by IDT website. Found leaks at the customers stock tanks.
14. Repaired the 4" CL 250 PVC line west of Dodge in Contract 2-7C. Dakota Access Pipeline (DAPL) subcontractor crews unearthed a rock while potholing the SWPP 4" line for crossing permit # 2016-162. The rock fell on the SWPP line and cracked it per DAPL crews.
15. Repaired the 3" CL 160 PVC line north east of Killdeer in Contract 7-9G B. S. 2. The sandy soil collapsed as DAPL subcontractor was excavating underneath the SWPP line at crossing permit # 2016-157, allowing the 3" to move and come apart at the nearest coupling. Emphasize to DAPL leadership that the SWPP lines will come apart if DAPL crews uncover more than 6 feet of the pipe.
16. Respond to Dunn Center BPS clear well fill valve not keeping up with discharge flows. Clean sand from the valve pilot system and adjust speed needles. Installed a fine filter on the fill valve pilot system to catch sand. Valve now functions as intended.
17. Change oil on Pump 1 at RCPS on the south zone per Butler Cat oil sample analysis.
18. Replaced the CRL-60 control valve with a CRL control valve on the surge relief valve at the Richardton BPS and set valve to open at 227 pounds.
19. Installed and set replacement CRD-L low flow PRV on the Type 2M bypass north of Scranton in Contract 2-4C.
20. Replaced pipe segments containing pin holes in the New Hradec BPS with new Schedule # 80 pipe.

September and October

1. Repaired a 2" CL 250 PVC line that was hit by Roslie Hunke's tenant in Contract 7-1B, while they were installing a septic system without calling in a utility locate request. A Bac-T sample from the cleanout was passed prior to the line being returned to service.
2. Repaired a 2" CL 160 PVC line that was hit by subsequent Rick Baranko while attempting to install his own service line in Contract 7-8B.
3. Contact Jeff Kuhn in Contract 7-2 regarding a metered leak at his stock tank found while SWA staff was installing an IDT harmony unit.
4. Respond to high flow alarm on IDT website at Dakota Crew Lodge in Contract 7-9C. Found a metered toilet leak.
5. Respond to high flow alarms on IDT website at Lauren Zimmerman's in Contract 7-4, Jerome Wolf's in Contract 7-9F, and Roger Leutz in Contract 7-9E. Found their stock tank float valves were allowing the tanks to overflow.
6. Shut water off for Mark Simmons in Contract 7-8G so he could make repairs to his stock tank and turn back on after repairs were made.
7. Instructed Bob Tuhy in Contract 7-9G BS2 how to make an emergency wrench to shut his curb stop off over the telephone. The 1" poly line he installed while attempting to do his plumbing at his residence had disconnected from the basement meter setter and was flooding his basement. Bob was able to shut his curb stop off prior to SWA staff responding on-site.
8. Shut water off for Tim Morman in Contract 7-9E. The 1" poly line that Morman installed while attempting to do his plumbing at his residence had disconnected from the basement setter and was flooding his basement.
9. Look for a leak in the Coffin Buttes Service Area identified by the SCADA system. Found the leak at Ramon Barnes pasture tap in Contact 7-6B.
10. Repaired and flushed a 3" CL 160 PVC line in Contract 7-9E. The unstable soil collapsed as the DAPL subcontractor was excavating underneath the SWPP line at crossing permit # 2016-173, allowing the 3" to move and come apart at the nearest coupling.
11. Repair and flush a 2" CL 200 PVC line in Contract 7-9E. The soil collapsed as the DAPL subcontractor was excavating underneath the SWPP line at crossing permit # 2016-170, allowing the 2" to move and come apart at the nearest coupling. Emphasize again to DAPL leadership that the SWPP lines will come apart if DAPL crews uncover more than 6 feet of the SWPP pipe.
12. Checked the amount of cover on a 2" CL 160 PVC line north of Camel Hump Lake in Contract 7-8B. It was determined that enough cover remained to prevent line freeze up. Grass was seeded in the area disturbed by the depth check.

13. Shut water off at Bob Hanson's meter pit in Contract 7-9G BS2 as Hanson had installed a drain back curb stop backwards downstream of his meter pit.
14. Replaced the defective recirculation pump at the Halliday Reservoir. The Halliday Reservoir was isolated and drained as chlorine residuals and nitrification testing indicated that a nitrification issue did occur in the tank. The Dunn Center BPS and Taylor PRV # 2 were used to maintain system pressure while the Halliday Reservoir was isolated.
15. Repaired a leaking pipe nipple in Type 2 PRV # 27-1 in Contract 7-2.
16. Shut valves and drained the raw water line so that John T. Jones (JTJ) could repair a 24" raw water line leak at the new WTP in Dickinson. JTJ borrowed a 24" mechanical repair sleeve. Return the system to normal operation once the work was completed.
17. Adjust potable water tank levels in preparation for the new Supplemental WTP in Dickinson 24" tie-ins. Shut valves and drain the raw water line so that JTJ can perform the tie-ins and cap the raw water line where needed. Return the system to normal operation settings once the work was completed.
18. Adjust potable water tank levels in preparation for the Dry Creek Contract 2-3E pipe replacement connection. Shut valves and drained the Contract 2-3E line allowing BEK Consulting (BEK) to perform the tie-in connections. Adjust the crossover piping at the RCPS to allow water from the east zone to flow to customers in the south zone while BEK was completing the connections. Trenched, cad welded, and terminated the cathodic protection test stations at the Dry Creek Crossing. Return the system to normal operation settings and ran pumps to pressure test once the work was completed.
19. Adjusted the mechanical seal on Pump 2 at Richardton BPS to stop leakage.
20. Notified affected customers and operated line valves so Eatherly Constructors could repair a warranty 4" CL 250 PVC leak in Contract 7-9F. Flushed lines once repair was completed.
21. Found and repaired a leak at a 3" X 4" PVC reducer identified by low pressure complaint from Shane Sickler in Contract SCS PL566.
22. Discovered a pin hole sized leak in the brass crossover piping in Warren Woroniecki's pasture tap meter pit in Contract 7-9E while performing his rural water hookup. Replaced the crossover pipe with a spare from inventory and reported to Bartlett & West Engineers for warranty replacement.

<u>November and December</u>

1. Repaired a leak on the basement meter setter at John Schweitzer's in Contract 7-9G BS1. Found the basement setter supplied by the contractor did not have Teflon tape on the threads.
2. Respond to high flow alarms on IDT website at the Cross Ranch State Park in Contract 7-9F, Ryan Fleck and Leslie Ferguson's in Contract 7-9E, Guy Aman's in Contract 7-2, Dickinson

Research Center in Contract 7-1B, Shawn Lund in Contract 7-9D, Darla Gunkel in Contract 7-8B, John Hatzenbuhler in Contract 7-8C, and Peter Ebner's in Contract 7-3A. Found metered leaks at all locations.

3. Respond to high flow alarms on IDT website at Gerald Bieber's in Contract 7-9C and Cody Thiel's in Contract 7-9E. Found the floats on the stock tanks allowing the tanks to overflow.
4. Respond to high water bill complaint from Todd Shirek's in Contract 7-4. Found a metered toilet leak.
5. Replaced a broken frost plate on Darlene Lardy's basement meter in Contract 7-8B. The frost plate broke because Lardy's utility room housing the meter froze up.
6. Responded to a basement meter setter leak at Collette Schumacher's in Contract 7-9G BS1. Schumacher's tried to do their own plumbing in their residence and never tightened the grip ring of the 1" pack joint. This allowed the inlet pipe to separate from the basement setter.
7. Shut water off for Gordon Cermak in Contract 7-9G BS1, so he could repair his metered leak.
8. Assist Edling Electric with checking phase rotation and running pumps at the Intake, Dodge BPS, Richardton BPS, and the Finished Water Pump Station (FWPS) to accommodate Contract 4-1F/4-2C generator upgrades.
9. Replaced the defective electric solenoid and diaphragm on the control valve in the city of Beach Meter Vault in Contract 2-5B.
10. Found and repaired a 3" poly pipe leak in a creek crossing in SCS PL566. The leak was located at a poly fuse.
11. Found and repaired a 2" CL 250 PVC pipe leak near Richard Schmidt's service line connection in SCS PL566.
12. Replaced the PRV in subsequent Mott Grain's meter pit in Contract 7-3A that was discovered leaking during the installation of satellite meter reading equipment.
13. Install repair kit in CRA valve (flow control) on the control valve for the Sacred Heart Monastery in Contract 2-7C.
14. Replaced the leaking and corroded expansion tank piping in the Burt VFD in Contract 7-6A.
15. Replace leaking Pump 2 mechanical seal and throttle bushing at the Richardton BPS.
16. Troubleshoot power failure at the Scranton BPs after utility power was restored from an outage caused by the weather. Found run-permissive relay to be defective. A jumper wire was utilized to connect the contacts to get station going until the defective relay was replaced.

WATER TREATMENT PLANTS

OPERATIONS AND MAINTENANCE SUMMARY

MEMORANDUM

To: Mary Massad, Manager/CEO, SWA

From: Grace Rixen-Handford, Water Treatment Plant Manager, SWA

Subject: 2016 Water Treatment Plant Operations & Maintenance Summary

Date: April 4, 2017

This memo highlights Water Treatment Plant (WTP) operations and maintenance activities performed during 2016 which are not considered part of our normal daily routine.

January and February:

1. Manager conducted the year end chemical inventory for the Dickinson and Oliver, Mercer and North Dunn treatment plants and submitted to the financial officer.

2. OMND's monthly bromide and bromate samples collected and sent to Eroufins Labs. Test raw water results for bromide for February were 36 ug/l, and finished water results for bromate were ND (Not Detected).

3. DWTP, filter #5 was pressured washed and calcium chlorite was added to supper chlorinate filter media. Filter will set for 24 hours before backwashing.

4. OMND, manager called Tyson Decker (Bartlett & West) to review the ozone decay test results. The ozone decay results indicate the sample locations # 2 and 3 in the contact chamber need to be relocated closer to the ozone injection.

5. DWTP, filter # 5 was backwashed and put into service. The surface rake on filter # 6 was taken to machine shop for repairs.

6. DWTP, manager review change orders for the added valves on the UF skids, added air compressor for system pressure, and inline pH meter on the CIP equipment for the new water treatment plant in Dickinson.

7. DWTP, filters # 6 & 7 were pressure washed and calcium chlorite was added to supper chlorinate filter media. Filters will set for 24 hours before backwashing. Surface rake for # 6 filter was reinstalled.

8. DWTP, Filters # 6 & 7 were backwashed and put back into service.

9. DWTP, submitted the Acrylamide and Epichlorohydrin report to NDDoH.

10. DWTP, southwest pipeline pumps in the FWPS were taken off line so JTJ construction can change the piping on the discharge side of the pumps to keep the pumps and flow meter flooded with water. The southwest pipeline is being serviced by using the old pump low service pumps.

11. DWTP, JTJ construction finished piping modifications and the southwest pipeline pumps in the FW DWTP, filter # 2 was pressure washed and calcium chlorite was added to supper chlorinate filter media. Filter will set for 24 hours before backwashing.PS were put into service at 12:00 PM.

12. DWTP, manager attended the per-constructions meeting for contract 3-2D (New Water Treatment Plant).

13. DWTP, Muth Electric on site to test the operations of the electric entrance gate. The gate will close part ways and then fault to the open position. After further inspection the gate is out of alignment, the support posts are bent. The gate was realigned and is work fine.

14. DWTP, filter # 4 was pressured washed and calcium chlorite was assed to supper chlorinate filter media. Filter will set for 24 hours before backwashing.

15. OMND, UF filter # 5 will on start, operators troubleshooting for mechanical problem and none were found. SWA's electrical technician was called in to troubleshoot for electrical problem and none were found. Wigens was called to check the programing and a problem was found in the startup sequence for this UF. Wigens made the corrections and UF 5 was put on-line.

16. DWTP, filter # 4 was backwashed and put back into service.

17. DWTP and OMND, received a call from distribution manager to inform me the intake pump # 2 was out of service due to a mechanical failure, leaving only 2 pumps at the intake. Discussed treatment options to accommodate have only two intake pumps on-line.

18. Manager emailed the operators a directive to treat at lower flow rates and to monitor the raw water reservoirs to maintain a level no lower than half the tank volume in the event we were to lose another pump at the intake.

19. DWTP, meet with Jeff Brezden (City of Dickinson) to go over what is needed to bring the City's tower, and reservoir levels to the plant SCADA, also have the ability to see the gpm their pumps are pumping. Jeff will contact their programmer (Sweeney Controls) to have this information available through SCADA.

20. DWTP, filter # 1 was pressure washed and calcium chlorite was added to super chlorinate filter media. Filter will set for 24 hours before backwashing.

21. DWTP, getting a chlorine alarm and not chlorine leaks were detected, the chlorine sensor was recalibrated. No further alarm.

22. DWTP, filter # 1 was backwashed and put back into service.

23. OMND, schedule the emptying of the contact chamber for Jan. 26th.

24. Jan. 25th – DWTP, submit forms to the NDDoH for Ereporting the discharge permit reports for the Dickinson and Oliver, Mercer North Dunn treatment plants.

25. OMND, pump vibrations tests conducted new pump associated with the FWPS.

26. OMND, Marco was called for service on the printer at OMND.

27. OMND, start pumping out the contact basin at 1:30 PM for access to move ozone sample locations.

28. OMND, enter the contact chamber to relocate sample locations 2 and 3 and move them closer to the ozone injection.

29. OMND, start ozone in the auto mode, for some reason once the ozone started its shutting down the RO units. Will do some troubleshoot as to why.

30. Submitted the 2015 O&M to Mary Massad and Andy Erickson.

31. DWTP, manager contacted Jeff Brezden to request the operators have the ability to see the City of Dickinson's tank levels and gpm the City pumps are pumping. Jeff will contact Sweeny Controls to see what can be made available for through SCADA View. Sweeny Controls will make this information available to the MicroComm system.

32. DWTP, operators started draining treatment basin 106 for yearly cleaning.

33. DWTP, operator's pressure washing and scraping lime build-up from treatment basin 106.

34. DWTP, update the maintenance technician and training spreadsheet to reassign maintenance and preventive maintenance folders to operators.

35. DWTP, Contact Elizabeth Johnson a student at Bismarck State College to set up start date to complete her job shadowing. Elizabeth's start date will be Feb. 29th.

36. OMND, ozone on-line, sample locations 2 & 3 are getting a good residual. Increased ozone dosage to 9 lbs./day to achieve a 4 log removal.

37. DWTP, progress meeting on the NDWTP (New Dickinson Water Treatment Plant).

38. OMND, notify Eroufins Labs we will be shipping a bromide and bromate next week Monday.

39. DWTP, operator's finished cleaning basin 106. Basin was but back into service.

40. DWTP, lime grit hauled to land fill.

41. DWTP, yearly maintenance and cleaning completed on slaker 106.

42. OMND, bromide and bromate samples were shipped to Eroufins Labs.

43. OMND, quarterly maintenance conducted on the APA 6000.

44. OMND, CL 17 colorimeters were cleaned on the finished water, contact basin, and the clearwell.

45. DWTP, JTJ constructions conducted pump training for the FWPS.

46. DWTP, operators conducted a planned power outage, running plant on stand-by power. Tested pumps 2 & 6 and the old SW pipeline pumps on generator power, # 6 bypass pump for the City of Dickinson would not run on generator power. Will have electrician look into it.

47. DWTP, the vacuum pump on the green leaf filters is cycling too often, clean check valves and adjust psi setting.

48. OMND, calibrate pH meters for the raw water, contact basin, finished water, and clearwell.

49. OMND, maintenance check on blower 1 & 2.

50. OMND, Jason Ulland drilling new holes in concrete for the ozone drain lines sample points 2 & 3.

51. OMND, test run stand by generator.

52. OMND, the basement light switch on the north wall shorted out, Chuck Magnuson ordered a new switch.

53. DWTP, the Limatourque valve on the 106 raw water valve is not responding to flow adjustments. Have Dan Roller check PRV valve for proper operations, seems to be working fine.

54. DWTP, the PRV valve on raw water line to basin 106 is not working correctly again.

55. DWTP, operators opened the PRV valve on the 106 raw water line and found a 6" jet head in the valve. This jet head was lost by the contractors when they pressured cleaned the new raw water line during the construction of the FWPS. Valve was reassembled and put back into service and is working fine.

56. OMND, sodium hypochlorite feed lines were replaced.

57. OMND, UF # 3 HOA switch stuck, Wigens remoted in and reset the control.

58. DWTP, start draining basin 105 for annual cleaning.

59. DWTP, operator's start pressure washing and scraping lime build up from basin 105.

60. OMND, UF CIP (Clean in Place) tanks filled and heaters turned on.

61. OMND, high and low pH CIP's completed on secondary UF's # 4 & 7.

62. NDWTP (New Dickinson Water Treatment Plant) progress meeting.

63. Annual report was submitted Jen Murry.

March and April:

64. OMND's monthly bromide and bromate samples collected and sent to Eroufins Labs. Raw water test results for bromide for March were 36 ug/l, and 37 ug/l for April. Finished water test results for bromate for March were ND (Not Detected) and ND (Not Detected) for April.

65. OMND, inorganic chemicals (Primaries) and (Secondary) samples were collected and shipped to the state lab.

66. DWTP, pump training at the FWPS.

67. DWTP, power shut down to rewire pumps 5 & 6, pump 6 should have been rewired to stand-by generator by Muth Electric after transfer pumps 3 & 4 were put on-line.

68. DWTP, inorganic chemicals (Primaries) and (Secondary) samples were collected and shipped to the state lab.

69. OMND, bromate and bromide test results were emailed to Lydia Fewless (NDDoH).

70. OMND, manager contacted Endress Hauser for calibration information on pH probe for the UF CIP.

71. DWTP, DO (Dissolved Oxygen) tests were conducted on the south clearwell and City of Dickinson distribution water feeding the APA 6000 (Chloramine Analyzer), the DO's were the same. Trying to troubleshoot why the sample from the City of Dickinson is not giving an accurate reading on the APA 6000.

72. The intake pumps off line Monday morning at 1:00 AM, distributions cleaning the pneumatic tank. Inform operator to call Jim Murphy before starting the plants.

73. OMND, conducted CIP's on UF skids 3 & 4, high and low pH cleans.

74. DWTP, manager emailed Anthrafilter (U.S.) Inc. for a price quote on filter media.

75. DWTP, manager attended the progress meeting for the new Dickinson water treatment plant.

76. OMND, ozone generator 2 faulted out current overload.

77. Chemical bid documents submit to admin for review and final approval.

78. OMND, SWA's electrician on site troubleshooting ozone generator # 2 with Xylem technician James Pettis via the phone. While troubleshoot ozone generator # 2 it was discovered that when # 2 generator faulted out # 3 generator would not start to replace generator # 2. It was also discovered that when the door was open on generator # 2 generator # 3 would not start until the door was closed.

79. OMND, the gas flow valve for # 3 ozone generator is not working, replaced it with the gas flow valve from generator # 2. Operators are now able to use ozone generator # 3. Ozone generators 1 & 3 are on-line.

80. OMND, SWA's electrician was unable to correct current overload on ozone generator 2. Xylem will be sending out their technician next week Tuesday.

81. DWTP, manager attended the progress meeting on the new water treatment plant in Dickinson.

82. DWTP, Ken Knight added an alarm in the green leaf filter area.

83. DWTP, chemical bid packets were mailed to venders.

84. OMND, bromate and bromide samples were collected and shipped the contract lab (Eurofins, Eaton Analytical).

85. DWTP, Ken Knight is put in charge of checking the flow meters before, during, and after the power outage at the FWPS scheduled for Apr. 6th

86. OMND, James Pettis from Xylem on site troubleshooting ozone generator # 2. Programing issues were discovered as to why generator # 3 was not starting after # 2 faulted out. This issue was corrected.

87. Manager approved Ken Knight and Harlon Weidner to attend the surface water workshop in Fargo Apr. 26th – 28th.

88. Manager contacted Lydia Fewless with the NDDoH to ship two general chemistry sample kit for the Dickinson and OMND plants.

89. Manager contacted Jim Lennington for a time line as to when the finished water reservoir at OMND will be taken out of service for warranty work. Jim will email Troy Werdel with Maguire Iron Inc. for intended schedule.

90. OMND, pre-filters on RO's 1, 2 and 3 were changed out.

91. OMND, James Pettis from Wedeco on site troubleshooting ozone generator # 2 current overload. The converter board assembly was replaced eliminating the current over load status. James placed an order for a new flow control valve. The work conducted by Xylem was warranty work. We will not be able to test ozone generator # 2 under load until we receive the new flow control valve.

92. Manager contacted Ken with PCS to get a price quote for the security system for the new water treatment plant.

93. OMND, troubleshooting ozone injections skid # 1 for an ozone leak. Leak detected on the gas separator glass. The nuts were retightened and the leak was eliminated.

94. OMND, pre-filters were changed on the RO CIP canister. Old filters were hauled to the Mercer landfill.

95. DWTP, manager updated the security system protocol phone contact list and emailed to Ken with PCS.

96. DWTP, personnel from PCS picked up a set of plans for the new water treatment plant to quote security system.

97. DWTP, Dave training Mike Kasian on changing out the CL17 reagents.

98. DWTP, safety/staff meeting go over the power outage at the intake scheduled for Wed. Instructed operators to record flow meter readings from the FWPS once a week on Wednesday's.

99. Manager entering data for OMND's DMR (Discharge Monitoring Report) on the NDDOH ERIS (Electronic Reporting Information System), the program is not allowing data to be entered.

100. OMND, operators were instructed to pin broken fibers on UF skid # 7.

101. Operators attended a wellness meeting at the O & M office.

102. DWTP, Rob Gravatt with Great Plains Structures was contacted for a price quote for the 6 million gallon reservoir dome repairs.

103. Manager working with Sarah Walden with the NDDOH on submitting OMND's DMR on the ERIS still unable to enter data due to programing errors.

104. DWTP, operators cleaning the backwash reservoir.

105. OMND, Interstate Power Systems on site to conduct the semiannual maintenance on the standby generator.

106. NDWTP, progress meeting.

107. DWTP, Larry Tiberg with Great Plans Structures contacted manager to schedule a time for him to inspect the dome on the 6 million gallon reservoir.

108. DWTP, manager contacted Mike Gale with Bry-Air and ordered the drum, shaft and cleats for the north dehumidifier.

109. DWTP, operators cleaning out the sludge pit.

110. Manager entered OMND's DMR data on the ERIS with success.

111. Manager gathering flow data for Jim Lennington.

112. OMND, HVAC system on working, the breaker keeps tripping. SWA's electrician on site to troubleshoot HVAC system. An outside electrical outlet is on the same breaker which was getting water in it and tripping the breaker. The outlet was removed from the breaker and a EFI outlet will be installed. Have electrician wire in a new hypochlorite pump.

113. OMND, running a CIP on RO 2 on banks 1A, 1B and stage 2 high and low pH clean.

114. OMND, SWA's electrician on site to install the flow controller valve on ozone generator # 2. The ozone generator will be put in service tomorrow for testing.

115. OMND, ozone generator # 2 would not turn on in the auto mode, tried starting it in the manual mode and the generator went into a current over load fault same as before. Tyson Decker was contacted and informed of the problem.

116. DWTP, chemical bids were opened.

117. DWTP, tresses were picked up at the Soil Conservation District and operators started planting on the west slope.

118. DWTP, Larry Tiberg with Great Plains Structures on site to look at the dome on the 6 million gallon reservoir.

119. OMND, manager called City Air Mechanical for information related to the HVAC system faults.

120. OMND, manager contacted Troy Werde with Maguire Iron Inc. to verify when they wanted to start the repairs on the finished water reservoir. Troy could not set a date at this time.

121. OMND, emailed Lydia Fewless (NDDOH) the bromate and bromide test results for April.

122. OMND, received the VOC's (Volatile Organic Compounds) sample kits from the NDDOH to be collected May 2, or 3.

123. OMND, manager contacted Johnson Controls to schedule a site visit to troubleshoot their controller for the HVAC system.

124. OMND, running a CIP on RO 1 on banks 1A, 1B, and stage 2 high and low pH clean.

125. DWTP, Jimmy Cote (MiccroComm) logged into the plant operating computer to correct programing issues on transfer pumps 3, 4 and 5.

May and June:

126. OMND, Johnson controls on-site troubleshooting the HVAC system, the pump room is cold. Johnson controls worked on the building automation. Reprogrammed humidity sequence for AHU 1, FCU 3, and FCU 4. Set them up to control an adjustable dehumidification set point. Added a cooling sequence to FCU 3 for the pump room. Calibrated sensors and modified the graphics to reflect the changes. Pulled a backup and left one on-site before leaving. (Note) the Electric Heaters are too small and get over powered by the air conditioners while running the way it was programmed. This caused both heating and cooling to always be on and over cool the space.

127. OMND - SWA's electrician on-site to install a new room heater. Hypochlorite line had leaked and dripped onto old heater unit until leak was fixed.

128. OMND - CIP on RO # 1 banks 1 A & B and stage 2 were cleaned with a high and low pH.

129. DWTP, NDWTP progress meeting. Pre-construction meeting with Edling Electric. Meet with Tyson Decker (Bartlett & West) to review the proposal from Micro-Comm. Met with the architect to finalize case work for the New Water Treatment Plant.

130. DWTP - Operators filling treatment basin 105 for the season.

131. NWTP - Three copies of SWA's safety manual were delivered to JTJ Construction.

132. Manager contacted Jack Young (Rosemount) to schedule a time to look at the flow meter # 4 for replacement. Distribution manager was contacted to check if Andy wanted Jack to look at the flow meters at the RCPS for replacement.

133. Manager contacted the owner at the Beulah Hardware store and ordered a Husqvarna lawn mower for OMND.

134. OMND - James Pettis (Wedeco) on-site troubleshooting ozone generator # 2 current overload fault, also installing equipment tags.

135. OMND - Operators valued off the bolted finished water tank to drain the welded tank and take out of service for Maguire Iron Inc. to seal the tank floor.

136. OMND - James Pettis (Wedeco) on site troubleshooting ozone generator # 2 and found a broken dialectic causing the current overload.

136. OMND -The welded tank was taken out of service and the bolted tank was put back into service.

137. OMND - Manager contacted CFO to check if SWA still had a contract with Professional Computer Services for the security systems yearly inspections and maintenance. SWA does have a yearly maintenance contract with PCS, manager contacted PCS to conduct the maintenance on the water treatment plant in Dickinson and the OMND plant.

138. OMND - Maguire Iron on-site to remove the manways on the bolted tank for tank repairs.

139. OMND - Test run standby generator for 30 minutes.

140. OMND - Operator checked and cleaned the low level float in the concentrate basin. The contacts on low level float alarm is not working. SWA's electrician was contacted to disconnect the float and to order a new float.

141. DWTP - Hach service tech on site to conduct the quarterly maintenance on the APA 6000.

142. DWTP -Troubleshooting the south clearwell chlorine feed system, will not maintain a chlorine residual of 3.5 mg/l.

143. OMND - Hach service tech on-site to conduct the quarterly maintenance on the APA 6000.

144. OMND - RO concentrate vault was inspected and cleaned.

145. OMND - Ozone generator #3 faulted out due to overheating, the filters were vacuumed and cleaned, generator reset and running fine.

146. DWPT - Jack Young (Rosemount) on-site to look at flow meter #4 for replacement, he will send a replacement quote.

147. DWTP - Manager met with Corey Christensen (Hach) to discuss the possibility of using their WIMS (Water Information Management Solutions) for the new water treatment plant, and also to purpose a quote for the programing and installation of software.

148. Manager contacted CHDiagnostic Consulting Services INC. to set up a sampling schedule for Giardia/Crypto sampling starting October 2016.

149. OMND - Started filling finished water tank, Zap I, at 12 a.m. finished filling at 7 a.m. Repairs were completed on the welded tank.

150. OMND - Ozone generator #3 faulted out due to a power outage, the breaker to the generator was disengaged and rest, generator restarted.

151. DWTP - Manager needed to reschedule operators to include a 3rd shift due the intake pumps not being able keep up with the water treatment demand.

152. OMND - A Bac-T sample was collected by Bartlett & West from the finished water tank.

153. DWTP - Manager contacted Gary Zuroff (City of Dickinson) to inform him of a scheduled shut down of the FWPS on June 17 in order for Muth Electric to complete the wiring for the standby generator.

154. OMND - A second Bac-T sample was collected from the finished water tank.

155. DWTP - Work with the City of Dickinson staff to coordinate the shutdown of the FWPS. Test run the City of Dickinson's back-up high service pumps # 2 & 6.

156. OMND - Both Bac-T samples passed on the finished water tank (bolted tank), the tank was put back into service.

157. DWTP - The vac pump for the Greenleaf filters failed, installed an old pump from the basement with a few piping modifications. The Greenleaf filter vac pump was taken to Pump Systems for repairs, Pump Systems stated the pump could not be repaired, a new pump was ordered, and the replacement cost is $8,000.00. Manager ordered a new vac pump for the Greenleaf filters.

158. DWTP - Manager readjusted the operators work schedule to accommodate the planned shutdown of the FWPS at midnight. First shift 5 a.m. – 1:30 p.m., second shift 11 a.m. – 7 p.m., and third shift 7p.m. – 3 a.m.

159. DWTP - Manager emailed Mike Trythal (NDDoH) the sampling schedule for the Giardia/Crypto sampling starting in October.

160. DWTP - The FWPS offline at 12 a.m. for Muth Electric to pull new wiring for the stand-by generator.

161. Power to the intake out at 12 a.m. due to a storm in the area, knocking down nine power poles. The power was restored at 5:30 p.m. The DWTP treated water until 2 p.m. before running out of raw water. The OMND plant did not treat water during the power outage. The manager readjusted operators work schedules to start the plants once the power was restored. The OMND started treating at 6 p.m. and the DWTP started treating at 7 p.m.

162. OMND - Manager ordered a general chemistry sampling kit from the NDDoH for the RO concentrate discharge water.

163. OMND - Manager called Brad with the Mercer County Weed Board to set up a date to spray the cattails/weeds in the sludge ponds.

164. OMND -General chemistry sample shipped to the NDDoH Lab.

July and August:

165. OMND - PKG on-site to remove old concrete sidewalks and pouring new ones.

166. OMND - City Air Mechanical on-site troubleshooting the HVAC system. The AC units are freezing up.

167. OMND - The UF pre-filters were taken out of service and cleaned, new packing was installed on all three filters.

168. DWTP - Great Plains Structures on-site to start on the 6 million gallon reservoir dome repairs. The scope of work will be caulking the node plates, repairing the flashing, move the vent three sections up from the base, and install an access hatch where the vent was located.

169. OMND - Operators cleaned and replaced filter socks on the backwash bag filter.

170. DWTP - Grit was hauled to the landfill.

171. DWTP - Great Plains Structures finished dome repairs on the 6 million gallon reservoir.

172. DWTP - The discharge valves on the east lagoon were exercised and the discharge location was switched to the east side of the lagoon.

173. OMND - Operators installed the newly rebuilt chlorine regulator on a ton cylinder and discovered the regulator leaked. Manager call Terry Schiro (Vessco) to inform his the rebuilt regulator leaked, he asked to have the regulator shipped back and they would fix the problem.

174. OMND - Operators cleaned the RO concentrate basin and the north backwash basin.

175. OMND - SWA's electrician installed a new low level senor in the RO concentrate basin.

176. OMND - Changed oil and filters on air compressors 1 & 2.

177. OMND - Changed oil and filter on the riding lawnmower.

178. DWTP - Tour of the FWPS and the water treatment plant.

179. Manager attended a progress meeting for the new water treatment plant.

180. DWTP - Manager informed Bartlett & West that due to heavy rain the dirt was washed into the storm sewer by the west road entrance and hillside.

181. DWTP - Using a rented trencher, the operators trenched in the yard irrigation lines.

182. DWTP - Shawn Heinle (NDDoH) on-site conducting the annual sanitary survey inspection. Passed inspection with no recommendation for corrections.

183. DWTP - Operators sprayed weeds along the perimeter fence.

184. DWTP - The state boiler inspector on-site to inspect the boiler system. The system passed inspection.

185. OMND - Manager called Sherrie Wasterlain (Wedeco) for timeline as to when Wedeco will be returning to repair ozone generator # 2 and conduct the on-site training. Sherrie will look into it and will let the manager know.

186. OMND - Operators cleaned the sludge basin and put back into service.

187. DWTP - Manager informed the operators they need to put together a plan to install the new butterfly valve in the return sludge line and to get it installed within the next week. Manager also informed the operators that winter is fast approaching and the irrigation system and the heaters need to be installed.

188. OMND - Conducted in-house lab tests on the RO concentrate discharge water for dissolved oxygen, pH, conductivity and chlorine residual.

189. OMND - Shawn Heinle and Lydia Fewless with the NDDoH on-site conducting the annual sanitary survey inspection. Passed inspection with no recommendation for corrections.

190. OMND - Patrick Schuett with the NDDoH on-site conducting a facility inspection for the RO concentrate discharge permit. During the inspection is was noted the monthly lab test for the RO concentrate discharge water needs to be conducted by a certified lab and not conducted by the in-house lab unless it is a certified lab. Also noted was the loading rate for BOD (Biochemical Oxygen Demand) was not calculated correctly on the discharge permit.

191. OMND - Manager contacted the NDDoH lab for the RO concentrate general chemistry test results to be included on the Discharge Permit due July 31.

192. OMND - Manager submitted the RO concentrate Discharge Monitoring Report to the NDDoH via the E-Reporting.

193. OMND - When cleaning the north backwash basin the operators noticed the pipe hangers were laying in the bottom of the basin. The anchors pulled out of the concert wall; operators re-anchored the pipe hangers and backwash basin put back in service.

194. DWTP - Manager submitted the Non Discharge Monitoring Report to the NDDoH via the E-Reporting.

195. DWTP - Manager contacted Jason Jacob (TMI) for quote on the casework for the new water treatment plant.

196. DWTP - Manager called Lydia Fewless (NDDoH) for the July TOC sample results. Results are needed to complete the LT1 reports.

197. OMND - Manager called Patrick Schuett (NDDoH) to order two sample kits for the RO concentrate general chemistry to include phosphorus and TSS testing for the last two quarters of 2016.

198. DWTP - The valve stem on the old sludge could not be removed from the old valve; a new valve stem had to be fabricated by Precision Fabrications.

199. DWTP - Operators installed the new butterfly valve in the backwash return line. Valve was tested and checked for leaks and valve put back into service.

200. OMND - Wedeco on-site for training on the repairs and maintenance of the VSA's (oxygen generators). James Pettis (Wedeco) replaced the broken dielectric on ozone generator # 2. Generator #2 was put into service to discover the pressure regulator is leaking, James changed out the regulator and the generator is online. The pressure regulators on all three ozone generators have been an on-going problem with leaking ozone into the room, Tyson Decker (Bartlett & West) will work with Wedeco to make sure this problem is corrected.

201. OMND - More training on the ozone destruct, generator, and program by Wedeco.

202. OMND - Finished training on the ozone system. The programing computer for the ozone system supplied by Wedeco will be shipped to the plant within the next two weeks. This computer will be used for Wedeco to log into the PLC remotely for troubleshooting programing issues, etc.

203. DWTP - The motor on # 3 air compressor burned out. This motor was 20 + years old, a new one will cost $400.00.

204. DWTP - Manager called Energy System about the second compressor supplied by them is leaking oil same as the first compressor, and requested they replace this compressor or to have the money refunded back to SWA. Energy System stated they would replace the compressor with a different model.

205. DWTP - A new motor was purchased for compressor # 3 from Fisher Supplies.

206. OMND - Dan Roller on-site troubleshooting the Wigens computer for internet connection.

207. OMND - RO concentrate discharge water general chemistry samples were collected and shipped to the NDDoH lab. The monthly DO, conductivity, pH, and chlorine residual test were conducted on the sample as well.

208. OMND - Bromide sample results for the raw water were 0.036 mg/l, and the bromate sample results for the finished water was ND (not detected).

209. OMND - Manager called Wigens for a quote to replace the Wigens operating computer at OMND. They will work up a quote and send the information.

210. DWTP - Staff meeting, manager listed project priorities to have completed by the end of October. The list conceded of finish installing the unit heaters and to finish the in-ground irrigation and get grass seed planted. Manager also reviewed the care and maintenance of the lawn and yard equipment.

211. OMND - SWA's electrician on-site to replace the solenoid valve on water line going to chlorine injector.

212. OMND - Oil and air filters changed on VSA # 2.

213. OMND - Operator changed pressure regulator on ozone generator # 1.

214. OMND - Operator changed O-ring in ozone injector #2 separator housing.

215. DWTP - Manager detected a musty smell at treatment plant, sent two operators to the RPS to check on the sodium permanganate and to increase the feed rate.

216. DWTP - The city of Dickinson called to report they have had several complaints of the water smelling bad. Informed them the lake turned over and this is the reason for the musty odor. Manager sent an operator to the RPS to check on the sodium permanganate and to increase the feed rate. Manager informed the CEO of the water complaints and the steps being taken to minimize further complaints.

217. DWTP - 105 Slaker Belt motor: The motor on the 105 slaker kept tripping out. After some research into it we discovered that the motor was drawing too much power. We replaced the motor and sent it in to be rebuilt.

218. DWTP - Backwash Pump air vac leaking: When washing out the backwash basin we discovered that was was leaking back through the air vac. We removed it and cleaned it out, finding that the rod that the ball which opens and closes the valve was rusted and was unable to operate properly. It was cleaned and put back in place, and is now working correctly.

219. DWTP - Filter #5 Effluent Valve: A leak was discovered on the effluent valve. A seal has more than likely formed a hole in it. Need to replace. In order to do this we need to take filter #5 out of service, limiting our production rates. Item isn't very serious so it's being pushed back to a time that we can take filter 5 out of service without any disruptions.

220. DWTP - 106 Slaker Rebuild: After numerous slaker crashes and failures, along with the grind of running an average of 16 hours a day, certain parts are beginning to wear. So when demand drops to the point that we can take slaker 106 down we are going to go through and replace parts that are beginning to wear. Such parts include chain, sprocket, belt, etc.

221. DWTP - South Lime Silo: The south lime silo will not automatically fill the 105 Daybin. We have started looking into possible issues and have narrowed it down to an electrical issue in the system.

222. DWTP - Maintenance due to pump station construction: Installation on sprinkler system has started. Lines have been trenched in and we are mapping out where the heads should be placed to cover the required areas. Available staff has begun the actual dirt work, installing sprinkler heads in the mornings.

223. DWTP - PLC cable end: We have yet to have the proper conditions required to repair this.

224. DWTP - Heater Replacement: The boiler has been taken out of service and we started replacing heaters. Removing the old ones has been tricky but manageable, and we've planned out which ones are being replaced and removing the other ones and capping the lines. We've installed 3 of the new heaters so far.

225. DWTP - Greenleaf Filter Vacuum Pump #2: We are currently waiting on the arrival of the maintenance manual, and are running the vacuum pumps in manual until we are able to remedy the problem with the control units.

226. DWTP - CL2 Line: The line has been completely replaced but we still seem to have a problem when running off of one regulator. We are currently looking into multiple possible problems as it would appear this is being caused by more than just one issue. We talked to the distributor of our cl2 regulators and they suggested removing a filter located inside of them, as other plants have had problems with them plugging up. We also looked to our pre-treatment system for problems. The ammonia pump located in Dodge was malfunctioning, which caused a low residual coming into the

plant. The pump was replaced with a backup and the original was brought back to Dickinson and kitted. As of the time of reporting the cl2 appears to be operating normally but we will continue to monitor. The ammonia at the Dickinson plant is also being ran in manual.

227. DWTP - Seals on the hatches of our lime silos wore out, causing dust to fill the room whenever a truck filled lime. An actual replacement part could be found so one was crafted out of weather stripping.

228. DWTP - A water leak out of the base of transfer pump #5 was sealed using silicone. It appears to have stopped it, at least in the short term.

229. DWTP - Ammonia pump from Dodge had a rebuild kit installed.

230. DWTP - The backup ammonia pump was also kitted to ensure reliable use in the future.

231. DWTP - Rocks found in ammonia tank (likely originating from the granulated chemical bags we receive it in) were vacuumed out. They were plugging the lines and preventing ammonia feed.

232. DWTP - Washed out Sludge pits in backwash pumping station.

233. DWTP - Replaced 106 slaker belt.

234. DWTP - Mounted vac pump #2 for more permanent use.

September and October:

235. DWTP - Manager noticed a slight musty smell at the treatment plant. Operators were sent to RCPS to check on the sodium permanganate and to increase the dosage.

236. OMND - Manager emailed Lydia Fewless (NDDoH) the bromate and bromide test results for July and August.

237. DWTP - Decking on north slaker stairs was welded.

238. DWTP - Installed repair sleeve on # 5 filter rake supply line.

239. OMND - Bromate and bromide samples shipped to contract lab.

240. DWTP - Calibrated and performed monthly maintenance on chemical pumps. Scrubbed and cleaned all chemical barrels and tanks.

241. Jason Ulland and Kandi Voigt attended a disinfections by-product school sponsored by the NDDoH.

242. DWTP - During rain events water is leaking into the building by the new main power electrical cabinet. Muth Electric was contacted for repairs.

243. DWTP - Replaced filter 6 turbidity meter inlet line.

244. OMND - The bromate and bromide test results for October are as follows Bromide = .037 mg/l and Bromate = ND (not detected).

245. OMND - Changed out the 4 function valve on RO # 1 bisulfite pump that was leaking.

246. OMND - Monthly inspection of the RO concentrate vault.

247. OMND - The fluoride feed line was changed out.

248. OMND - The valves in the pump gallery were exercised.

249. OMND - Changed out the bad emergency light downstairs.

250. OMND - Manager submitted July and August's DMR (discharge monitoring report) via E-reporting to the NDDoH.

251. OMND - The finished water and raw water valves were exercised.

252. OMND - The SCADA modem is not working, SWA Operations Specialist has ordered a new one from Micro-Comm.

253. DWTP - Finished installing, plumbing, and electrical for 16 heaters and steam traps. This was an enormous project taken on by the plant operators, mostly Ken Knight and Chuck Magnuson. By doing this project in-house the operators saved SWA over a $100,000.00 in REM funds.

254. OMND – SWA Operations Specialist on-site and changed out battery backup on Micro-Comm's main control panel.

255. OMND - Operators conducted a CIP on RO 1 bank 2 high and low pH clean.

256. OMND - The coolant filter on air compressor # 2 was changed.

257. OMND - The mechanical seal on UF # 7 backwash feed pump was replaced.

258. OMND - Bromide and bromate samples shipped to contract Lab.

259. DWTP - Manager called Sarah Waldron (NDDoH) for the renewal form for the non-discharge permit for the Dickinson water treatment plant.

260. OMND - Willy Orpilla (Xylem or Wedeco) on-site working on punch list items listed below.

- Re-program generator outlet destruct bypass solenoids to open during alarm scenarios to allow the destruct to remove ozone gas from piping.

- Ambient ozone begins to show during alarm or E-stop scenarios within generator room. Evaluate ambient ozone conditions during these scenarios.

- Evaluate the Gen #2 flow control valve programming during startup and shutdown scenarios to verify programming is same between all three generators. Gen #2 flow control valve is the only valve that keeps failing.

- New generator flow control valves are shipping for replacement and spare. To be installed on Gen #2.

- Check valves and fittings to be installed on each generator feed gas tubing between pressure regulator and vessels. (2) Valves and (4) fittings per generator. Please show one line piping diagram for this connection. Are two check valves to be connected in series?

- Re-calibrate / re-build ambient monitors. Re-build kits sent. To replace the ¼ tubing, compression fittings are needed also. We cannot reuse the existing ones.

261. OMND - Changed separator filter on air compressor # 2.

262. OMND - Manager submitted September's DMR via E-reporting to the NDDoH.

263. OMND - Oil changed on the GMC pickup.

264. DWTP - Irrigation system was winterized.

265. DWTP - Snow removal equipment prepared for season.

266. NWTP - Progresses meeting and department head meeting.

267. DWTP - Manager emailed CHDiagonstics Lab to check if the Giardia and Cryptosporidium sampling equipment and sampling containers have been shipped yet.

268. Manager competed the LT1 reports and submitted to the NDDoH.

269. DWTP - Ken Knight finished installing electric heaters in office and control room, this work order is closed.

270. OMND - The bromate and bromide test results for October are as follows Bromide = .038 mg/l and Bromate = ND (not detected).

271. Manager attended the North Dakota Pollution Control Conference in Minot.

272. OMND - Divers in the raw water tanks at OMND for cleaning.

273. OMND - Manager emailed the bromate and bromide test results to Lydia Fewless (NDDoH).

274. Manager called Al Hecker for an update on the cleaning of the raw water reservoirs. The divers will be in the OMND raw water tanks for 2 days and then will be moving to the Richardton reservoir, and then to the Dickinson reservoir.

275. OMND - Divers finished cleaning the raw water reservoirs.

276. RCPS - Divers cleaning the raw water reservoir, treatment operations has approximately 3.5 million gallons of raw water to treat for the day, due to the cleaning of this reservoir.

277. DWTP - Backup high service pumps 6 & 2 were test run to check for proper operations. Backup low service pump to the RCPS were test run to check for proper operations.

278. OMND - PKG on site to caulk sidewalk joints and around the office vestibule.

279. RCPS - Divers in reservoir cleaning tank.

280. Dickinson's raw water, divers in reservoir cleaning tank starting at 12:00 a.m. The water treatment plant needs to have all reservoirs filled and the plant offline by 8:30 p.m. so the Dickinson raw water reservoir can be filled before 12:00 a.m.

281. DWTP - The backwash reservoir was cleaned.

282. Divers out of tank at 8:00 a.m. to put plant online. Dickinson's raw water, divers in reservoir cleaning tank starting at 12:00 a.m. The water treatment plant needs to have all reservoirs filled and the plant offline by 8:30 p.m. so the Dickinson raw water reservoir can be filled before 12:00 a.m.

283. OMND - Manager submitted the 3rd quarter DMR general chemistry results for the RO concentrate discharge water to the NDDoH via E-Reporting.

284. OMND - Manager emailed Lydia Fewless (NDDoH) the October bromate and bromide test results.

285. OMMD - GMC taken to dealership for a safety recall.

286. OMND - Manager ordered the CIP (clean in place) chemical for cleaning the RO membranes.

287. OMND - Interstate Power Systems on-site for preventive maintenance on the stand-by generator.

November and December:

288. OMND - Operators pinned a UF module on skid # 7 using a total of 4 pins. The reason for pinning fibers is because of fiber breakage.

289. DWTP - Total Safety on-site to conduct yearly fire extinguisher inspections. A total of 10 fire extinguishers were out dated and needed replacing.

290. OMND - Bromate and bromide samples shipped to contract lab.

291. DWTP - JTJ hit the raw water line during excavation, the Dickinson treatment plant was shut down at 2:00 p.m. and the 6 million gallon reservoir was at 19' at shut down. Distribution staff started draining the raw water line for JTJ to make the repairs. The repairs were competed at 11:00 p.m. and the raw water line put back into service.

292. DWTP - The on-call operator was called in 2:00 a.m. due to a low level alarm on the 6 million gallon reservoir. Operator put the treatment plant online and worked till 7:00 a.m.

293. Manager emailed Lydia Fewless (NDDoH) to inquire about the October TOC test results.

294. Manager instructed the operators at OMND plant to check the ammonium sulfate feed rate, and to check the calibration on the feed pump. Trying to troubleshoot why after plant shut down the chlorine residual is not hold at 3.5 mg/l in the clearwell.

295. DWTP – Raw water line is scheduled for shutdown at 11:00 p.m. for JTJ. Operators scheduled to shut down the plant at 10:30 p.m.

296. DWTP - The distribution staff started draining the raw water line at 2:00 a.m. The line was drained and JTJ construction was able to start their work at 7:30 a.m. The raw water line was put back into service at 12:00 p.m. and the water treatment plant was put online at 2:00 p.m. The clay valve on the raw water line would not fully open assuming this is due to the line being drained. After some adjustment on the clay valve we were able to get the valve operating properly.

297. DWTP - SWA's electrician on-site troubleshooting the stand by generator transfer switch. The transfer switch won't switch over to generator power during a power outage.

298. The raw water intake pumps offline for 14 hours due to stand-by generator installation.

299. Manager submitted DWTP and OMND's LT1 reports to the NDDoH.

300. OMND - The bromate and bromide test results for November are as follows Bromide = .039 mg/l and Bromate = ND (not detected).

301. DWTP - SWA's electricians on-site troubleshooting the stand-by generator and transfer switch. The generator will not start during a power outage and after the generator is started manually the transfer switch will not engage. What was discovered is two relays seem to be bad, new relays were ordered.

302. Manager working on the discharge permit renewal for the new and old water treatment plant, will be including the new water treatment plant on to the old permit in the renewal process.

303. OMND, Wedeco on-site working on the ozone punch list, technician can't get ozone generator # 3 to start via the PLC. The ambient room sensor was calibrated, new fluid was added to the chillers, and the VSA # 2 was programed to start should VSA 1 fail.

304. DWTP - Cryptosporidium/Giardia samples were collected and shipped. This is the start of a 2 year sampling period.

305. OMND - Wedeco on-site working on the ozone punch list items, ozone generator # 3 is now working in the auto mode, the lap top computer needs to go back to Wedeco for more programing.

306. OMND - Troubleshooting the ammonium sulfate feed rate and the chlorine residual. The chlorine residual will drop off considerably in the wet well when the plant is shut down. The theory is the chlorine to ammonium ratio is off and the free chlorine is not being converted completely to total chlorine. Operators changed out the load sure and calibrated the ammonium sulfate feed pump, and this seems to have correct the problem.

307. Manager attended a progress meeting for the new water treatment plant.

308. DWTP- SWA's electrician's on-site working on the generator transfer switch. A lose wire was discovered and two relays were replaced. The generator and transfer switch are now working, treatment plant not put online until 11:00 a.m.

309. OMND - Replaced the colorimeter on the clearwell Cl 17.

310. OMND – Manager emailed November's bromate and bromide test results to Lydia Fewless (NDDoH).

311. OMND – The ozone system stopped working in the auto mode, operators discovered the breaker to the VSA # 1 tripped. VSA # 2 should come online but did not; Wedeco was contacted to correct the programing that if one VSA fails the second VSA should come online.

312. DWTP – Operators replaced the paddle motor on slaker 106 and a new motor has been ordered.

313. Manager submitted the LT1 reports to the NDDoH.

314. Manager contacted SWA Water Distribution Manager to see if distribution operators could move snow at the DPS so we can receive a chlorine delivery.

315. DWTP – Troubleshooting a chlorine regulator, will not feed over 250 lbs/day. Operators switched regulators and are now feeding up to 500 lbs/day. Manager called Hawkins, the supplier, to pick up the regulator and have it repaired. The regulator in question is less than a year old.

316. OMND – The ozone system is faulting out, the PLC indicating the ozone destruct will not come on. Due to it being late Friday afternoon manager instructed the operators to switch the chlorine feed to the front of the contact basin to achieve the required 4 Log removal.

317. DWTP – Slaker 106 the electronic water valve is not working. Operators checked valve and water line for an obstruction, none was found. The valve was replaced and is working fine. A new valve was ordered.

318. Manager worked on the DWTP's discharge permit renewal, also to include the new water treatment plant on this discharge permit.

319. OMND – TOC samples were collected and shipping to the State Lab.

320. OMND – Troubleshooting the ozone destruct skid, SWA's electrician on-site checking for electrical issues. Wedeco was called for technical support and stated they will have to ship us a remote log in device so they can access the VFD to verify what is causing the fault on the ozone destruct skid. The remote log in device will be shipped over night.

321. DWTP – The Cryptosporidium/Giardia samples were collected and shipped to the contract lab.

322. DWTP – The TOC samples were collected and shipped to State Lab.

323. DWTP – Hawkins picked up the chlorine injector for repairs.

324. OMND – Manager submitted Oct. and Nov.'s DMR's (Discharge Monitoring Reports) to the NDDoH via E-Reporting.

325. Manager emailed Lydia Fewless (NDDoH) to inform the ozone system is offline due to equipment failure. The bromate and bromide sample have not been collected for the month of December yet and not sure when the system will be back online.

326. DWTP – Manager instructed the operators to conduct a simulated power outage and run the stand-by generator under full load. This would include running the 105 treatment basin, all chemical feed pumps, and the high and low service pump. Refresher training was conducted.

327. OMND – Manager tried starting the ozone system in local including the destruct skid and the system still shut down due to destruct fault

328. OMND – Wedeco remoted into the ozone destruct VFD to troubleshoot the fault, and discovered the blower on the destruct unit is not working. Manager contacted Sherrie Wasterlain (Wedeco service Tech) to order a new blower. Sherrie stated the blower would have to come from Germany and could be 2 weeks before delivery.

329. OMND – Manager emailed Lydia Fewless (NDDoH) the time line when the ozone system will be back online, possibly 2 weeks. Lydia waved the bromate and bromide sampling for the month of December, and to let her know when the system is back online.

330. NWTP – Manager attended a progress meeting.

331. – DWTP – The actuated water valve on slaker 105 stopped working, a new one was ordered.

332. NWTP – Manager attended a progress meeting.

333. OMND – SWA's electrician on-site to install the ozone destruct blower and the ozone system is back online. The NDDoH was informed the ozone system is back online.

334. DWTP – A new actuated water solenoid was installed on slaker 105.

335. DWTP – SWA's electrician on-site to rewire transfer pump # 5 to plant stand-by generator power. This will give the operators the ability to transfer water from the north clearwell to the FWPS during a power outage at the treatment plant.

336. Manager submitted year end chemical inventory's to SWA's accountant.

337. Manager working on legal documents to get registered on the EPA's CDX site to resubmit RMP for the Dickinson Plant and the Dodge Pumping Station.

BI-MONTHLY ACTIVITY REPORTS

DISTRIBUTION FACILITIES

MEMORANDUM

To: Mary Massad, Manager/CEO, SWA

From: Andrew Erickson, Water Distribution Manager, SWA

Subject: January/February 2016 Activities Report

Date: March 1, 2016

Following is a listing of activities performed by the water distribution staff during the months of January and February 2016.

Activities in this section are repeated monthly.

1. Collected water samples and submitted to the Southwest District Health Unit or the ND State Lab for required bacteriological analysis.
2. Routine monthly tests and operational checks of cathodic protection rectifiers on welded steel tanks and at the anode beds for metallic pipelines.
3. Completed monthly paperwork required by EPA for Enhanced Surface Water Treatment Rule and Disinfectant/Disinfection Byproduct Rule.
4. Completed monthly route water usage calculations and reports for the five public water systems.
5. Completed monthly route water loss reports.
6. Collected water samples from specific historical and random points within the distribution systems for nitrification testing by the WTP personnel.
7. Routine maintenance of Type 2 and Type 3 PRVs.
8. Routine monthly reading of contract customer and system meters.
9. Disconnected service to customers for non-payment of bills. Reconnected service when accounts were paid.
10. Completed a variety of service calls for rural customers.

11. Routine monthly maintenance at the raw water pump stations, Dodge Air Chambers, Ray Christensen Pump station, Jung Lake pump station, and the Dunn Center pump station.
12. Routine monthly maintenance at prefabricated steel vaults used for booster pumps, PRVs, special meters and reservoir control.
13. Responded to requests from One-Call Locate Center to locate underground facilities.
14. Completed service hookups to contract and subsequent customers.
15. Performed routine and special purpose spot checks of customer meters as requested by Customer Service Representative.
16. Routine chlorine residual checks in rural contracts. Flushed water where residuals were depleted.
17. Monitored crossings of SWPP pipelines by contractors installing pipelines carrying foreign products such as oil and salt water.
18. Added subsequent customers and account numbers to GIS Data.
19. Set out materials needed for subsequent hookups per the hydraulic reviews.
20. Maintain inventory for subsequent customer hookups.
21. Routine maintenance and exercising of the portable generators.
22. Daily review of customer meter readings via IDT satellite AMR system. Call customers with high usage alarms and advise them of possible leaks.
23. Daily review of water depot operation and reset alarms.

Items in the following section are specific to the January and February 2016 time period.

1. Found leak downstream of Beulah PRV near Kelly Neuberger's meter pit in Contract 7-9C. Northern Improvement completed warranty repair.
2. Responded to a High Humidity and High Station Temperature Alarm at the Bucyrus BPS. Our staff found a ball valve spraying water in the Booster Station.
3. The West controller at the Dickinson Water Depot was not sending daily usage email. Test emails were sent and found in a Spam folder. Changing the email settings and the usage emails were once again sent to the O&M daily.
4. Vibration tests of motors at Intake, Dodge, and Richardton, Ray Christenson, Fryburg, Jung Lake, Bucyrus, and Burt Booster Pump Stations by Great Plains Tech revealed need for repairs to Intake PB3, Intake PB2, and Dodge P5. Great Plains also greased the motor bearings.
5. SWA staff removed Intake PB3 motor and hauled to Great Plains Tech because of noise it was making due to a loose internal shroud. Return the motor to service once Great Plains was done with it. Installed new mechanical seal on PB3.
6. SWA staff removed Dodge BPS pump 5 and hauled to Great Plains Tech for bearing replacement. Return the motor to service once Great Plains was done with it.

7. SWA staff removed Intake PB2 motor and hauled to Great Plains Tech for bearing replacement. Return the motor to service once Great Plains was done with it. Installed new mechanical seal and throttle bushing on PB2.
8. Remove Center BPS P1 motor and haul to Great Plains Tech to clean up excess oil that had overflowed onto the windings before it damaged a bearing. Great Plains Tech felt the vault supplier had overfilled the oil compartment during initial startup many years previous. Return the motor to service once Great Plains was done with it.
9. Begin working on Lead/Copper sampling plan change needs for the OMND service area, including customer home surveys to be sent out.
10. Begin working on TTHM/HAA5 sampling plan change needs for the addition of the Fairfield Service Area to the OMND area.
11. Opened sealed bids from vehicle dealerships for trade-in of two work trucks. Write letters with bid tabulations and sent out to dealerships that participated in the bidding.
12. Designate and tag Bac-t sampling site within the Fryburg Reservoir vault.
13. Found and fixed a leak on the Gerald Streitz 2" pvc service line in Contract 7-8B. The pipe had a 12" split in it.
14. SWA staff performed vibration testing on motors located within the Bucyrus BPS.
15. Replaced leaking and corroded pipe on the Air Release Valve in the Reeder Meter Vault.
16. Met with contractor on-site to prepare to relocate 6" pvc pipe segment to accommodate the DOT Permanent Bypass Project near 34th Street SW and 116th Ave SW.
17. South Heart complaining that SWA equipment was causing their city tank to overflow. Found an 8-12 tablespoons per minute leak in South Hearts piping that was causing the SWA control valve to start and stop repeatedly when South Hearts tank was already full. This constant starting and stopping was creating pressure surges on the Inlet line of the South Heart Meter Vault. South Heart circumvented their check valve to replenish the water lost by their leak allowing the SWA equipment to work properly. Pressure recorders were used to gather information about South Hearts system. Their system is now working well filling their elevated tank 3 times in 5 days.
18. Replaced a bad diaphragm in the Cla-val and cleaned the port to the orifice plate in the South Heart Meter vault.
19. Replaced 3/8" check valves and 3/8" control pipe on the pilot system of the Hwy 21 PRV #4. Replace the 3/8" check valve on the pilot system of the 6" Cla-val in the Hwy 21 PRV #2. Replaced the 3/8" check valve on the pilot system of the 3" Cla-val in the Hwy 21 PRV #1.
20. Found foam pig remnants from construction contractor and plastic shield from painting contractor in the strainer basket at the Killdeer Meter Vault.
21. Found a Contract 2-8B 2" cleanout South East of Beulah near Kelly Neuberger's Pasture Tap that continuously drips water. The 14" MTL will have to be taken down this spring in order to replace the valve.

22. Replace defective photo eye on Dickinson Water Depot so lights would turn on and off correctly.
23. Issue ten crossing permits for Bridger Pipeline to cross SWA water lines. Bridger will case the oil lines.
24. Participate in Hwy 200 Pre-Construction Meeting at Baranko Bros. Conference Room. Projecting nine locations where SWPP lines will need relocation.
25. Intake PB3 Phase Rotation Failure knocked down all motors that were running at that time. Staff Electrician megged all three phases on the starter, the B phase showed a fault. Adjusting the vacuum bottle on the B phase alleviated the problem.
26. Adjust potable water tank levels to relieve strain on WTP during time frame where only P1 and P4 were operational at the Intake.
27. Reset and manually fill lines downstream of the South Fryburg VFD after planned power outage.
28. Collect oil samples from the air compressors, pump motors, and generators from all pump stations and air chambers. Send to Butler Cat for analysis. Change oil on compartments as recommended by Butler Cat.
29. Take fire extinguishers to Total Safety for annual maintenance and inspection.
30. Found metered one GPM leak in crawl space under old house at Lavelle Nelsons in Contract 7-7A.
31. Transfer Switch for the Jung Lake 480 V Generator failed to transfer back to utility power after monthly generator testing and exercising. The ATC 600 keypad shorted out and went blank. A new keypad was ordered and installed.
32. Adjust settings on FWPS flow meter per Rosemont to read in GPM and to give a gross total in thousand gallons.
33. Have security keys made by Rudy's Lock and Key for the new OMND facilities.
34. Replace milk house heater at Golden Valley Meter vault.
35. Jung Lake BPS P2 I/O card was sending a bad motor speed reference signal. Re-wired P2 speed reference so it would register in the Micro-Comm panel, changed polarity from card to monitor and that fixed the signal.
36. HVAC Unit at FWPS was trying to run the A/C unit and ice had formed on the copper lines. We were getting a Freeze Station Alarm. Called Energy Tech about programming. We changed DX Cool Start setting from 0 to 50 degrees which locks out the A/C Unit until the outside air temperature is 50 degrees.
37. Turned wall heaters at FWPS down from 70 to 55 degrees. Main unit heat was never shutting off. Met Energy Tech technician on-site. Unit heat was locked on by a dew point issue in the programming. Technician made several changes.
38. Set up an IDT account for South Heart's Auditor to check meter readings.

39. Discuss Assistant Water Distribution Manager position with the lone applicant. They accepted the position when offered to them.
40. Discuss Chief Water Distribution Operator position with the lone applicant. They accepted the position when offered to them.
41. Review plans for Verizon cell tower near the Dickinson Reservoir for potential conflicts.
42. Stelter Repair fixed a leak in the New Leipzig Meter Vault.
43. Test the 10" gate valve outside the Hwy 21 & 22 PRV #1, in preparation of repairing a very small leak on the inlet piping. The valve does not hold drip tight, but it will hold enough to allow repairs if the 12" gate valve to the Jung Lake Tank is shut and the Jung Lake BPS pumps are not running.
44. Added fuel to the Jung Lake 480V generator tank until it was half full. Added appropriate amount of Justice Brother's fuel additive.
45. Finish installing Fire Alarm System in O & M building.
46. Found metered leak for Randy Brown in 7-7A.
47. Investigate water quality complaint at J.D. Bubel's in Contract 7-9F. WTP analysis revealed no issues with the water. Bubel's will continue to monitor.
48. Look for a leak in Contract 2-8F between the Dunn Center BPS and the Killdeer BPS indicated by water audit numbers.
49. Make room in the RCPS clear well to allow for vibration testing of the FWPS motors.
50. Informed Cities of Stanton and New Hradec of possible leaks within their system.
51. Assist with start up of new Belfield City tank. Badger meter was not working because it was wired incorrectly between the mag unit and the remote readout. The Cla-val would not close because there were 3 or 4 little rocks in it. Corrected the problems and set flow rate to 150 GPM.
52. Removed Intake PA3 motor with the assistance of Black Hills Trucking's crane and sent to Great Plains Tech for cleaning and inspection. They found motor in need of rewinding. Replaced mechanical seal and throttle bushing in preparation for return of PA3. Return PA3 to service once Great Plains was finished with repairs.
53. Removed Intake PA2 motor with the assistance of Black Hills Trucking's crane and sent to Great Plains Tech for cleaning and inspection.
54. Justin Kohanes attended re-certification and training for Pesticide spraying license.
55. Found Taylor PRV #1 Inlet and Outlet pressures were equal. Cleaned up the bypass and main Cla-vals and pressures returned to design parameters.
56. Replaced frost plate on David Swenson raw water pasture tap meter as it was cracked and leaking.
57. Begin exercising 7-1B, 7-2,7-3,7-3A, 7-3C, 7-4, 7-6A, 7-6B, 7-7B, 7-8A, 7-8B, 7-8D, 7-9B, 7-9F, 7-9G, 2-5A, 2-6A, 2-6B, 2-8C, 2-8D, and 2-8F contract valves, air vacs, and cleanouts.

Exercised valves, air vacs, and cleanouts along Palm Beach Road, and in Slope Estates and Greenvale subdivisions.

58. Scraped paint chips, primed, and touch-up the interior paint at Hwy 21 PRV's #1, #2, and #4, New Leipzig City, Bucyrus BPS, Burt BPS, Hettinger West PRV, Bucyrus PRV, Burt Reservoir, Perkins County Rural Water and Mott, Regent, and Hettinger City vaults.
59. Mike Fried and Tanner Meidinger completed on-line ICS 100 classes and exams. Mike also completed ICS 700 class and exam.
60. Perform telemetry maintenance at Intake, Dodge, Richardton, Center, Burt, Jung Lake, Bucyrus, Scranton, Dunn Center, Killdeer, and New Hradec BPS. Telemetry maintenance at Rhame, Coffin Buttes, West Killdeer, Tower Hill, Junction Inn, Fairfield, North Fairfield, Crown Butte, and Missouri West VFD's. Telemetry maintenance at Dickinson, Center, Jung Lake, New England, Dunn Center, Fryburg, Halliday, Zap, Fairfield, Killdeer, Hebron, Burt, Bucyrus, Davis Buttes, and New Hradec Reservoirs. Telemetry maintenance at Perkins County Meter Vault, Gladstone PRV, Hebron PRV, Beulah PRV, Regent PRV, Bucyrus PRV, and Hazen PRV's.
61. Discovered that the 1" poly line was pinched off between the curb stop and Jesse Maier's basement meter setter in Contract 7-9F. Eatherly Construction excavated the line and found a kink five feet downstream of the curb stop.
62. Export a shape file for the Crown Butte Service area for planning of a wind tower project.
63. Dodge BPS control valve for Pump 2 was making unusual sounds during pump run times. Staff found an internal sleeve had shifted out of place. Once the sleeve was put back in place the sound went away.
64. Create FWPS master key log and assign keys to staff personnel.
65. Writer attended Utility Conference for City of Dickinson water projects, Highway 200 improvements between Hwy 85 and Hwy 22, and South Heart Road Phase 3.
66. Fabricate curb stop wrench allowing valve operation after the extension rod has rusted off in areas with highly corrosive soils.
67. Install conduit to relocate WAPA meter at Richardton BPS.
68. Sent account number changes to IDT to accommodate switching water source and route numbers from Dickinson WTP to OMND WTP.
69. Change oil on air compressor at Intake BPS and on pump 3 at the Richardton BPS per Butler Cat oil sample results.
70. Staff investigated customer Derrick Kessler complaint of low flow from meter pit service in Contract 7-9D. Meter pit flows were found to be typical. The 1" poly line between the meter pit and Kessler's home contained rocks and mud.
71. Staff found a small metered leak at Randy Schmidt's in 7-9F.
72. Collect oil samples on pump motors at the Fryburg, Jung Lake, Burt, and Ray Christenson BPS. Collect oil and coolant samples on RCPS Generator. Deliver to Butler Cat for analysis.

73. Replaced the sump pump at the Burt VFD and at the Dodge BPS. Also cleaned the sump and sump check valve.
74. Look for a leak between the Dunn Center BPS and the Killdeer BPS.
75. Adjust Rectifier output on 2-2E and 2-2F upward to increase the potential on the line.
76. Replaced the telemetry batteries at Air Chamber # 1, Fairfield Reservoir, Scranton BPS, and North Crown Butte VFD.
77. Perform test of system to see if LOS at RCPS would shut down the pumps at the FWPS. The radio was shut off the pumps continued to run. Micro-Comm was notified of test results.
78. Notified Micro-Comm that the Zen Wall at the Dickinson WTP quit working. Set up SCADADIAL from the Zap WTP to call out distribution alarms to our On-Call operator. To repair the problem Micro-Comm replaced the Zen Wall with a MOXA switch at both the OMND WTP and Dickinson WTP.
79. Flushed water at the Taylor PRV # 2 and at the Fairfield VFD until the chlorine residual reached 2.0 ppm on a monthly basis.
80. Create a flushing point in the Fairfield VFD that will allow a flushing rate greater than what can be provided through a garden hose connection.
81. Assist WTP with influent Cla-val and Power Butterfly valve. Prove that Cla-val is working properly. The electric valve controls seem to be problematic. The electric valve was closed manually allowing everything else to work as designed.
82. Assist WTP with influent Cla-val stuck ¼ open and would not shut. The cover was bled off to check the diaphragm. At about 2/3 open an object was heard to drop in the valve allowing the valve to operate normally. A pipeline jetting tool was found in the valve.
83. Contact Cummins NPower with concerns that the two 60KW generators and the 100KW portable generators that we purchased from them around 2011, do not warm up under a work load. Cummins recommended installing a check valve on the air bleed hose connecting the top of the engine head to the top of the radiator. We tried this and the engine warmed up to operating temperatures. Schmidt Repair will make corrections.
84. Jerry Whittington, Sam Fritz, and Tanner Meidinger attended an operator training session put on by the (North Dakota Rural Water Association) NDRWA, in Medora, ND. David Hottman and Gary Nordstrom attended the operator training session put on by the NDRWA, in Bismarck, ND.
85. Inspect the Belfield and Fairfield Reservoirs for wind damage.
86. Replace thermocouplers in the overhead heaters at the Jung Lake BPS.
87. Telemetry flows indicated a possible leak past the Bucyrus PRV. Further investigation found flows higher than normal at the Hettinger East PRV. This led to the discovery of a leak on subsequent user Jack Richardson's line in Contract 7-4.

88. Telemetry indicated a low inlet pressure alarm at the Dunn Center BPS caused by a leak at a 16" x 14" hymax connection. Carstenson Construction Inc., repaired the leak under warranty once a new hymax was obtained.
89. Replace the mechanical seal and throttle bushing on Pump 2 at Bucyrus BPS and on Pump 1 at Richardton BPS.
90. Update nine 2015 crossing permits submitted by Tesoro High Plains Pipeline Co. to indicate that they will be casing their crude oil pipeline. Also notify Tesoro that there are three crossing locations that they do not have permits for.
91. Replace the remote readout meter at the Beach Meter Vault.
92. Staff met with Medora Fire Chief about utilizing designated cleanouts for filling water for fire trucks. Phone conversations with Dennis Joyce on this topic.
93. Staff switched City of New Leipzig from pressure to demand service for tank repairs.
94. Replace the Surge Relief Valve at Richardton BPS. Dukes Welding modified the existing piping to accommodate the lay length of the new Surge Relief Valve that is 3 ¾" longer than the original valve which is no longer available.
95. Shut water off at Luke Trotter's in Contract 7-8G so that a metered leak could be repaired.
96. Replace the dehumidifier at the Burt BPS.
97. Adjust the telemetry door alarm to prevent false entry alarms produced from high winds at the Jung Lake Reservoir.
98. Replace the sump pump sacrificial 1" anode at the Lefor PRV in Contract 7-2.
99. Mount fire extinguishers on the wall of the Dunn Center BPS.
100. Send South Heart Road Phase 3 reimbursable pipe relocation cost estimates to Project Engineer and Dunn County.
101. Request bids for a new truck for the OMND area from the dealerships served by the SWPP.
102. Escort State Electrical Inspector to the "C-Line" Vault so he could inspect the electrical service that was altered during the 21st Street Improvements. "C-Line" Vault passed inspection.
103. Change out old card rack at the Halliday BPS with a new RTU panel and change out radio to report to OMND.
104. Wrote an article for the 2015 Annual Operating Report for distribution activities.

MEMORANDUM

To: Mary Massad, Manager/CEO, SWA

From: Andrew Erickson, Water Distribution Manager, SWA

Subject: March/April 2016 Activities Report

Date: May 3, 2016

Following is a listing of activities performed by the water distribution staff during the months of March and April, 2016.

Activities in this section are repeated monthly.

1. Collected water samples and submitted to the Southwestern District Health Unit or the ND State Lab for required bacteriological analysis.
2. Routine monthly tests and operational checks of cathodic protection rectifiers on welded steel tanks and at the anode beds for metallic pipelines.
3. Completed monthly paperwork required by EPA for Enhanced Surface Water Treatment Rule and Disinfectant/Disinfection Byproduct Rule.
4. Completed monthly route water usage calculations and reports for the five public water systems.
5. Completed monthly route water loss reports.
6. Collected water samples from specific historical and random points within the distribution systems for nitrification testing by the WTP personnel.
7. Routine maintenance of Type 2 and Type 3 PRVs.
8. Routine monthly reading of contract customer and system meters.
9. Disconnected service to customers for non-payment of bills. Reconnected service when accounts were paid.
10. Completed a variety of service calls for rural customers.

11. Routine monthly maintenance at the raw water pump stations, Dodge Air Chambers, Ray Christensen Pump station, Jung Lake pump station, and the Dunn Center pump station.
12. Routine monthly maintenance at prefabricated steel vaults used for booster pumps, PRVs, special meters and reservoir control.
13. Responded to requests from One-Call Locate Center to locate underground facilities.
14. Completed service hookups to contract and subsequent customers.
15. Performed routine and special purpose spot checks of customer meters as requested by Customer Service Representative.
16. Routine chlorine residual checks in rural contracts. Flushed water where residuals were depleted.
17. Monitored crossings of SWPP pipelines by contractors installing pipelines carrying foreign products such as oil and salt water.
18. Added subsequent customers and account numbers to GIS Data.
19. Set out materials needed for subsequent hookups per the hydraulic reviews.
20. Maintain inventory for subsequent customer hookups.
21. Routine maintenance and exercising of the portable generators.
22. Daily review of customer meter readings via IDT satellite AMR system. Call customers with high usage alarms and advise them of possible leaks.
23. Daily review of water depot operation and reset alarms.

Items in the following section are specific to the March and April 2016 time period.

1. Looked for leak in Contract 2-8F. Found the bypass valve at the Dunn Center BPS was sending water back toward the OMND WTP. The surge relief valve at the OMND WTP was slightly open. The surge relief valve was cleaned and adjusted to close. The bypass valve setting at the Dunn Center BPS was turned down a couple pounds.
2. Investigated Entry Alarm at the Finished Water Pumping Station (FWPS). Found wiring in the key switch by the SE walk through door was disconnected.
3. Replaced leaking mechanical seal and throttle bushing on Pump 2 at the Burt BPS.
4. Mary Massad, Sandy Burwick, and the writer, attended Sensus AMR system presentation at the Public Works Building in Dickinson.
5. Justin Kohanes, Jim Murphy, Al Hecker, Toby Turner, Leo Miller, Dan Roller, and Sam Fritz attended North Dakota State Health Department classes in Bismarck. Sam Fritz and Gary Nordstrom wrote operator certification exams for Grade 01 and Grade 03 respectively.
6. Looked for leak between the Medora West PRV and the Beach BPS in Contract 2-5B.
7. Took fire extinguishers to Total Safety for annual service and safety checks.
8. Contacted Theodore Roosevelt Medora Foundation to tell them they had used 6,000 gallons in the last 3 days. They called back saying they found a toilet running.

9. Contacted Dakota West Farms in Contract 7-2 to tell them that they used 7,400 gallons in a day. They found a frozen hydrant that started leaking.
10. Contacted Shawn Pierce in Contract 7-7A to tell him he used 10,000 gallons in a day. He was filling tanks for spraying.
11. Continued exercising valves, air vacs, blow offs, and cleanouts in Contracts 7-1B, 7-2, 7-3B, 7-4, 7-6A, 7-6B, 7-7A, 7-8C, 7-9D, 2-3A, 2-3B, 2-3E, 2-3F, 2-4A, 2-4B, 2-4C, 2-5A, 2-6A, 2-6B, 2-8B, 2-8C, and 2-8D.
12. Responded to no water complaint by Bill Sauter in Contract 7-9C. Found warranty leak repaired by Northern Improvement Company. A bell and spigot joint was not all the way home.
13. Replace check valve on pilot system of main Cla-val at the Lefor PRV because the inlet and outlet pressures were equal.
14. Replaced the Center Elevated Tank vent by wrapping the vent in blankets and pulling it up the outside of the tank. Landmark Structures falsely claimed that their replacement vent would fit through the center of the tank. Repaired damaged photo eye and coax cable.
15. Found pilot tube on the west heater at the Jung Lake BPs was leaking propane. Ordered replacement parts.
16. Installed new telemetry battery at Davis Buttes Reservoir and at Halliday BPS.
17. Updated Bac-T sampling schedule to include the new RTCR site numbers.
18. Hauled Intake PA2 back from Great Plains Technical Services and put back into service with help of Black Hills Trucking's Crane. Replaced the throttle bushing.
19. Removed Intake PA1 with the help of Black Hills Trucking's Crane and hauled to Great Plains Tech for cleaning and testing. Replaced the leaking mechanical seal and put back into service once Great Plains was done with it.
20. Writer attended Hwy 49 preconstruction meeting at Bartlett & West offices in Bismarck.
21. Shuttled new and trade-in trucks to Kevin Brown Repair in Beach for pickup box/utility box transfers.
22. Replaced everything but the body on the Sensus meter at the Burt VFD because it was no longer clocking gallons.
23. No water complaint from Ron Ehlis in 7-8D. Found South Fryburg VFD was down due to a unplanned power outage. Once power was restored, the water lines were manually filled and returned to normal operation.
24. Shipped used mechanical seals to John Crane for rebuilding.
25. Repaired Dave Helland's fence and mowed weeds resulting from Contract 2-8E construction. Mr. Helland refused future easements until repairs were made to his satisfaction.

26. David Hottman, James Farrell, Ryan Hagen, Tanner Meidinger, Toby Turner, Chuck Magnuson, and Todd Schafer, attended CPR Certification classes taught by Chris Price at SWA O&M Center Office.
27. Repaired tire tracks by hand-raking near Fairfield VFD brought to our attention by Paul Kessel.
28. Seeded grass for Contract 7-5A customer Jerry Kuntz settlement complaint area after Lenny's Repair had filled the trench.
29. Checked Contract 2-2 E and F rectifier. Found loose connection that was causing inconsistent readings.
30. Completed new Lead/Copper Site Plan documents, and sent to North Dakota Department of Health (NDDoH) for approval.
31. Responded to no water complaint from Ken Musick in Contract 7-8G. Upon excavation, pieces of a foam pig were found lodged in the Meter Pit flex coil hose. This is the third pig found in this area.
32. Cleaned, inspected, and repaired surge tanks at Intake, Air Chamber #1, Air Chamber #2, Air Chamber #3, Richardton, and Ray Christensen Pump Station. Found tanks in good shape with minimal sediment and repairs.
33. Repaired 2" road bore leak on Brian Roth's service line in Contract 7-6A.
34. Shut water off for subsequent user Baranko Brothers in Contract 7-1B so they could fix a metered leak.
35. Found a 2 GPM metered leak at subsequent American Colloid in Contract 7-4.
36. Flushed 7,100 gallons at the Fairfield VFD to raise the chlorine residual from 0.9 PPM to 2.0 PPM.
37. Shut water off for subsequent Martin Anchondo so he could repair a metered leak at a yard hydrant in Contract 7-1A.
38. Replaced bearings in recirculation pump at the Jung Lake Reservoir.
39. Replaced reversing relay on overhead hoist at Richardton BPS.
40. Pulled Intake PB3 motor and hauled to Great Plains Tech because of a noise that returned to the motor. They found a piece of varnish inside the motor that was creating the noise. Installed motor back at the Intake.
41. Opened sealed bids for trade-in truck for OMND area. Wrote an award letter and bid tabulation sheet to dealers that participated in the bid.
42. Replaced leaking flange, gaskets, and nipple in Type II PRV #18-1 in Contract 7-6A.
43. Responded to Intake PB2 Winding Temperature alarm. Staff increased winding temperature trip point 10 degrees per Great Plains Technical Services. All tests point to winding temperature of the motor to be 10 degrees cooler than indicated by temperature sensing equipment.
44. Changed motor oil on Intake PB4 per Butler Cat oil sample results.

45. Scraped paint chips, primed, and touched-up the interior paint at Hwy 21 PRV # 3, Hebron PRV, Elgin PRV, Elgin Meter, New Leipzig Meter and Bucyrus BPS Vaults.
46. Met WAPA technician at the Dunn Center BPS to change meter from McKenzie Electric to a WAPA meter. Pulled wires to accommodate meter change and check operation of meter after station was energized.
47. Scored applications for Maintenance Worker II position, interviewed 3 potential employees, offered the job to the best candidate, and he accepted the position.
48. Replaced leaking spool piece and dresser coupling at the Regent PRV with new spool pieces and an Alpha restrained coupling.
49. Shuttled trucks back and forth to Sax Motors for recall repairs.
50. Investigated low pressure complaint from Ron Freidt in Contract 7-6A and found both pumps at the Burt VFD had stopped working likely due to power outage.
51. Responded to Intake Air Chamber Inhibit. Found breaker to air compressor had tripped. Once reset, the air compressor pumped down the water and the alarm cleared.
52. Investigated report that Burt VFD run light and hour meter not working. Run light and hour meter will work if the VFD relay is bypassed. All 3 relays have burnt up over time on run light, therefore the run light may have an intermittent short. Staff Electricians will look into options to correct this problem.
53. Moved the entry switch at the Bucyrus Reservoir to the back side of the hatch and lowered the latch for the door a ¼" so the entry alarm quits tripping during high wind periods.
54. Replaced the circuit board in VFD #1 at Jung Lake BPS. Checked recommended components from Automatic Transfer Switch to ensure that the circuit board does not short out again.
55. Began updating the Emergency Response Manual for distribution.
56. Discovered electrical billing issues with the Killdeer Meter Vault. We are currently sharing a meter with the Killdeer city tank.
57. Installed pressure recorders within the city of South Heart as their Mayor, Floyd Hurt, still does not believe that the South Heart Meter Vault valve is opening when needed. Pressure recorders indicated that the valve is working properly.
58. Installed a temporary meter for Stark County for a road construction project near Gladstone along Hwy 10.
59. Installed a voltage monitor at the FWPS to check the amount of time the heat is on. Over 3 days, the heat was on for 5 to 6 hours at a time, once or twice a day.
60. Investigated a 50' X 200' X 15' pile of top soil that was placed directly on top of Contract 2-8B Main Transmission line by crews improving Hwy 49. No locate request was made of SWA.
61. Replaced a leaking Cla-val 3" diaphragm in the Mott City Meter Vault.
62. Troubleshoot Rectifier on Contract 2-1. Rectifier is working properly but there is a break in the line going to the anode field. This will have to be found and spliced.

63. Sent letter to Wayne Kern of the ND Department of Health requesting their position on casing, Viscotaq wrap, or a heavy wall pipe, as means of protecting rural water pipelines from contamination by petroleum product pipeline crossings.
64. Changed out telemetry radio at Air Chamber # 3 to see if this will correct the intermittent LOS signals of Richardton Reservoir to Dodge BPS.
65. Completed water age map model for Fairfield area.
66. Filled city and system tanks prior to Intake shutdown to change out contactors on Intake PA3 and PB3. Roughrider Electric made some changes to their substation at the same time.
67. Inspected Tesoro High Plains Pipeline installing casing on their 4" metallic line in areas that they crossed the SWPP. Tesoro cased their line using steel casing, centering devices, and injected hot wax between the casing and carrier pipes.
68. Found a metered leak at subsequent Sharon Raffteseth's in Contract 7-6B. The 5 GPM flow restrictor had a crack in it. Her bill will be credited for the loss as the SWA equipment failed.
69. Found metered leak at subsequent Bureau of Land Management trailer #2. Bathroom toilet was filling constantly.
70. Discovered that there are no screens on the vent pipe and overflow pipe at the Dunn Center BPS. Reported this to Larry Kirschmann of Bartlett & West Engineers.
71. Responded to low pressure complaint from Jim Hellman. Found Contract 7-9E boring contractor filling their tank at a cleanout too quickly.
72. Resolved complaints submitted by Shane Wolf and Allen Suelze in Contract 7-9D, Bruce Bitterman from Contract 3-1E, Arthur Wolf, Gordon Pavlicek, and John Sickler in Contract 7-1B, Mercer County and Kevin Wiedrich in 7-9A, and Kelly Wilhelm and Marvin Ballensky in Contract 7-9C.
73. Troubleshoot high reflective watt reading on the south telemetry antenna at the Dunn Center BPS. Found a loose connection on the antenna.
74. Installed new Tricon-E transmitter on the recirculation meter of the Jung Lake Reservoir because the original transmitter was failing.
75. Filled the Fairfield Reservoir utilizing the Fairfield VFD in lieu of flushing at the Fairfield VFD. The North Dakota Department of Health gave us their blessing to do this on a monthly basis.
76. Cleaned check valves at Fairfield VFD.
77. Responded to low pressure complaint from Duane Maus in Contract 7-8B. Found a power failure at the Golva VFD. Once the power was restored, the lines were filled manually and returned to telemetry control. This happened twice in two consecutive days.
78. Serviced push and zero turn mowers, John Deere tractors, and Truax grass drills, in preparation for the upcoming season. Monthly exercising of the portable generators.
79. Repaired perimeter fencing at the Bucyrus BPS, Bowman Reservoir and Hettinger Meter Vault.
80. Inspected Bowman Reservoir for wind damage.

81. Replaced the circuit board for the Cathodic Protection west rectifier at the Belfield Reservoir.
82. Replaced leaking 3" diaphragm and cover on the Cla-val at the Hwy 21 PRV # 2.
83. Removed winterizing on the generator air intake at the Ray Christenson Pump Station.
84. Ran pipe and pulled wire from the stand-by generator at the DC BPS to the Micro-Comm panel for future run/fail status of the genset. Waiting for Cummins to program status relays to complete the install.
85. Tested meter accuracy at the RCPS. Found that the meters on the south and east zones are slowing down and the west zone increased in accuracy compared to 2010 results.
86. Shut valves, assisted subcontractors, and flushed lines to accommodate Dickinson Permanent Bypass and South Heart Road Phase 3 road improvement projects in Contract 7-1B and 7-8B respectively.
87. Repaired leak on the inlet pipe of Pump 1 at the Mott Pneumatic VFD.
88. Removed Bucyrus BPS Pump 3 and haul to Great Plains Tech to replace upper bearing per vibration testing results and failed balancing attempt.
89. Removed Intake PB1 and haul to Great Plains Tech for cleaning and testing. Placed back into service once Great Plains was done with it.
90. Replaced diaphragm and seat and clean Cla-val at the Regent City Meter Vault.
91. James Farrell completed the ICS 100 class and exam. Tanner Meidinger completed the ICS 700 class and exam.
92. Replaced thermostat for wall heater at the Center Reservoir.
93. Megged wires at the Center and Scranton BPS looking for explanation of higher electrical costs to pump about the same amount of water. WAPA to investigate the accuracy of their meters.
94. Troubleshoot overhead door at Dodge BPS. Found a bad transformer that will need replacing.
95. Todd Schafer completed the North Dakota Safety Council's Defensive Driving Online Course.

MEMORANDUM

To: Mary Massad, Manager/CEO, SWA

From: Andrew Erickson, Water Distribution Manager, SWA

Subject: May/June 2016 Activities Report

Date: July 7, 2016

Following is a listing of activities performed by the water distribution staff during the months of May and June, 2016.

Activities in this section are repeated monthly.

1. Collected water samples and submitted to the Southwestern District Health Unit or the ND State Lab for required bacteriological analysis.
2. Routine monthly tests and operational checks of cathodic protection rectifiers on welded steel tanks and at the anode beds for metallic pipelines.
3. Completed monthly paperwork required by EPA for Enhanced Surface Water Treatment Rule and Disinfectant/Disinfection Byproduct Rule.
4. Completed monthly route water usage calculations and reports for the five public water systems.
5. Completed monthly route water loss reports.
6. Collected water samples from specific historical and random points within the distribution systems for nitrification testing by the WTP personnel.
7. Routine maintenance of Type 2 and Type 3 PRVs.
8. Routine monthly reading of contract customer and system meters.
9. Disconnected service to customers for non-payment of bills. Reconnected service when accounts were paid.
10. Completed a variety of service calls for rural customers.

11. Routine monthly maintenance at the raw water pump stations, Dodge Air Chambers, Ray Christensen Pump station, Jung Lake pump station, and the Dunn Center pump station.
12. Routine monthly maintenance at prefabricated steel vaults used for booster pumps, PRVs, special meters and reservoir control.
13. Responded to requests from One-Call Locate Center to locate underground facilities.
14. Completed service hookups to contract and subsequent customers.
15. Performed routine and special purpose spot checks of customer meters as requested by Customer Service Representative.
16. Routine chlorine residual checks in rural contracts. Flushed water where residuals were depleted.
17. Monitored crossings of SWPP pipelines by contractors installing pipelines carrying foreign products such as oil and salt water.
18. Added subsequent customers and account numbers to GIS Data.
19. Set out materials needed for subsequent hookups per the hydraulic reviews.
20. Maintain inventory for subsequent customer hookups.
21. Routine maintenance and exercising of the portable generators.
22. Daily review of customer meter readings via IDT satellite AMR system. Call customers with high usage alarms and advise them of possible leaks.
23. Daily review of water depot operation and reset alarms.

Items in the following section are specific to the March and April 2016 time period.

1. Test pressure backup controls when isolating the Fairfield Tank using the North Fairfield VFD. Initial tests found that pumps would not shut off with 0 flow. Miccrocom reprogrammed and everything works as intended.
2. Test pressure backup controls when isolating the Killdeer Tank using the Killdeer BPS. Killdeer BPS would stop when meeting target pressure than restart again. Microcom reprogrammed and everything works as intended.
3. South Heart Mayor Floyd Hurt called thinking that we are not filling South Heart's tank fast enough or fully. SWA staff checked controls everything is working as designed. South Hearts tank overflows at 56 psi as it always has. Hurt called Dakota Pump and Control to work on South Hearts valve in the manhole. DPC found nothing wrong with the equipment except for a few small rust chunks in the bottom of the valve.
4. Investigate loss of power at Center elevated tank. Found Ernst Trenching crew installing fiber optic had turned the breaker off without SWA permission at the electrical panel and never turned it back on once they had installed.

5. Pressurize lines at the Golva VFD after loss of power due to several electrical storms and a farmer tearing down the overhead electric line. Possible lightning strikes damaged key pad on VFD's. Ordered replacement key pad and lightning arrestor equipment.
6. Issue crossing permits for the City of Dickinson 12" PVC Potable water line, Brady Wind Farm, Oliver Wind III Project, Brider Pipeline Company, Dakota Access LLC, and Oneok natural gas pipeline to cross the SWPP. Inspect the Brideger Pipeline Company, Dakota Access LLC, and the Bakken Oil Express Midstream LLC metallic crude oil pipeline and Oneok natural gas pipeline crossings as they were completed.
7. Submit pipe relocation reimbursement bills to Dunn County for the South Heart Road Phase 3 road improvements and to North Dakota Department of Transportation for Highway 200 improvements from Highway 85 to Highway 22.
8. Writer attended pre-construction meetings for Slope County, Havelock Road, and SWPP Generator upgrades.
9. Repaired perimeter fence at the Medora VFD.
10. Repair Contract 2-5B 2" Manual Air Release and 6" x 6" post near Allen Richard's driveway.
11. Remove, clean, and reinstall check valves at the Fairfield VFD.
12. Flush low chlorine residual water at the Taylor PRV #2. Pump 90,000 gallons of water into the Fairfield Reservoir utilizing the Fairfield VFD in leu of using the North Fairfield VFD to maintain chlorine residual.
13. Replaced a check valve in the pilot system of the control valve in the Rhame Meter Vault as it was allowing the City of Rhame's tank to overflow.
14. Shut water off at Richard Bowman's pasture tap so he could replace a leaking ball valve in his well pit in Contract 7-7B. Turn back on after repairs were made.
15. Shut water off at Jeff Brown's so he could repair leak in Contract 7-7A. Turned back on once the repair was complete.
16. Shut water off at Contract 7-1B customer Gary Jilek so he could repair his leak. Turned water back on once the repair was complete.
17. Shut water off at Hettinger Research Center's pasture tap so they could repair their line in Contract 7-4.
18. Turn water off so Subsequent Northern Improvement could fix the leak on their line in Contract 7-1B. Turn service back on after the repair was made.
19. Help contractor repair leak on subsequent Ken Abrahamson meter pit in Contract 7-7B.
20. Help contractor repair another leak on Subsequent Colby Schumacher's line in Contract 7-7A.
21. Wrote pesticide use proposal for 2016 and sent to United States Forest Service.
22. Repaired meter pit and replaced the meter pit locking cover for Kortney Kindsfater in Contract 7-4.

23. Shut water off for subsequent Conoco Philips in Contract 7-1B as they damaged their own line attempting to move their meter pit to accommodate addition of water storage. Turn back on after they had made repairs.
24. Repaired meter pit for Worthington Cylinder Corporation in Contract 7-2.
25. Repaired 3" CL 200 PVC pull apart leak four miles west of Killdeer in Contract 7-9B.
26. Repaired 2" leak caused by insufficient flagging of a locate request by Donovan Urban in Contract 7-1B.
27. Found Contract 7-9E warranty road bore leak that Kamphius Pipeline Company repaired.
28. Shut valves and bleed off pressure for construction wet taps in Contract 7-9E, 2-7C, 2-8B, 2-8C, 2-8E, and 2-8F.
29. Operate valves and pressure Contract 2-8E 8" line back up after it was inadvertently damaged and repaired by contractor while attempting to wet tap the line.
30. Shut valves to isolate Zap Potable #1 so repairs can be made.
31. Found Contract 2-8E warranty leak north of Halliday that was repaired by Carstenson Construction.
32. Responded to station flood alarm at Bucyrus BPS. Found 2 feet of water in the station resulting from a 3/8" plug blown out of the Cla-val on the rural line. Replaced the plug and pump water out via the sump. Station flood alarm would not go away until water was drained from conduit and sensor was dried out.
33. Look for leak in 2-5B between Medora West PRV and Beach BPS. Found a metered leak at West Medora Campground.
34. Investigate condensation on pipes at FWPS found air handler does not seem to be working properly. AC #2 shows it is running, but it is not. AC #1 is keeping up. Report to Jack Fletcher at Bartlett & West Engineers.
35. Ran RCPS generator under load for a extended 4 hour run per manufacturers recommendations.
36. Dukes Welding repaired leak at the Bac-t sampling faucet in Zoe Life PRV.
37. Stelter Repair fixed leak in the Regent Meter Vault in Contract 2-6A.
38. Check telemetry radio path strengths at Richardton Reservoir, Dodge AC3, and Dodge PS air chamber loop. All paths look good.
39. Turn off heat tape at Killdeer Reservoir for the summer. Shut off circulation pump at Jung Lake Reservoir for the summer.
40. Provided access for Quality Exterminators to replenish mouse feeders at Richardton BPS and Jung Lake BPS.
41. Continued exercising valves, air vacs, blow offs, and cleanouts in Contracts 2-1, 2-2A, 2-2D, 2-2F, 2-3A, 2-3B, 2-3C, 2-3E, 2-3F, 2-4A, 2-5A, 2-5B, 2-6B, 2-8B, 2-8F, 7-1B, 7-3, 7-3B, 7-3C, 7-4, 7-6A, 7-7A, 7-7B, 7-8C, and 7-9G.

42. Dumped 3 loads of water down the deep well anode bed at rectifier 2-3A to see if that would help the potential issue with the pipeline. Anode field never filled, potential never changed.
43. Pump water from inspection wells in Contract 2-2C, 2-2E, 2-3A, and 2-3B. Pump ran at Station 174+44 (I-94 crossing) in Contract 2-3B for over a day and it never went dry.
44. Brandon Blum, Sam Fritz, Terry Buechler, and Lee Messer attended CPR Certification classes taught by Chris Price at SWA O&M Center Office.
45. Scraped paint chips, primed, and touched-up the interior paint at Zoe Life, Regent Meter, and Regent PRV.
46. Increase City of Reeder's Tank level to allow divers to enter, clean, inspect, and exit Reeder's water tank in Contract 2-4B.
47. Change 1" spring in Type 3 PRV #51-2 in Contract 7-8C that was ranged for 25# - #75 to a spring ranged for 75# - 125#.
48. Replace cracked 5 GPM flow restrictor in Subsequent Meter Pit for Sharon Rafterseth in Contract 7-6B.
49. Look for leak reported by Dale Binstock of SWC on the raw water line near Golden Valley in Contract 2-2B. Found only ground water.
50. Responded to low pressure complaint from Jim Hellman in Contract 7-9C. Found Contract 7-9E contractor pigging live tie-in lines.
51. Climb and inspect Burt Reservoir for wind damage.
52. Look for leak downstream of Scranton BPS. Found farmers consuming water for crop spraying at a faster rate than the Scranton BPS can put water in the Bowman tank. Adjusted City of Scranton flow rate from 70 GPM to 30 GPM along with water conservation efforts prevented the Bowman Tank from going dry twice. We plan to limit flow to Standard and High Consumption 1 customers to 10 GPM, High Consumption 2 customers to 12 GPM, and High Consumption 3 to 15 GPM. Staff moved a portable generator to Scranton BPS and wired it in to shorten response time if thunderstorms knocked out power in the area.
53. Continue installing IDT satellite AMR's system wide with a concentrated effort in Contract 7-7A and 7-7B.
54. Respond to request to shut water off at Tracie Wiffler's in Contract 7-7B as their dirt floor basement had 2 feet of water in it.
55. Shut water off at Jim Powell's curb stop in Contract 7-7A so customer can repair a leak on their service line.
56. Installed a CDHS18 (flow control valve) and a 1.2" orifice plate for flow control at the Scranton Meter Vault. Set the flow rate at 50 GPM and the pressure sustaining valve at 80 PSI.
57. Found broken spring in low flow bypass valve at the Type 2 PRV North of Scranton. Ordered replacement parts.

58. Investigate pressure complaint from Caleb Waddington in Contract 7-3B. Found dynamic pressure to be at design level.
59. Control valve on the East side of Dickinson Water Depot was not opening. Swapped the I/O card from west to east and the valve opened. Both sides are now working as intended.
60. Resolved trench settlement complaints submitted by Doug Oe and Bernie Kordonowy in 7-8A, Rodney Kadrmas in 7-8E, Veryl Morast in 7-9C, Cody Thiel in 7-9F, and Shirley Kleeman in 7-9B.
61. Mowed weeds or seeded grass for Lyle Kelling in 2-8F, Shane Wolf, Veryl Morast, Marvin Ballensky Jr., and Allen Suelzle in 7-9C, Shirley Kleeman in 7-9B, Weston Berg in 7-9F, Rodney Kadrmans in 7-8E, and Dave Helland in 2-8E.
62. Spray weeds at Dickinson Reservoir, Morast PRV, Zap WTP, Hwy 1806 VFD, Davis Buttes Reservoir, Hazen shop, Dodge Air Chamber # 2, United States Forest Service Lands in 2-5B, Dodge BPS, Terry Watson in 7-8G, Kelly Wilhelm and Veryl Morast in 7-9C, Weston Berg in 7-9F, ND Trust Lands in 2-8C, and Tom Schmidt in 7-9D.
63. Shuttle trade-in and new truck for OMND operator back and forth to Kevin Brown Repair in Beach for pickup box/utility box transfers. Licensed new truck at the Department of Motor Vehicles.
64. Found fault at 2-1 rectifier. Excavate broken wires and splice back together. Wires were cut by a fiber optic installation crew.
65. Turned voltage down from 1.4 volts to 1.18 volts on rectifier 2-1, after wire repair was made and after current was moving on the line again.
66. Put access door on HVAC unit at SWA Office building to make resetting the breaker easier as it faults out frequently.
67. Install valves in the pilot system of the control valves at Dunn Center and Killdeer meter vaults to allow the city operators to bypass the electric controls and manually fill the city tanks in a power outage emergency situation.
68. Respond to no water complaint in Dunn Center. Found their clear well to be empty due to a phase loss prior to the vaults electrical panel. Bypassed electrical controls in the vault to allow the Dunn Center control valve to open and begin filling the clear well. Notified Larry Kirschmann of the need for warranty repairs to the electric supply line to the vault.
69. Met WAPA tech at Center and Scranton BPS to check on electrical reading and demand. The electric meter at Center was upgraded to the new style. The electric meter at Scranton is reading properly, usage looks high because they were under billing prior to October 2015 when they fixed their meter.
70. Shut valves, assisted subcontractors, and flushed lines, to accommodate Highway 200 road improvement project from Highway 85 to Highway 22 and Hwy 49 from Morton County line to Beulah.

71. Replace top hat cathodic protection test station with a hand hole test station near State Avenue and Palm Beach Road to accommodate a sidewalk for the Railroad overpass.
72. Replace blown fuses on PB3 and PB2 capacitor banks at the Intake.
73. Set up an account with MDU for power and meter installation at the Killdeer Meter Vault.
74. Justin Kohanes and Ryan Hagen completed the North Dakota Safety Council's Defensive Driving Online Course.
75. Install P3 at Bucyrus after Great Plains Technical changed out upper motor bearing.
76. Place Cities of Mott and Regent on demand service so that McGuire Iron could clean and inspect the city tanks. Place controls back to tank mode once McGuire Iron had completed their work.
77. Place City of Halliday on demand flow of 60 GPM so they could isolate sections of their town to find leaks that drained their city tank. Return to tank mode after leaks were repaired.
78. Respond to low pressure at Lois Vandenburg in Contract 7-6A. Found broken CRD spring in Type 2 PRV # 36-1. Replaced the spring and PRV was holding at design levels.
79. Respond to no water complaint from Bruce Benz in East Weidner Bay in Contract 7-9D. Found a resident of East Weidner Bay damaged the line downstream of the SWPP meter knocking out service.
80. Respond to possible leak near Contract 7-2 customer Bob Kuylen. Found only ground water per the Water Treatment Plant analysis.
81. Respond to high water usage complaint by Contract 7-8B customer Missouri Basin Well Service. Found a ½ GPM leak downstream of their meter pit.
82. Found leak between the curb stop and meter pit for subsequent customer Francis Martin in Contract 7-2.
83. Filled lines downstream of the Golva VFD after a power outage using the override feature in telemetry control.
84. Replace the mechanical seal on P2 at Richardton BPS. Adjusted the tension on the rebuilt seal to stop leakage.
85. Repair leaks on the bolted tanks at New England, Burt, and Hebron Reservoirs utilizing manus goop and a man lift.
86. Repaired 2" leak caused by subsequent wet tap for Ty Victor in Contract 7-9C. Operator inadvertently drilled through both sides of the pipe.
87. Begin annual testing of dual backflow meters.
88. Respond to Intake P2 failing to call up. Found a bad relay coil. Once P2 called up it tripped out on excess pressure. Adjusted the pressure relay to allow the pump to get started prior to faulting out on pressure.
89. Shut valve to allow Contract 7-9F customer Minnkota Power Plant's contractor to fix a leak they created by digging to closely to the meter pit. The pressure on the inlet side of the meter pit pushed the meter pit downstream creating a leak.

90. Respond to power fail and pump inhibits at Richardton BPS caused by a storm knocking power lines down. Ran pumps at Richardton BPS utilizing the 4160 Volt generator until utility power was restored.
91. Order 1000 gallons of diesel fuel for the 4160 Volt Generator at Richardton. Mixed in Justice Brothers Diesel Fuel Antigel to help with fuel quality.
92. Respond to Stark County's report that the 3" meter on their temporary customer connection had stopped working. Repaired using spare parts held at the O & M shop.
93. Sent QED a cost estimate to case the 2 ½" distribution line that they agreed to sleeve under their new building addition in Contract 7-1B.
94. Respond to RCPS south zone pump failing on low discharge pressure. Found a leak on the 2-3E MTL south east of the Dickinson Airport. Replaced a 30" segment of DI pipe using two mechanical joint repair sleeves. Found considerable evidence of corrosion on the DI pipeline that was exposed during the repair. Make adjustments to equipment to increase system tank levels in the south zone.
95. Replaced two IDT Harmony Units that were sending read errors due to water in the caps. Inform IDT that SWA has a dozen units in need of repair and that they should pick them up when they are in the area.
96. Replace dehumidifier at South Heart Meter Vault and Dunn Center BPS. Changed DCBPS dehumidifier from 30 pint to 70 pint because smaller one could not keep up.
97. Rewire Jung Lake BPS P2 speed command to get pumps to work in Auto.
98. Continue to update the Emergency Response Manual.
99. Respond to low inlet pressure at the Dunn Center BPS. Found DCBPS Clear well valve open and allowing the clear well to overflow. Flush valve and Y strainers to rid valve of rust and fine sand. Rigged up a means to flush valve cover with water from a garden hose attached to the discharge line.
100. Change tank levels to conserve some water until Roughrider Electric could restore power at the Intake caused by a storm tearing down power line poles. Shut down Industrial water sales and sent out a Public Service Announcement asking consumers to conserve water until power was restored.
101. Met with Dakota Access, Bartlet & West Engineers, and State Water Commission to discuss the crossing stipulations of the DAPL and the SWPP.
102. Respond to water flowing out of pasture tap meter pit at subsequent Max Schmelling Jr's in Contract 7-8B. Replaced a cracked 5 GPM flow restrictor.
103. Deliver and collect lead and copper sample containers to customers in Contract 7-8C Tower Hill and Junction Inn pockets.
104. Provide access to North Dakota Health Department personnel so they could complete sanitary surveys at the Contract 7-8C Tower Hill and Junction Inn pockets.

105. Install dual backflow meters at Travis Lambourn's in Contract 7-7B, Randy Brown's in 7-7A, and at Jeff Huschke in SCS Contract, as they are filling their stock tanks from the bottom.
106. Respond to RCPS east zone P2 fail. Found most of the capacitors were blown which caused the main breaker to trip.
107. Respond to Loss of Signal alarm at New England Reservoir. Found the power was out and the power supply was not switching to battery. Replaced and tested power supply.
108. Replaced burnt out obstruction light bulbs at the Center Elevated tank tank. Inspected tank for wind damage.
109. Respond to no water complaint from Tim Dvirnak in Contract 7-9B. Contractor installing Natural Gas lines damaged service line while attempting to cross the line. Repair and flush line prior to returning to service.
110. Respond to possible high water bill at Eugene Kuntz in Contract 7-6A. Found a metered leak on two toilets.
111. Respond to call from Missouri West Rural Water stating that there was low inlet pressure and no power at the Tower Hill VFD. Fire Fighters at Saint Anthony depleted the line of water causing the low suction alarm. Power was restored and the line was pressured back up.
112. Review Intake electric service and how temporary power could be provided. Request costs and options for an Automatic Transfer Switch from Interstate Power.

MEMORANDUM

To: Mary Massad, Manager/CEO, SWA

From: Andrew Erickson, Water Distribution Manager, SWA

Subject: July/August 2016 Activities Report

Date: September 14, 2016

Following is a listing of activities performed by the water distribution staff during the months of July and August, 2016.

Activities in this section are repeated monthly.

1. Collected water samples and submitted to the Southwestern District Health Unit or the ND State Lab for required bacteriological analysis.
2. Routine monthly tests and operational checks of cathodic protection rectifiers on welded steel tanks and at the anode beds for metallic pipelines.
3. Completed monthly paperwork required by EPA for Enhanced Surface Water Treatment Rule and Disinfectant/Disinfection Byproduct Rule.
4. Completed monthly route water usage calculations and reports for the five public water systems.
5. Completed monthly route water loss reports.
6. Collected water samples from specific historical and random points within the distribution systems for nitrification testing by the WTP personnel.
7. Routine maintenance of Type 2 and Type 3 PRVs.
8. Routine monthly reading of contract customer and system meters.
9. Disconnected service to customers for non-payment of bills. Reconnected service when accounts were paid.
10. Completed a variety of service calls for rural customers.

11. Routine monthly maintenance at the raw water pump stations, Dodge Air Chambers, Ray Christensen Pump station, Jung Lake pump station, and the Dunn Center pump station.
12. Routine monthly maintenance at prefabricated steel vaults used for booster pumps, PRVs, special meters and reservoir control.
13. Responded to requests from One-Call Locate Center to locate underground facilities.
14. Completed service hookups to contract and subsequent customers.
15. Performed routine and special purpose spot checks of customer meters as requested by Customer Service Representative.
16. Routine chlorine residual checks in rural contracts. Flushed water where residuals were depleted.
17. Monitored crossings of SWPP pipelines by contractors installing pipelines carrying foreign products such as oil and salt water.
18. Added subsequent customers and account numbers to GIS Data.
19. Set out materials needed for subsequent hookups per the hydraulic reviews.
20. Maintain inventory for subsequent customer hookups.
21. Routine maintenance and exercising of the portable generators.
22. Daily review of customer meter readings via IDT satellite AMR system. Call customers with high usage alarms and advise them of possible leaks.
23. Daily review of water depot operation and reset alarms.

Items in the following section are specific to the March and April 2016 time period.

1. Pressurize lines at the Golva VFD, Rhame VFD, and Coffin Buttes VFD, after loss of power due to electrical storms. Replaced defective P3 Aquavar keypad at Golva VFD.
2. Pressurize lines at the South Center VFD after loss of power due to electrical storms.
3. Issue crossing permits for the MP Nexlevel Wind Farm, Dakota Access LLC, and Tesoro High Plains Pipeline to cross the SWPP. Inspect the Dakota Access LLC, 30" crude oil pipeline, City of Dickinson 8", 12", and 16" potable water lines, and MP Nexlevel Wind Farm crossings as they were completed.
4. Writer attended meetings for 2-3E Dry Creek Pipe Relocation, Highway 85 Improvements from Belfield to Watford City, SWPP bid openings for DAPL/ SWPP crossings and Dry Creek Pipeline Replacement, Hettinger County Commission regarding Havelock Road Improvements and shallow 2" pipe caused from engineering errors, and 38th Street improvements in Billings County.
5. Met with Brady Wind Farm subcontractor Blattner Energy regarding the removal of 2 feet of SWPP cover cutting ditches for a road. Blattner Energy will fill the cut with dirt as it was prior to construction.

6. Pump 80,000 gallons of water from the Fairfield VFD into the Fairfield Reservoir in leu of flushing the dead end prior to the Fairfield VFD.
7. Repaired perimeter fence at the Fryburg PRV.
8. Set Taylor PRV #2 to supply water to customers while SWPP construction contractors completed Contract 7-9G B.S.-1 wet taps north of Marshall. Adjust back to normal operations after the taps are completed.
9. Shut valves and bleed off pressure for construction wet taps for SWPP lines in Contract 2-7C, 2-6B, 2-8E, and 2-8F.
10. Provided access for Quality Exterminators to replenish mouse feeders at Jung Lake BPS.
11. Continued exercising valves, air vacs, blow offs, and cleanouts in Contracts 2-2F, 2-3A, 2-5B, 2-8C, 2-8D, 2-8F, 7-7B, 7-8C, 7-9B, 7-9C, 7-9E, and 7-9F.
12. Scraped paint chips, primed, and touched-up the interior paint at Burt VFD.
13. Increase tank levels and provide access to allow Inland Potable divers to enter, clean, inspect, and exit the Hebron, Burt, and Fairfield Reservoirs. Tanks look good.
14. Contact Marvin Schmidt in Contract 7-8E to inform them that they may notice pressure loss while we keep the Fairfield Tank full during daytime while the divers clean the Fairfield Tank.
15. Climb and inspect New Hradec Reservoir for wind damage.
16. Continue installing IDT satellite AMR's system wide.
17. Resolved trench settlement complaints along state land in 7-8F. Level area around Fryburg PRV from previous leak repairs on Contract 2-5B.
18. Mowed weeds for Ann Weil in Contract 7-9C and Lyle Kelling in Contract 2-8F a second time.
19. Spray weeds for United States Forest Service, Allen Dolezal at the North Fairfield VFD in 7-9B, Dodge BPS, Bowman Reservoir, Hazen Shop, Brenda Mattheis in 7-9D, Lynnette Flemmer, Charles Stroup, and Kelly Wilhelm in 7-9C, and Lyle Kelling in 2-8F for a second time.
20. Seed grass for Lyle Kelling in 2-8F for a second time in 2016.
21. Repair fence for Jerry Isaacs in 2-8E.
22. Contact Gary Roshau and Lisa Hoots in Contract 2-8F regarding their complaint of weeds growing instead of grass on the SWPP trench. Both would prefer if SWA waited until spring to take care of straw waddles, weeds, and grass seeding.
23. Filled lines downstream of the Golva VFD after a power outage using the override feature in telemetry control.
24. Continue annual testing and rebuilding of dual backflow meters.
25. Replace dehumidifier at Carson Meter Vault, Hebron Meter Vault, Zoe Life PRV, Taylor PRV, and Hwy 21 and Hwy 22 PRV #1. Replace milk house heater in Lefor PRV.
26. Continue to update the Emergency Response Manual and O&M Employee Policy Manual.

27. Provide access to North Dakota Department of Health personnel so they could complete sanitary surveys at New Hradec Reservoir, Killdeer BPS, Killdeer Reservoir, Dunn Center Reservoir, and Dunn Center BPS.
28. Find and repair 6" leak in Contract 7-1A caused by City of Dickinson subcontractor installing sewer lines beneath the SWPP pipe years previous.
29. Respond to potential leak at Brian Woehl's in Contract 7-1B. Found a metered leak.
30. Respond to several "No Read" alarms for customers with IDT Harmony Units. Found water inside the caps. Drain water and install vented caps and the unit works as intended.
31. Respond to no water complaint from Ed Egly in Contract 7-8E. Found that 4" of rain had carried away the soil holding the 2" CL 200 service line together, allowing the pipeline to separate. Request cost quotes from contractors to relocate 1900 feet of 2" out of the bottom of the draw where it was initially installed to restore service to Egly. Open and shut valves and assist contractor with flushing and Bac-t sample. Seed grass in areas that were excavated by open cut method. Survey relocated line onto GIS and pass information onto Bartlett & West.
32. Respond to no water complaint from Jim Anderson in Contract 7-1B. Found the "Tooz PRV" had floated out of the ground because the anchors that held the vault to the cement pad had corroded away. A 1 ½" of rain had saturated the Hwy 22 ROW ditch where the "Tooz PRV" is located. The uplift of the "Tooz PRV" sheared the 4" X 8" repair sleave into pieces on the discharge side of the vault. An 8" gate valve was installed upstream of the "Tooz PRV" allowing all customers to be back fed through the County Line PRV. The schedule #40 inlet and outlet piping of "Tooz PRV" was replaced with schedule #80 pipe. The "Tooz PRV" was re-installed and anchored with ¾" X 8" redheads and stainless steel straps, the vault rails were extended 3 feet, and cement was poured 2' long X 2' wide X 1' thick around each rail.
33. Respond to no water complaint at Tyrone Hamby's in Contract 7-9C. Found a blockage after the basement meter setter in a redundant series of in-house filters.
34. Respond to no water complaint at Harvey Peterson in Contract 7-8B. Found PRV screen to be plugged off with pipe shavings. Cleaned the screen and everything worked as designed.
35. Respond to no water complaint from subsequent Conoco Phillips in Contract 7-1B. Found a metered leak in their storage tank system.
36. Respond to no water complaint by the Buffalo Gap Lodge in Contract 7-8A. Found their float valve was stuck closed.
37. Respond to Halliday Reservoir losing excess water through the night. Contact Kamphuis Pipeline Co. questioning if they are flushing overnight. Kamphuis was not flushing. Found 2" construction leak 1 mile north and 2 ¼ miles east of Halliday Reservoir.
38. Respond to no water complaint from Ron Ehlis in Contract 7-8D. Manually filled lines due to power fail at South Fryburg VFD.

39. Respond to South Center VFD pumps not shutting off. Adjusted minimum speed and lead pump start set points in station controller to produce the desired result.
40. Respond to questionable data from Jung Lake BPS after an electrical storm. Found telemetry personality module damaged resulting in no SCADA system control at the station. Found 54500 COM 3 board was also damaged. Ran pump station manually until repairs could be made. Ordered replacement parts from MicroComm.
41. Respond to Jung Lake BPS Auxillary Generator indicating a Loss of Signal ECU Comm Alarm originating from the electrical storm. Checked the fuses and could not reset or clear the alarm. Interstate Power Systems technician found the ECU unit on the engine to be bad. Replacing the ECU unit remedied the problem.
42. Found metered leak at Vernon Polensky's in Contract 7-8E while checking water quality. Vernon requested water to be shut off until repairs can be made.
43. Respond to reported leak at Donald Hall's in Contract 7-8C. Found Hall's well lines to be leaking.
44. Found metered leak at Marvin Pfleger's pasture tap in Contract 7-9F while checking on a high pressure complaint. Found stock tank float was out of adjustment.
45. Repair Harvey Peterson's "H-Brace" and mend the fence that was destroyed by Contract 7-8B contractor installing the SWPP. Harvey is planning to now sell the property.
46. Shut subsequent Dennis Hulsing's service line valve so he can repair his leak in Contract 7-1B.
47. Shut water off at Cody Thiel service line valve in Contract 7-9E. Thiel hit the SWPP 2" CL 200 line while connecting his meter pit to an existing well pit. The SWPP line was repaired and flushed by a licensed contractor.
48. Shut water off at Kelly Dolyniuk's meter pit in Contract 7-8B as his basement repair contractor damaged the waterline. Turned water back on after repairs were made.
49. Shut valves to the original Belfield meter vault now that the City of Belfield has replaced weak pipeline segment through town to accommodate increased pressure provided by the new metering point and tank in Belfield.
50. Repair gate valve risers west of Belfield in Contract 7-8A, along State Ave in Contract 2-3E, Leith corner in Contract 7-6A, and south of Kralicek's subdivision in Contract 7-1B.
51. Respond to N. Vigesaa digging a pond on top of their SWPP service line in Contract 7-9E. Requested that they backfill and move the pond elsewhere.
52. Contact Jason Schmalenberger in Contract 7-9E regarding his 10,000 gallons per day usage identified by the AMR system. He was filling spray tanks.
53. Contact Randy Christman in Contract 7-9C regarding his high water usage identified by AMR system. Found leak underneath the customers stock tank.

54. Contact Verda Draeb in Contract 7-9E regarding her high water usage identified by AMR system. Found the float valve on her stock water tank had broken allowing the tank to overflow.
55. Inform cattle feedlot owners Travis Lambourn and Randy Brown in Contract 7-7A and 7-7B that they have 30 days to prepare themselves for flow restrictor installation that will match their respective flow rates in the hydraulic model. Install the flow restrictors at the end of the 30 day period. Install flow restrictors at high consumptive customers that utilize the water for spraying in Contract 7-7A and 7-7B.
56. Transport fire extinguishers from Richardton BPS to Total Safety for service and return after service is complete.
57. Repaired the 4" CL 250 SWPP line west of Dodge, ND, in Contract 2-7C. Dakota Access subcontractor crews unearthed a rock while potholing the SWPP 4" and the rock fell on the pipe and cracked it.
58. Repair the 3" CL 160 SWPP line north east of Killdeer, ND, in Contract 7-9G B.S. #2. The sandy soil collapsed as Dakota Access subcontractor was excavating underneath the SWPP line, allowing the 3" to move and come apart at the nearest coupling. Emphasize to DAPL leadership that the SWPP lines will come apart if they can see more that 6 feet of the pipe.
59. Respond to Dakota Access subcontractor as DAPL protestors removed SWA flagging where the two pipelines parallel each other in Contract 7-8C.
60. Collect oil sample on P1 at Jung Lake BPS and deliver to Butler Cat for analysis.
61. Place steel wool in Zap PRV access hatch latch holes to stop mice from entering.
62. Repaired meter pits for Kathy Pelton in Contract 7-1B and Wylie Bice in Contract 7-9B.
63. Write and send letter stating sample results of Lead and Copper Health Affects to each customer that sampled for Lead and Copper for Tower Hill and Junction Inn areas.
64. Distribute and collect Lead and Copper sample bottles for the area served by the Dickinson and OMND WTP.
65. Contacted the City of New England regarding their high usage. New England has been selling water to subcontractors building the Wind Towers in the area.
66. Contact the mayor's of Scranton and Rhame asking them to take down their water conservation signs after the third time the Bowman Reservoir nearly went empty between May and August. Return the City of Scranton flow rate from 30 GPM to 50 GPM.
67. Removed two feet of sand from Type 2 PRV north of South Heart in Contract 7-1B.
68. Install pressure recorder at Henry Glicks on the "C-Line" in Contract 7-1B to determine if more customers can be added to this line.
69. Respond to Dunn Center BPS clear well fill valve not keeping up with discharge flows. Clean sand from valve pilot system and adjust speed needles. Installed a fine filter on the fill valve pilot system to catch sand. Valve now functions as intended.

70. Adjust Type 2 PRV pressure setting north of Manning to 110 PSI to accommodate switching the City of Manning from Dickinson WTP to OMND WTP. Closed Type 2 PRV located in the NE ¼ of section 24, T143 and R96 as the separation point of Dickinson WTP and OMND WTP. Contact the City of Manning Operator informing him of the water source switch.
71. Install and set replacement CRD-L low flow PRV on the Type 2M bypass north of Scranton in Contract 2-4C.
72. Replace defective water temperature sending unit at the Hazen PRV.
73. Met Krohne meter technician at the Dunn Center BPS to find reason why fill meter is accurate and discharge meter is off 4%. Megged cables and flow tube per Krohne technician, results appear to be as intended. Krohn technician checked programming of discharge meter, all is well. Waiting to get recommendation from Krohne as to how to proceed.
74. Replaced leaking 2" fitting in Burt VFD.
75. Gave Cathodic Protection Annual paperwork on steel pipelines to an Administrative Assistant to transfer data into an electronic format to be studied by others.
76. Set up and test Dunn Center High Service Pumps reverse flow alarm to OMND WTP SCADA computer.
77. Change oil on P1 at Ray Christianson Pump Station on the south zone per Butler Cat oil sample analysis.
78. Replaced guide wheels on front mount Grasshopper mower and greased moving parts via grease zerks.
79. Replaced the CRL-60 control valve with a CRL control valve on the surge relief valve at the Richardton BPS and set to open at 227#'s.
80. Replaced the inlet solenoid valve body on the clear well fill valve at the Dunn Center BPS as the old body was showing signs of washing on the seat area.
81. Flush Rosemont flow rate sensor lines at Richardton, Dodge, and the Intake BPS and recalibrate Intake Totalizer.
82. Assist Red Trail Energy personnel with adjusting their control valve so that it works as intended.
83. Run pumps as needed to assist WAPA meter technician to maintain and test their meters at Dunn Center, Bucyrus, and Jung Lake BPS.
84. Replaced cracked crossover pipe in Jessica Norman meter pit in Contract 7-6B.
85. Repaired flex coil tubing in a meter pit that was dropped while performing a customer hookup for Gail Lynch in Contract 7-8G B.S. #2.
86. Respond to Fryburg BPS pumps flowing 1000 GPM or greater at times. Found the City of Belfield's 3" control valve capable of filling Belfield's Tank at 700 GPM when the control valve is completely open. Belfield's design flow rate is 150 GPM. Staff will continue to monitor and will attempt to catch Belfield flowing at 700 GPM if the event reoccurs.

87. Cleaned the ports on the Intake flow meter as the flow rates at Intake appear to less than what they should be.
88. Flushed water at dead end at original Belfield Meter Vault.
89. Replaced pipe segment with pinholes in New Hradec BPS with a new segment of schedule # 80 pipe.
90. Replace Hand/Off/Auto control on P2 and P3 at Richardton BPS because the "call" was being dropped.
91. Replace the timing function quit working on the timing relay on P5 at Richardton BPS because it was dropping the "Auto".
92. Met with Park Little to discuss the fencing around the Davis Buttes Reservoir and access to Little's pasture land. Little will install a gate in the SWA fence at Little's expense to access his land.

MEMORANDUM

To: Mary Massad, Manager/CEO, SWA

From: Andrew Erickson, Water Distribution Manager, SWA

Subject: September/October 2016 Activities Report

Date: November 3, 2016

Following is a listing of activities performed by the water distribution staff during the months of September and October, 2016.

Activities in this section are repeated monthly.

1. Collected water samples and submitted to the Southwestern District Health Unit or the ND State Lab for required bacteriological analysis.
2. Routine monthly tests and operational checks of cathodic protection rectifiers on welded steel tanks and at the anode beds for metallic pipelines.
3. Completed monthly paperwork required by EPA for Enhanced Surface Water Treatment Rule and Disinfectant/Disinfection Byproduct Rule.
4. Completed monthly route water usage calculations and reports for the five public water systems.
5. Completed monthly route water loss reports.
6. Collected water samples from specific historical and random points within the distribution systems for nitrification testing by the WTP personnel.
7. Routine maintenance of Type 2 and Type 3 PRVs.
8. Routine monthly reading of contract customer and system meters.
9. Disconnected service to customers for non-payment of bills. Reconnected service when accounts were paid.
10. Completed a variety of service calls for rural customers.

11. Routine monthly maintenance at the raw water pump stations, Dodge Air Chambers, Ray Christensen Pump station, Jung Lake pump station, and the Dunn Center pump station.
12. Routine monthly maintenance at prefabricated steel vaults used for booster pumps, PRVs, special meters and reservoir control.
13. Responded to requests from One-Call Locate Center to locate underground facilities.
14. Completed service hookups to contract and subsequent customers.
15. Performed routine and special purpose spot checks of customer meters as requested by Customer Service Representative.
16. Routine chlorine residual checks in rural contracts. Flushed water where residuals were depleted.
17. Monitored crossings of SWPP pipelines by contractors installing pipelines carrying foreign products such as oil and salt water.
18. Added subsequent customers and account numbers to GIS Data.
19. Set out materials needed for subsequent hookups per the hydraulic reviews.
20. Maintain inventory for subsequent customer hookups.
21. Routine maintenance and exercising of the portable generators.
22. Daily review of customer meter readings via IDT satellite AMR system. Call customers with high usage alarms and advise them of possible leaks.
23. Daily review of water depot operation and reset alarms.

Items in the following section are specific to the September and October 2016 time period.

1. Pressurize lines at the south Fryburg VFD and Golva VFD after loss of power and customer complaints of no water.
2. Issue crossing permits for Foundation Energy Management, Petro-Hunt, Tesoro High Plains Pipeline, and Oneok to cross the SWPP. Inspect the Dakota Access LLC, 30" crude oil pipeline, Foundation Energy Management 3" salt water lines, Brady Wind Farm, and Petro-Hunt 4" crude oil crossings as they were completed.
3. Writer attended meetings for Contract 2-3E, Dry Creek Pipe Relocation, 2nd Dickinson Reservoir, and NASCORP webinar on Cathodic Protection Data downloads.
4. Repair perimeter fence at West Medora VFD.
5. Set Taylor PRV #2 to supply water to customers while SWPP construction contractors completed Contract 7-9G Bid Schedule #1 wet taps north of Marshall. Adjust back to normal operations after the taps are completed.
6. Shut valves and bleed off pressure for construction wet taps for SWPP lines in Contract 2-7C and Contract 2-8E.
7. Provided access for Quality Xterminators to replenish mouse feeders at Richardton and Dodge BPS.

8. Continued exercising valves, air vacs, blow offs, and cleanouts in Contracts 2-2F, 2-3A, 2-3B, 2-3H, 2-6A, 2-7C, 7-3A, 7-4, 7-8A, 7-8B, 7-9E, and 7-9F.
9. Scraped paint chips, primed, and touched-up the interior paint at Burt VFD, Tooz PRV, New Hradec BPS, Regent PRV, and Regent Meter vault.
10. Continue installing IDT satellite AMRs system wide.
11. Repaired trench settlement complaints for Veryl Morast in Contract 3-1E, Don Schwalbe and Richard Scheid in Contract 7-9C, Keith Johnson in Contract 7-7A, and Garner Sailer in Contract 7-9A. Straw waddles were installed to prevent erosion at Veryl Morasts.
12. Mowed weeds for Lynnette Flemmer in Contract 7-9C, Bob Neuberger in Contract 7-9D, Amos Buehner and Marlene Maher in Contract 2-8E.
13. Spray weeds for Amos Buehner, Marlene Maher in Contract 2-8E, and Helen McMahen in Contract 2-8F.
14. Seed grass for Camel Hump Lake road improvements in Contract 7-8B, Veryl Morast in Contract 3-1E, Bob Neuberger in Contract 7-9D, and Lynnette Flemmer in Contract 7-9C.
15. Repair 2" CL 250 line that was hit by Rosalie Hunke, tenant in Contract 7-1B, while they were installing a septic system without calling in a locate request. Collected Bac-T sample at cleanout prior to line being returned to service.
16. Repair 2" CL 160 line that was hit by subsequent Rick Baranko attempting to install his own service line in Contract 7-8B.
17. Contact Jeff Kuhn in Contract 7-2 regarding a metered leak at his stock tank found while SWA staff was installing an IDT harmony unit.
18. Continue annual testing and rebuilding of dual backflow meters.
19. Replace the sump pump at New England meter vault.
20. Continue to update the Emergency Response Manual and O&M Employee Policy Manual.
21. Respond to high flow alarm on IDT website at Dakota Crew Lodge, Contract 7-9C. Found a metered toilet leak.
22. Respond to high flow alarm on IDT website at Trent Hendrickson in Contract 7-9F. Found them to be watering new grass seeding.
23. Respond to high flow alarm on IDT website at Lauren Zimmerman's in Contract 7-4. Found the stock tank float not shutting the water off when the tank was full.
24. Respond to high flow alarm on IDT website at Jerome Wolf pasture tap in Contract 7-9F. Found customers valve was not allowed to shut off, thus overflowing the stock tank.
25. Respond to no water complaint at subsequent Casey Bohlman's pasture tap connection in Contract 7-2. Found the curb stop mysteriously in the off position.
26. Turn water off for Mark Simmons in Contract 7-8G so he could make repairs to his stock tank and turn back on after repairs were made.
27. Instructed Bob Tuhy in Contract 7-9G Bid Schedule #2 how to shut off his curb stop. The 1" poly line he installed while attempting to do his own plumbing disconnected from the

basement meter setter and was flooding his basement. Bob was able to shut curb stop down prior to SWA staff arrival on-site.

28. Shut water off for Tim Morman in Contract 7-9E. The 1" poly line that Morman installed himself came apart at the basement meter setter and began to flood his basement.
29. Turn water off at Duane Pierce service and move basement meter setter from an old house to a new house in Contract 7-7A.
30. Look for a leak in Coffin Buttes service area identified by SCADA system. Found leak at Ramon Barnes pasture tap in Contract 7-6B.
31. Contact Roger Leutz in Contract 7-9E regarding his high water usage identified by AMR system. Found a broken float on his stock tank.
32. Repair and flush a 3" CL 160 SWPP line in Contract 7-9E. The unstable soil collapsed as Dakota Access subcontractor was excavating underneath the SWPP line for permit number 2016-173, allowing the 3" to move and come apart at the nearest coupling.
33. Repair and flush a 2" CL 200 SWPP line in Contract 7-9E. The soil collapsed as Dakota Access subcontractor was excavating underneath the SWPP line at permit number 2016-170, allowing the 2" to move and come apart at the nearest coupling. Emphasize to DAPL leadership that the SWPP lines will come apart if DAPL crews can see more that 6 feet of the SWPP pipe.
34. Repaired meter pit for Elmer Dukart in Contract 7-2A.
35. Removed two feet of sand from Type 2 PRV 60-1 in Contract 7-6B.
36. Entered new GKL calibration numbers for the 10" discharge meter at the Dunn Center BPS provided by Krohne Inc. and performed a drawdown test. Both the fill and discharge meters now test at 100%.
37. Met Krohne Meter Technician at the Dunn Center BPS so the Krohne Tech can look at site plumbing and conduct further testing. Test results indicated everything is now working as intended and that someone at Krohne's factory gave an incorrect GKL number.
38. Gave cathodic protection annual paperwork on steel pipelines to Administrative Assistant to transfer data into an electronic format to be studied by others.
39. Flushed water at dead end at original Belfield Meter Vault.
40. Replaced restart timer on P2 at Jung Lake BPS as it was defective and P2 had not run for 10 days.
41. Complete submission of Contracts 7-9E and 7-9F pipelines into ND One Call database.
42. Reset and troubleshoot Missouri West VFD fail for P1 and P2. Found a power quality issue and notified Mor-Gran-Sou to repair.
43. Checked amount of cover on 2" CL 160 distribution line north of Camel Hump Lake in Contract 7-8B. It was determined that enough cover remained to prevent freeze up. Seed grass in the area disturbed by depth check.
44. Brad Kilde, James Farrell, and Todd Schafer attended the startup of the Golden Valley VFD.

45. James Farrell, Brandon Blum, and Todd Schafer took on line IS700 class and received certification.
46. Troubleshoot power fail relay at South Center VFD. Found the relay to be faulty. Notified Bartlett & West for a warranty replacement.
47. Calibrate Intake totalizer to maintain flow rate. Rosemount may need to be changed out.
48. Add Contract 7-9G Bid Schedule 1 and 2 pipeline additions to ND One Call database.
49. Change out west zone radio at Ray Christensen Pump Station (RCPS) to correct loss of signal.
50. Assist Sletton Excavation with flushing and the collection of Bac-t samples at subsequent subdivision, Harmony Estates in Contract 7-9C.
51. Discovered a pin hole sized leak in brass crossover piping in Warren Woroniecki pasture tap meter pit while performing hookup in Contract 7-9E. Replaced the pipe with a spare from inventory and reported to Bartlett & West for warranty replacement.
52. Troubleshoot and replace relay on P3 at Richardton BPS.
53. Run pump at Center BPS so that WAPA technician can calibrate their meter.
54. Met WAPA Technician at Dodge BPS to move WAPA meter out of the MCC to the wall to comply with WAPA safety standards. Test ran pumps to ensure everything worked as intended.
55. Met WAPA and Slope Electric at Bucyrus BPS to change out meter can and current transformers in order to increase the accuracy of WAPA's meter by 5%.
56. Turn line valves off and on to accommodate a pipe relocation along Havelock Road in Contract 7-3. Flush line prior to placing back into service.
57. Sent Lead/Copper letters and results to customers that sampled in the North Crown Butte service area and Dickinson system area.
58. Replace PA3 pressure switch at Intake.
59. Fill day tank at RCPS with diesel fuel.
60. Ran Scranton BPS pumps using portable generator power for an hour and a half.
61. Switched cities of Hettinger and Halliday from tank pressure service to demand service so they could perform tank maintenance. Switched back to pressure service once maintenance was completed.
62. Shut water off at Bob Hanson's in Contract 7-9G BS2 as they had installed a drain back curb stop backwards after their meter pit.
63. Installed breaker panel and receptacle for phone upgrade at the Beach BPS.
64. Replace defective recirculation pump at Halliday Reservoir. Isolate and drain the Halliday Reservoir as chlorine residuals and nitrification testing indicated a nitrification issue did occur in the tank. The Dunn Center BPS and Taylor PRV #2 were used to maintain system pressure while the Halliday Reservoir was isolated.

65. Prepared billing for State Avenue Rail Grade Separation project, Dakota Access Pipeline, city of Dickinson portion of Finish Water Pump Station (FWPS), Havelock Road Improvements, Rick Baranko leak, and Rosalie Hunke leak.
66. Turn water off for winter at Bunky Nistler pasture tap in Contract 7-8B, Catherine Rooney in Contract 7-1B, Mike Klatt in Contract 7-8E, James Braun in SCS PL566, and FEAH Rental Properties in Contract 7-1B.
67. Performed vibration testing on pump motors at the Beach BPS.
68. Replaced the leaking plug in the side of the Cla-val PRV for the rural line in the Bucyrus PRV.
69. Raised the fan and motor on the west air conditioning unit at the FWPS about an inch to keep the fan from hitting the cross bracing.
70. Repaired a leaking pipe nipple in type 2 PRV # 27-1 in Contract 7-2.
71. Flipped the seat in check valve of pilot system for type 2 PRV #24-1 in Contract 7-4.
72. Troubleshoot Dodge BPS P1 call and pumps not alternating as intended. Replaced Time Delay (TD2) timer in P2 and the Hand/Off/Auto switches in P1, P4, and P5.
73. Troubleshoot upper bearing false temperature reading on Intake PA1 that was shutting PA1 down. Found loose connection on the Remote Temperature Display (RTD) in motor starter compartment.
74. Repaired coolant leak on small generator at the Richardton BPS.
75. Adjust potable water tank levels in preparation for the WTP in Dickinson 24" tee tie-ins. Shut valves and drain the raw water line so that contractor can perform the tie-ins. Return the system to normal operation settings once work was completed.
76. Adjust potable water tank levels to assist with storage during Dry Creek Contract 2-3E connection. Shut valves and drain the Contract 2-3E line allowing the contractor to perform the tie-in connections. Adjust the crossover piping at the RCPS to allow water from the east zone to flow to customers in the south zone while contractor works on connections. Trenched, cad welded, and terminated test stations at the Dry Creek Crossing. Return the system to normal operation settings and ran pumps to pressure test once work was completed.
77. Assist divers as needed to clean the Zap, Richardton, and Dickinson Reservoirs. Zap Reservoirs contained 6"-7" of sediment along with about a 5 gallon bucket full of mortar pieces that came from raw water pipe joints. Richardton had about 9" of sediment and about three 5 gallon buckets full of mortar pieces that came from throughout the raw water line. Mortar lining has always been found when these tanks have been cleaned in previous years. Dickinson Reservoir contained minimal sediment.
78. Troubleshoot P1 at Jung Lake BPS not running since last power fail. Found breaker was tripped in the panel and the capacitor bank was shorted out. P1 may continue to nickel and dime SWA until a retro fit upgrade is completed.
79. Took photographs of city of Dickinson meter #11 at the FWPS not showing Totalizer gallons, only showing GPM. Sent photographs to Jack Young at Rosemount.

80. Adjusted the mechanical seal on P2 at Richardton BPS to stop leakage.
81. Notify affected customers and operate line valves so Eatherly Constructors could repair a warranty 4" CL 250 leak in Contract 7-9F. Flushed lines once repair was completed.
82. Check reports of potential leaks at Nancy Flemmers in Contract 7-9E, Leroy Rummels in Contract 7-2, Tim Zachmeier in Contract 7-9D, Weston Berg in Contract 7-9F. No leaks found.
83. Found and repaired leak at 4"X3" reducer investigating low pressure complaint from Shane Sickler in SCS PL566.
84. Troubleshoot faulty overload relay on P2 at RCPS. Staff ordered parts and they will repair once parts are delivered.
85. Split east zone P2 control valve at RCPS and replaced washed out seat.
86. Uncouple P2 motor from pump at Richardton BPS to check for phase rotation after scheduled power outage for Edling Electric to move generators at Richardton BPS. Return to normal operation after testing.
87. Found a low anode output at cathodic protection stations 12, 13, 14, and 15, at the FWPS. Found a failed isolation flange in need of repair and reported these issues to Bartlett and West for warranty repairs.
88. Locate valves that were covered up by Ames Construction during the State Avenue Rail Grade Separation Project so that Ames workers could make valves available for use again.
89. Installed a tee, valves and piping, along with two PRV's below a Contract 2-3F air vac to accommodate water service to subsequent Richard Thomason in Contract 7-2.
90. Replaced the Universal Power Supply (UPS) for the HVAC system and repaired the pump motor for the HVAC system of the SWA Administration building.
91. Replaced the defective north sump pump at the Richardton BPS.
92. Lowered 1 ½" cleanout pipe and wooden post to prevent bulls from damaging them at Marc Schriefers in Contract 7-9G BS1.
93. Unhook and store grass drills for the winter. Hook up snow blower to John Deere tractor.

MEMORANDUM

To: Mary Massad, Manager/CEO, SWA

From: Andrew Erickson, Water Distribution Manager, SWA

Subject: November/December 2016 Activities Report

Date: January 3, 2017

Following is a listing of activities performed by the water distribution staff during the months of November and December, 2016.

Activities in this section are repeated monthly.

1. Collected water samples and submitted to the Southwestern District Health Unit or the ND State Lab for required bacteriological analysis.
2. Routine monthly tests and operational checks of cathodic protection rectifiers on welded steel tanks and at the anode beds for metallic pipelines.
3. Completed monthly paperwork required by EPA for Enhanced Surface Water Treatment Rule and Disinfectant/Disinfection Byproduct Rule.
4. Completed monthly route water usage calculations and reports for the five public water systems.
5. Completed monthly route water loss reports.
6. Collected water samples from specific historical and random points within the distribution systems for nitrification testing by the WTP personnel.
7. Routine maintenance of Type 2 and Type 3 PRVs.
8. Routine monthly reading of contract customer and system meters.
9. Disconnected service to customers for non-payment of bills. Reconnected service when accounts were paid.
10. Completed a variety of service calls for rural customers.

11. Routine monthly maintenance at the raw water pump stations, Dodge Air Chambers, Ray Christensen Pump station, Jung Lake pump station, and the Dunn Center pump station.
12. Routine monthly maintenance at prefabricated steel vaults used for booster pumps, PRVs, special meters and reservoir control.
13. Responded to requests from One-Call Locate Center to locate underground facilities.
14. Completed service hookups to contract and subsequent customers.
15. Performed routine and special purpose spot checks of customer meters as requested by Customer Service Representative.
16. Routine chlorine residual checks in rural contracts. Flushed water where residuals were depleted.
17. Monitored crossings of SWPP pipelines by contractors installing pipelines carrying foreign products such as oil and salt water.
18. Added subsequent customers and account numbers to GIS Data.
19. Set out materials needed for subsequent hookups per the hydraulic reviews.
20. Maintain inventory for subsequent customer hookups.
21. Routine maintenance and exercising of the portable generators.
22. Daily review of customer meter readings via IDT satellite AMR system. Call customers with high usage alarms and advise them of possible leaks.
23. Daily review of water depot operation and reset alarms.

Items in the following section are specific to the November and December 2016 time period.

1. Pressurize lines at the South Fryburg VFD after loss of power and Dan Fugere complaint of no water in Contract 7-8D. Pressurized lines at the Golva VFD after power was restored during a snow storm that caused a power outage.
2. Inspect the Marathon Oil Company salt water and Dakota Access (DAPL) crude oil crossings as they were completed.
3. Cad weld wires onto 30" ductile iron raw water line so that contractor can install a cathodic protection interference station at the crossing point of the DAPL and SWPP.
4. Turn valves and bleed pressure off service line to the Cannonball Ranch in Contract 7-8C for the winter to prevent line freeze up. The SWPP service line cover has been compromised by creation of bullet barricades so that DAPL workers can safely work on the DAPL Lake Oahe bore.
5. Provided access for Quality Xterminators to replenish mouse feeders at the Richardton, Dodge, and Jung Lake BPS.
6. Continued exercising valves, air vacs, blow offs, and cleanouts in Contracts 2-1, 2-2A, 2-3A, 7-4, 2-3C, 2-4B, 2-7A, 7-5A, 7-5B, 7-9B, 7-9C, 7-9G and 2-3H.
7. Continue installing IDT satellite AMR's system wide.

8. Shut valves and bleed off pressure for construction wet taps and tie-ins for SWPP lines in Contract 2-4C and 2-7-C.
9. Repaired trench settlement complaints for Richard Scheid in Contract 2-8B, Keith Johnson in Contract 7-7A, Rick Baranko in Contract 7-8E, Ralph Kemnet in Contract 7-9E, Garner Sailer in 7-9A, Hilmer Hafner in Contract 7-9D, Department of Transportation and Don Schwalbe in Contract 7-9C.
10. Seed alfalfa for Rick Scheid in Contract 2-8B and seeded grass for William Tveit and Hilmer Hafner in Contract 7-9D, Ralph Kemnet in Contract 7-9E.
11. Removed the rocks that Rick Scheid was complaining about in Contract 2-8B.
12. Continue annual testing and rebuilding of dual backflow meters.
13. Replaced defective milk house heaters in the Reeder Meter Vault, Decker's PRV, and Taylor PRV 2.
14. Replaced defective exhaust fans at Stanton Meter and Medora West VFD. Deliver defective fan to Eggers Electric for repairs.
15. Repair leak on basement meter setter at John Schweitzer's, Contract 7-9G B.S.1. Found the basement setter supplied by the contractor did not have Teflon tape on the threads.
16. Respond to high flow alarm on IDT website for Allan Richard in Contract 7-8A. Found that Richards had just weaned calves at his home place.
17. Replaced IDT Harmony units at Dusty Tescher and Allan Richard's in Contract 7-8A, Don Abernathy in Contract 7-8B, Basin Electric in Contract 7-9F, Wiley Blands in Contract 7-3B, and Wayne Wilson in Contract 7-7A as they had water in the cap and would not report.
18. Replace IDT Harmony units at Pam Hoffer, Burt Isaacs, Robert Skager, and Lyle Albers in Contract 7-9F because of read error alarms as the harmony units stopped reading the meter. These units were sent to IDT for warranty replacement.
19. Respond to high flow alarm on IDT website at the Cross Ranch State Park in Contract 7-9F. Found a metered toilet leak.
20. Respond to Todd Shirek complaint of a high water bill in Contract 7-4. Found a metered toilet leak.
21. Respond to high flow alarm on IDT website at Ryan Fleck in Contract 7-9E and Peter Ebner in Contract 7-3A. Found metered leaks.
22. Respond to high flow alarm on IDT website for Gerald Bieber in Contract 7-9C and Cody Thiel in Contract 7-9E. Found the float on the cattle water tank allowing the tank to overflow.
23. Left phone messages for Patty Frank in Contract 7-3, Chris Stang in Contract 7-4, Roger Leutz in Contract 7-5A, Chris Hogan and Kevin Beener in Contract 7-9G regarding high daily consumption identified by IDT Harmony units.
24. Respond to high flow alarm on IDT website at Leslie Ferguson in Contract 7-9E. Found a metered leak and left water off so customer could make repairs.

25. Respond to high flow alarms on IDT website for Guy Aman in Contract 7-2. Found a metered leak. Shut water off in meter pit as customer is out of town for a week.
26. Respond to no report alarm on IDT website for Garrett Kidd in Contract 7-7A. Found his horses had pulled the wire out of the conduit and chewed through the wire.
27. Respond to no report alarm on IDT website for Tiffany Weigum in Contract 7-9B B.S.1. Found the harmony unit had been backed into by a tractor.
28. Respond to no report alarm on IDT website for Frito Lay in subsequent Meyer Industrial Park in Contract 7-1B. Found harmony unit had been damaged by snow removal crews.
29. Respond to no report alarm on IDT website for Morris Bauer in Contract 7-9E. Bauer had not built protective fencing as advised by SWA. Cattle had turned the unit to the north.
30. Respond to no report alarm on IDT website for Kevin Zillich in Contract 7-1B. Found harmony unit damaged by cattle through the protective fencing.
31. Respond to no report alarm on IDT website for Ray Hurt in Contract 7-1B. Found someone had broken the wooden post that the harmony unit is mounted onto.
32. Contact Dickinson Research Center in Contract 7-1B, Shawn Lund in Contract 7-9D, Darla Gunkel in Contract 7-8B, and John Hatzenbuhler in Contract 7-8C, regarding high flows on IDT website. Found metered leaks were found at each location.
33. Turn valves so contractor could repair a meter pit for Charles Irons in 7-9G B.S.1.
34. Replaced broken frost plate on meter on the basement meter setter at Darlene Lardy in Contract 7-8B. Frost plate broke because Lardy's utility room housing the meter froze up.
35. Flipped check valve seat and replaced copper line in the pilot system of Type 2 PRV 12-1 in Contract 7-3B.
36. Mike Fried, Jim Murphy, and the writer, completed CPR and First Aid training course held at SWA O&M Center Office.
37. Ryan Hagen and Todd Shafer completed IS700 online class and received certification. Ryan also completed IS700 online class and received certification.
38. Writer, Cary Messer, and Gary Nordstrom completed online Defensive Driving course and received certification.
39. Wrote letter to subsequent Shawn Stromme in Contract 7-9C, requesting changes to his subsequent line prior to water service turn on.
40. Respond to basement meter setter leak at Collette Schumacher's in Contract 7-9G B.S.1. Schumacher's tried to do their own plumbing and never tightened the grip ring of the 1" pack joint. This allowed the inlet pipe to separate from the basement setter.
41. Prepared billing for State Avenue Rail Grade Separation project, Dakota Access Pipeline, New Hradec Tank, and city of Dickinson portion of Finish Water Pump Station (FWPS).
42. Turn water off for winter at Callen Hoff and Tim Meyers in SCS PL566, Curtis Grafsgaard and Adam Arend in Contract 7-1B, Art Clarin, Andy Moe, Pat Ueckert, and John Germolus in Contract 7-8B, Theodore Wanner in Contract 7-8E, Dwight Huber in Contract 7-9E, Darrel

Kuhn, Delores Klein, and Lance Jacobs in Contract 7-2, Buell Reich, Brad Riehl, and Raleigh Reservoir in Contract 7-6A, Glen Ullin Park in Contract 7-5A, Archie Jalbert and Darren Rafferty in Contract 7-3, Richard Bowman in Contract 7-7B, Beulah Crew Lodge in Contract 7-9C, and Hiatt Honey in Contract 7-7A.

43. Turn water off so Gordon Cermak could repair his metered leak in Contract 7-9G B.S.1.
44. Adjust tank levels and run pumps to accommodate contractor installing generators at the Intake, Dodge BPS, Richardton BPS, and FWPS. Shut valves and drain the raw water line to accommodate leak repair and raw water line capping at the Contract 3-2D at the Dickinson WTP.
45. Uncouple motor from pump to check phase rotation to accommodate generator upgrades at Intake, Dodge, Richardton, and FWPS. Assist contractor with test running pumps under generator power.
46. Repair broken air vac vent in Contract 2-2D.
47. Shuttle SWA work trucks to Sax Motors for warranty recall work.
48. Complete pesticide application records and year-end report and send to the US Forest Service.
49. Climb and inspect Burt, Killdeer, Halliday, and Dunn Center Reservoir for wind damage and check for ice. Need to replace the non-skid surface tape on the walkways at the Burt Reservoir.
50. Assist contractors with checking phase rotation and running pumps at the Intake, Dodge, Richardton BPS and the FWPS to accommodate Contract 4-1F/4-2C generator upgrades.
51. Respond to WTP in Dickinson personnel having trouble with Cla-val opening on the small Basin. Adjust valve and clean snubbers on the line to the pressure gauge.
52. Write and send letters to solicit bids to trade in three work trucks from area car dealerships in the counties served by the SWPP. Opened sealed bids. Sent acceptance and rejection letters along with bid tabulation sheet to those who submitted bids.
53. Replaced the defective electric solenoid and diaphragm in the Beach meter vault in Contract 2-5B.
54. Repair raw water line valve air vacs in Contract 2-2F.
55. Discovered a Contract 7-3B customer was stealing water from a cleanout while completing a random spot check. Installed locking rural water cover to prevent future theft.
56. Found and repaired a 3" poly pipe leak in a creek crossing in SCS PL566. The leak was located at a poly fuse.
57. Found and repaired a 2" CL 250 PVC pipe leak near Richard Schmidt's service line connection in SCS PL566.
58. Assist contractor to fill water tanks to be used to lower and case the SWPP lines at the DAPL crossings.

59. Replace defective overload relay in south zone P2 at the Ray Christensen Pump Station (RCPS).
60. Troubleshoot phone problems at Richardton BPS. Found the phone jack was defective, repaired and had WAPA test to prove it was working as intended.
61. Assist with warranty meter #10 display replacement on the Dickinson City Pressure Zone 2 at the FWPS.
62. Deliver fire extinguishers to Total Safety for annual inspection and service.
63. Install winterizing on the Auxiliary Generator at RCPS.
64. Respond to the WTP in Dickinson reporting that meter #9 at the FWPS for the city of Dickinson was not showing any information. Used meter #11 to read meter #9 and contacted Rosemount. Rosemount replaced meter displays under warranty and left two extra displays for spares.
65. Check air pressure in tanks at Mott pneumatic, Burt, Coffin Buttes, Prairie Learning Center, and Tower Hill VFD's.
66. Replaced a defective pressure switch at Mott pneumatic.
67. Made up generator cord adapter so Elgin generator (G4) could be used at Tower Hill.
68. Exercise and inspect portable generator (G4) held at Elgin Satellite office.
69. Check heat tape operation at Center, Dunn Center, and Killdeer Elevated Tank for the winter months. Turn on recirculation pump at Jung Lake Reservoir for the winter.
70. Flushed up Missouri West Master Meter Vault and placed it into service.
71. Received permits to construct and to operate the four new pump station auxiliary generators. Distributed the permits to the appropriate pump stations.
72. Install repair kit in CRA (flow control) valve on the Sacred Heart Monastery control valve.
73. Remove tires and install tracks on Polaris Ranger, John Deere Gator, and Honda Pioneer for the winter. Replace battery on snowmobile and get it ready for use as needed. Install snow blower on John Deere tractor.
74. Change oil on riding grass mower and 2" trash pump.
75. Perform vibration tests on motors at the Burt BPS. Collect oil samples from Burt BPS motors and deliver to Butler Cat for analysis.
76. Replace leaking PRV in Mott Grain meter pit in Contract 7-3A that was discovered while installing satellite meter reading equipment.
77. Move snow at Dodge BPS to accommodate delivery of heating fuel and chlorine tanks for the WTP in Dickinson. Move snow to access facilities as needed. Move snow and put down sand in the parking lot at the O&M and O&M Center Office as needed.
78. Clean Flow tube ports and sensor discs on the Rosemount at Intake to increase accuracy of flow meter. Had to adjust calibration to make up the 4% water loss in meter readings.

79. Adjusted and relocated the current generator exercising records for the ND Dept. of Health air quality permits to the new locations of the generators at the Intake, Dodge, Richardton, and FWPS.
80. Rent sewer snake to remove blockage between the shop drain and the sanitary sewer at Elgin Satellite office.
81. Adjust maintenance schedules for 2017 to ensure all equipment is maintained as intended.
82. Replaced defective copper line on pilot system of 1 ½" Cla-val at Perkins County meter vault.
83. Replaced pilot tube on the west Reznor heater at the Jung Lake BPS allowing heater to once again work as intended.
84. Replace leaking and corroded expansion tank piping in the Burt VFD.
85. Haul OMND Bobcat to Bobcat of Mandan to repair hydraulic hoses and return to Hazen Shop once repairs were completed.
86. Close designated raw water air vacs for the winter from the Intake to Knife River in Contracts 2-1 to 2-2D and within the city of Dickinson in Contract 2-3C.
87. Replaced missing meter pit insulating pillow at Michael Rollers in Contract 7-2.
88. Replaced the fan belt and missing pulley parts on Ford 1 ½ ton truck.
89. Respond to P2 fail at Golva VFD. Replaced defective pump run relay in control panel.
90. Update 2017 Bac-T, TTHM/HAA5, Lead and Copper, and Nitrification sampling schedules to accommodate increased service connections. Wrote and sent letters to NDDOH for updates to sampling plans.
91. Contacted Nate Vigessa in Contract 7-9E about the area that he borrowed soil from without calling for ND One-Call locates near his SWPP service line. He will put down straw for now until he can fill in with dirt in the spring.
92. Begin counting spare parts for the 2016 year-end inventory.
93. Replaced defective sump pump at Scranton BPS.
94. Remove five GPM flow restrictor from meter pit that services subsequent Abra Sundslak's home in Contract 7-9F and installed it on basement meter setter that is in a heated barn that is used as a pasture tap.
95. Replace weather stripping on bottom of overhead door at the Dodge BPS and Hazen satellite office.
96. Left phone message for the city of Golden Valley operator to determine why their water usage increased 200,000 gallons from last month. They never returned our call.
97. Replace leaking P2 mechanical seal and throttle bushing at Richardton BPS.
98. Drill hole in Contract 2-3E air vac manhole and install piping to accommodate subsequent Stark County Fairgrounds connection.
99. Drill hole in Contract 2-3F air vac manhole and install piping to accommodate subsequent Richard Thomason's connection.

100. Troubleshoot Dodge BPS stand-by generator starting up when P1, P4, or P5 would call up. Found the big pumps are pulling the voltage down enough that the Automatic Transfer Switch would transfer and the small generator would start up. The staff electrician changed the time delay relay from one second to three seconds on the normal power fault time delay so equipment runs as intended.
101. Troubleshoot power failure at the Scranton BPS after utility power was restored from an outage caused by weather. Found run-permissive relay to be defective. A jumper wire was utilized to connect the contacts to get station going until the defective relay can be replaced.
102. Wired in a new control switch on the sand spreader to provide better safety in the parking lot.
103. Change 12 volt batteries at Perkins County Meter Vault after snow storm caused power outage.
104. Install 12 volt battery at Coffin Buttes after snow storm caused power outage.
105. Haul generators to Beach BPS and Davis Buttes Reservoir to provide electricity until the power was restored during a snow storm.

INTAKE PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
PUMP PA1	OIL CHANGE			X																									
	OIL SAMPLE		X		19	JF/OH																							
	PERFORMANCE	X			19	JF/OH	17	DH	Out of SERVICE	GN	18	DH	13	GN	29	GN	22	DH	22	DH	28	DH	19	DH	28	GN	30	GN	
	VIBRATION			X	5	AH																							
PUMP PA2	OIL CHANGE			X					10	TM																			
	OIL SAMPLE		X		19	JF/OH																							
	PERFORMANCE	X			12	DH/TS	17	DH/TS	18	GN	21	DH/TS	12	GN	29	GN	22	DH	29	DH	28	DH	19	DH	28	GN	30	GN	
	VIBRATION			X	5	AH																							
PUMP PA3	OIL CHANGE			X			27	TM/JF																					
	OIL SAMPLE		X		19	JF/OH																							
	PERFORMANCE	X			19	JF/OH			18	GN	21	DH/TS	13	GN	29	GN	28	DH	22	DH	28	DH	19	DH	28	GN	30	GN	
	VIBRATION			X	5	AH																							
PUMP PA4	OIL CHANGE			X																									
	OIL SAMPLE		X		19	JF/OH																							
	PERFORMANCE	X			19	JF/OH	11	DH/TS	18	GN	18	DH	13	GN	29	GN	28	DH	29	DH	28	DH	19	DH	28	GN	30	GN	
	VIBRATION			X	5	AH																							
PUMP PB1	OIL CHANGE			X																									
	OIL SAMPLE		X		19	JF/OH																							
	PERFORMANCE	X			19	JF/OH	17	DH	Out of SERVICE	GN	18	DH	13	GN	29	GN	22	DH	22	DH	28	DH	19	DH	28	GN	30	GN	
	VIBRATION			X	5	AH																							
PUMP PB2	OIL CHANGE			X																									
	OIL SAMPLE		X		19	JF/OH																							
	PERFORMANCE	X			12	DH/TS	17	DH/TS	18	GN	21	DH/TS	12	GN	29	GN	21	DH	29	DH	28	DH	19	DH	28	GN	30	GN	
	VIBRATION			X	5	AH																							
PUMP PB3	OIL CHANGE			X																									
	OIL SAMPLE		X		19	JF/OH																							
	PERFORMANCE	X			19	JF/OH			Out of SERVICE	GN	18	GN	21	DH/TS	13	GN	29	GN	28	DH	22	DH	28	DH	19	DH	28	GN	30	GN	MECHANICAL SEAL STARTED LEAKING (2/24/16)
	VIBRATION			X	5	AH																							
PUMP PB4	OIL CHANGE			X																									
	OIL SAMPLE		X		19	JF/OH																							
	PERFORMANCE	X			19	JF/OH	11	DH/TS	18	GN	18	DH	13	GN	29	GN	28	DH	29	DH	28	DH	19	DH	28	GN	30	GN	
	VIBRATION			X	5	AH																							
PRESSURE SWITCHES	INSPECT	X			19	JF/OH	17	DH/TS	18	GN	18/21	DH/TS	13	GN	29	GN	28	DH	19/22	JF/OH	28	DH	19	DH	28	GN	30	GN	
	ADJUST			X	19	JF/OH																							
SURGE TANK	COATING			X					14	JM																			
	INSPECT			X	19	JF/OH			14	JM																			
	CONTROLS			X					14	JM																			
AIR COMPRESSOR	DRAIN CONDENSATE	X			19	JF/OH	2	GN	18	GN	18	DH	13	GN	29	GN	21	DH	10	DH	28	DH	19	DH	28	DH	30	GN	
	OIL CHANGE			X			2	GN													28	DH							
	SAFETY VALVE	X			19	JF/OH	2	GN	18	GN	18	DH	13	GN	29	GN	21	DH	10	DH	28	DH	19	DH	28	DH	30	GN	
	AIR FILTER		X		19	JF/OH																							
	STAINER		X		19	JF/OH																							
	BELTS		X		19	JF/OH																							
	BREATHER VALVE			X	19	JF/OH																							
	CHANGE VALVE			X	19	JF/OH																							
	EXERCISE			X	19	JF/OH																							
ADDITIONAL COMPONENTS																													

REMARKS

1-5-16 Door with Great plains did vibrations
1-5-16 PA3 to Great plains Rebuilt
1-8-16 Replaced Mechanical Seal & oil in Structure PB3
1-26-16 PA3 Taken out
1-27-16 PA3 new Throttle body & seal TM
2-23-16 Motor PA3 Rewind + installed
3-10-16 replace throttle bushing of main motor PA2
3-22-16 CHANGED OIL IN PB-4 SAE 68 18.38 hrs GN/JF
9-28-16 Changed Air compressor oil - SAE 100, 60.84 hrs DH/RK

Replaced lower bearing PB2
1-21-16 REPLACE MECH. SEAL, NEW BRGS & OIL.
" GREAT PLAINS REBUILT MOTOR

PB1 replaced bearings & cleaned 5-4-16

INTAKE PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONT - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
SUMP PUMP	SERVICE			X			17	DH																					
	INSPECT			X			17	DH																					
CONTROL VALVE	INSPECT			X																									
	EXERCISE			X																									
	STRAINERS			X																									
MAN. CONTROL VALVE	INSPECT			X																									
	EXERCISE			X																									
AIR HANDLER	FILTERS	X			19	JF/DH	17	DH	18	GW	18	DH	13	GW	29	OF	21	DH	10	DH	28	DH	19	DH	28	DH	30	GW	
	CORROSION	X			19	DH/OH	17	DH	18	GW	18	DH	13	GW	29	OF	21	DH	10	DH	28	DH	19	DH	28	DH	30	GW	
	LUBRICATE			X	19	JF/OH																							
	BELTS			X	19	JF/OH																							
	COILS			X	19	JF/OH																							
	ELECTRICAL		X				17	RH																					
	LINKAGES		X																										
	RECALIBRATE		X																										
	CLEAN		X																										
SUPPLEMENTAL AIR HANDLE	FILTERS	X			19	JF/OH	17	DH	18	GW	18	DH	13	GW	29	OF	21	DH	10	DH	28	DH	19	DH	28	DH	30	GW	
	CORROSION	X			19	JF/OH	17	DH	18	GW	18	DH	13	GW	29	OF	21	DH	10	DH	28	DH	19	DH	28	DH	30	GW	
	LUBRICATE			X	19	JF/OH																							
	BELTS			X	19	JF/OH																							
	COILS			X	19	JF/OH																							
	ELECTRICAL		X				17	RH																					
	LINKAGES		X																										
	RECALIBRATE		X																										
	CLEAN		X																										
5 TON CRANE	LUBRICATE			X	19	DH/TF																							
	EXERCISE			X	12	DH	11	DH/TS			18	DH	4	GW			22	DH	10	DH	28	DH							
	INSPECT			X	19	DH/TF																							
OVERHEAD DOOR	LUBRICATE			X	19	DH/TF																							
	INSPECT			X	19	DH/TF																							
LOUVERS	INSPECT			X																									
SWITCHGEAR	SERVICE			X	21	RH																							
	INSPECT			X	21	RH																							
	CLEAN		X		21	RH																							
MOTOR CONTROLLER	INSPECT			X	21	RH																							
	CLEAN			X	21	RH																							
	TEST			X	21	RH																							
	CHECK FUSES			X	21	RH																							
TRANSFORMERS	INSPECT			X	21	RH																							
EMER. LIGHTING	TEST			X																									
GENERATOR	OIL CHANGE			X																									
	FLUID LEVELS	X			21	JF	26	GW	18	GW	21	DH/TS	13	GW	29	OF	22	DH	31	OF	28	DH	19	DH	28	GW	30	GW	
	SAMPLE OIL			X	19	JF/OH																							
	FUEL FILTER			X																									
	BATTERY	X			21	JF	26	GW	18	GW	21	DH/TS	13	GW	29	OF	22	DH	31	OF	28	DH	19	DH	28	GW	30	GW	
	BELTS			X	21	JF																							
	HOSES			X	21	JF																							
	ADJUSTMENT			X																									
	VIBRATION			X																									
	AIR CLEANER			X																									
	LAMP TESTS			X																									
	EXERCISE	X			21	JF/OH	26	GW	18	GW	21	DH/TS	13	GW	29	GW	28	DH	31	OF	29	DH	19	DH	28	GW	30	GW	
	FUEL LEVEL	X			21	JF	26	GW	18	GW	21	DH/TS	13	GW	29	OF	22	DH	31	OF	28	DH	19	DH	28	GW	30	GW	
TOTALIZER	INSPECT		X		21	JF																							
	ADJUST			X																									
ADDITIONAL COMPONENTS																													
+ FLOW METER									18	GW							1	GW							28	GW			

REMARKS

1-19-16 Adjusted bottle on Brass for AB-3 RH	Changed Filters for Air Handler on 7-28-16 DH	
11-13-16 Replaced Starters in PA3 & PA3 with new starters 124		
5-31-16 Replaced Capacitor Fuses in PA3-2 & PA3-3 RH		

INTAKE PUMP ST[illegible]
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
TELEMETRY X	INSPECTION			X	21	KH																							
	CLEAN		X		21	KH																							
	CALIBRATION			X																									
	RADIO CHECK		X				17	KH																					
BUILDING	DRAINAGE			X	19	JF/DH																							
	INSPECTION			X	20	JF/DH																							
	CLEAN			X	20	JF/DH																							
	SUMPS			X																									
PERIMETER FENCES	INSPECT			X	19	JF/DH													10	DH									
TRANSFORMER SPILL BASIN	DRAIN			X	19	JF/DH																							
PRESSURE RELIEF VALVE	INSPECT			X																									
	EXERCISE	X			28	GV	17	DH	18	GV	[illegible]	DH/JS	13	GV	29	GV	28	DH	10	DH	28	DH	19	DH	28	GV	30	GV	
	STRAINERS			X																									
CROSSOVER VALVES	INSPECT			X																									
	EXERCISE	X			21	JF/DH	17	DH	18	GV	21	DH/JS	13	GV	29	GV	28	DH	29	DH	28	DH	19	DH	28	GV	30	GV	
	STRAINERS	X			21	JF/DH	17	DH	18	GV	21	DH/JS	13	GV	29	GV	28	DH	27	DH	26	DH	19	DH	26	GV	30	GV	
PORTABLE GENERATOR	OIL CHANGE			X																									
	FLUID LEVELS	X			19	JF/DH	17	DH	22	JF	21	DH/JS	13	GV	29	GV	28	DH	10	DH	28	DH	19	DH	28	GV	30	GV	
	SAMPLE OIL			X																									
	FUEL FILTER			X	19	JF/DH																							
	BELTS			X	19	JF/DH																							
	HOSES			X	19	JF/DH																							
	EXERCISE	X			19	JF/DH	17	DH	22	JF	21	DH/JS	13	GV	29	GV	21	DH	10	DH	28	DH	19	DH	28	GV	30	GV	
ADDITIONAL COMPONENTS																													
Lighting System																													

REMARKS

DODGE P STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
PUMP 1	OIL CHANGE			X																									
	OIL SAMPLE		X		14	JW/JS																							
	PERFORMANCE	X			14	JW/JS	10	JW	2	AH	5	AH	12	BM/KM	9	BM/KM	29	GW	31	GW	29	OS	17	JS	X	DH	21	JS/DH	
	VIBRATION			X	5	AH																							
PUMP 2	OIL CHANGE			X																									
	OIL SAMPLE		X		14	JW/JS																							
	PERFORMANCE	X			14	JW/JS	18	JW	X	AH	X	AH	12	BM/KM	*	BM/AH	*	GW	*	GW	19	OS	17	X	28	DH	21	JS/DH	
	VIBRATION			X	5	AH																							
PUMP 3	OIL CHANGE			X																									
	OIL SAMPLE		X		14	JW/JS																							
	PERFORMANCE	X			14	JW/JS	18	JW	X	AH	X	AH	12	BM/KM	*	BM/AH	X	GW	*	GW	19	OS	17	JS	X	DH	6	RH	
	VIBRATION			X	5	AH																							
PUMP 4	OIL CHANGE			X																									
	OIL SAMPLE		X		14	JW/JS																							
	PERFORMANCE	X			14	JW/JS	18	JW	X	AH	X	AH	12	BM/KM	9	BM/KM	X	GW	*	GW	19	OS	17	JS	X	DH	21	JS/DH	
	VIBRATION			X	5	AH																							
PUMP 5	OIL CHANGE			X	13	AH																							
	OIL SAMPLE		X		14	JW/JS																							
	PERFORMANCE	X			14	JW/JS	18	JW	X	AH	X	AH	12	BM/KM	*	BM/AH	X	GW	31	GW	29	OS	17	JS	X	DH	21	JS/DH	
	VIBRATION			X	5	AH																							
SUMP PUMP	SERVICE			X			18	RH																					
	INSPECTION			X			18	RH																					
7 1/2 TON CRANE	LUBRICATE			X																							6	RH	
	EXERCISE			X	14	JW/JS															19	OS	17	JS			6	RH	
	INSPECT			X																							6	RH	
CONTROL VALVES	INSPECT			X																			17	JS			21	JS/DH	
	EXERCISE			X																			17	JS			21	JS/DH	
	STRAINERS			X																			18	JS					
MAN. CONTROL VALVE	INSPECT			X																			18	JS					
	EXERCISE			X																			18	JS					
SLANTING DISC VALVE	INSPECT			X																							21	JS/DH	
	STRAINER			X																			18	JS					
	CHECK OIL LEVEL			X																							21	JS/DH	
SWITCH GEAR	SERVICE			X	27	RH																							
	INSPECT			X	27	RH																							
	CLEAN		X		27	RH																							
MOTOR CONTROLLERS	INSPECT			X	27	RH																							
	CLEAN			X	27	RH																							
	TEST			X	28	RH																							
	CHECK FUSES			X	27	RH																							
TRANSFORMER	INSPECT			X	28	RH																							
EMER. LIGHTING	TEST			X	20	CW																					6	RH	
PRESSURE SWITCHES	INSPECT	X			14	JW/JS	13	JW	2	AH	5	AH	12	BM/KM	9	BM/KM	29	GW	31	GW	19	OS	17	JS	28	DH	6	RH	
	ADJUST			X	27	JW																							
ADDITIONAL COMPONENTS																													
PUMP CAN OBSERVATION W	CHECK LEVELS/PUMP OUT			X	27	JW																							
FUEL LEVEL		X			14	JW/JS	12	JW	2	AH	210	AH	210	BM	9	BM/AH	29 (200)	GW	31 (190)	GW	19 (170)	OS	17 (160)	JS	28	DH	5 (150)	RH	

REMARKS

Dan with Great Plains did Vibrations 1-5-16
1-13-16 Lower bearing replaced P-5
1-28-16 Changed bags on 5 Strainers RH/CW
* 2-14 220 Gallons 3-27-17 * Did not run pumps Due to High Usage AH
4-5-17 * Did not run pump Due to High usage first time AH

Replaced Sump Pump in south Pit - RH 2-16
* 6-9-16 did not run pumps 2, 3 + 5 due to high water usage + low water levels at Richardson tank

* 11-28-16 did not run pumps due to High water Usage and low water levels at Richardson.
* Didnt run pumps due to High usage 8/31/17
* Didnt run pumps due to High usage 7/29/17

DODGE PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
GENERATOR	OIL CHANGE			X		JM																							
	FLUID LEVELS	X			14	JM/JF	13	JM	2	AH	5	AH	12	BM/GM	9	BM/GM	29	GW	31	GW	29	~~DH~~	17	~~DH~~	28	DH	6	RH	-Added Coolant
	SAMPLE OIL			X	14	JM																							
	FUEL FILTERS			X	—																								
	BATTERY	X			14	JM/JF	13	JM	2	AH	5	AH	12	BM/GM	9	BM/GM	29	GW	31	GW	29	~~DH~~	17	~~DH~~	28	DH	6	RH	
	BELTS			X	15	JM																							* 1
	HOSES			X	15																								
	ADJUSTMENT			X	15																								
	VIBRATION			X	15																								
	AIR CLEANER			X	15																								
	LAMP TESTS			X	15	JM																					6	RH	
	EXERCISE	X			14	JM/JF	13	JM	2	AH	5	AH	12	BM/GM	~~9~~		29	GW	31	GW	29	~~DH~~	17	~~DH~~	~~28~~	DH	6	RH	
AIR HANDLER	INSPECT			X	27	JM																							
	LUBRICATE			X	27																								
	CLEAN			X	27	JM																							
	FUEL TANK	X			14	JM/JF	13	JM	2	AH	5	AH	12	BM/GM	200	BM/GM	29	GW	31	GW	19	~~DH~~	17	~~DH~~	~~28~~	DH	5	RH	
	BELTS			X	27	JM																							
	COILS			X																							6	RH	V. and Inspection Camera is at AK is out compressor JOUT 1-20-16 CM
	ELECTRICAL		X		26	RH																							
	LINKAGES		X		27	JM																							
	RECALIBRATE			X																									
OVERHEAD DOOR	LUBRICATE			X																									
	INSPECT			X	27	JM																							
LOUVERS	INSPECT			X	27	JM																							
FANS	INSPECT			X	27	JM																							
	LUBRICATE			X																									
TELEMETRY	INSPECT			X	26	RH																							
	CLEAN		X		26	RH																							
	CALIBRATION			X																									
	RADIO CHECK		X		28	RH																							
BUILDING	DRAINAGE			X	27	JM																							
	INSPECT			X	27	JM																							
	CLEAN			X			1	JF																					
	SUMPS			X	27	JM																							
PERIMETER FENCES	INSPECT			X	27	JM																							
SURGE RELIEF VALVE	INSPECT			X																									
	EXERCISE			X																									
	STRAINERS			X																									
ADDITIONAL COMPONENTS																													
AIR HANDLER	FURNACE FILTERS	X			14	JM/JF	10	JM	2	AH	5	AH	12	BM/GM	9	BM/GM	29	GW	31	GW	19	~~DH~~	17	~~DH~~	25 28	DH DH	6	RH	
FUEL TRANSFER PUMP	GREASE - IN WINTER	X			14	JM/JF	13	JM	2	AH	5	AH	12	BM/GM	9	BM/GM											6	RH	

REMARKS

* 1 When exercising P4, on start up it made the Small Generator Startup 1-20-16 CM

2/17/16 - Sump pump failure, Pumped out South well JF

6-9-16 did not exercise generator due to it was run earlier in week for 5hrs for a planed power outage BM

DODGE PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
4160 VOLT GENERATOR	OIL CHANGE			X																									- New Genset, Fluids, vibration and exercise all performed by CAT service tech at the end of Nov. - will need new O+M for Genset as well as an operation sheet for monthly tests. 12-6-16 RH
	FLUID LEVELS	X			14	JW/SF	13	JW	2	RH	5	RH	12	BM/GN	9	BM/GN	29	GN	31	GN	29	GN	X		X		X		
	SAMPLE OIL			X	14	JM																							
	FUEL FILTERS			X	—																								
	COOLANT FILTERS			X	—																								
	COOLANT SAMPLE			X	14	JM																							
	BATTERY	X			14	JW/SF	13	JW	2	RH	5	RH	12	BM/GN	9	BM/GN	29	GN	31	GN	29	GN	X		X		X		
	BELTS			X	14	JM																							
	HOSES			X	14	JM																							
	ADJUSTMENT			X																									
	VIBRATION			X																									
	AIR CLEANER			X																									
	EXERCISE	X			14	JW/SF	13	JW	10	RH	X	RH	12	BM/GN	X	BM/GN	29	GN	31	GN	X	GN							
	ENGINE HEATERS	X			14	JW/SF	13	JW	2	RH	5	RH	12	BM/GN	9	BM/GN	29	GN	31	GN	29	GN	X		X		X		
	FUEL TANK LEVEL	X			14	JW/SF	13*	JW	2	RH	5	RH	45%	BM/GN	38%	BM/GN	29	GN	31	GN	29	GN	X		X		X		
																			(30%)		(30%)								
ADDITIONAL COMPONENTS																													
Automatic Transfer Switch	Inspect		X		26	RH																							
	Clean		X		26	RH																							

REMARKS

*2-13 50%		
5-12-16 did not transfer properly had #1452 fault called Ryan to check it out	X Never Ran Generator Due to high USage AH 3-2-17	
X 9-16 did not exercise 4160 gen because it had ran 3hrs earlier this week for a planned power outage RM	X Never Ran Generator Due to high USage AH 4-5-17	
10-31-16	X Did not run Generator Due to high USage 9-29-17 AH	
X Did not run Generator this month due to relocation of Generators.		

SURGE TANKS AND MISCELLANEOUS ITEMS
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
4-1A	DODGE E. SURGE TANK	COATING			X					15	JM																			
		INSPECTION			X	13	JM	16	JM																					
		SUMP CHECK		X		13		12	JM					12	BM/GM	9	BM/GM													
		ANODE CHECK	X			13		12	JM	2	JH	5	DH	12	BM/GM	9	BM/GM	29	GW	31	GW	29	DH	19	GW	28	DH	21	BM/DH	
		CHECK CONTROLS			X	13		12	JM																					
		FLUSH SITE TUBE LINES			X	13	JM	12	JM					12	BM/GM															
	TELEMETRY	INSPECT			X	29	RH																							
		CLEAN			X	29	RH																							
		CALIBRATE			X																									
		RADIO TEST		X		29	RH																							
	AIR COMPRESSOR	DRAIN CONDENSATE	X			13	JM	12	JM	21	JH	5	DH	12	BM/GM	9	BM/GM	29	GW	31	GW	29	DH	19	GW	28	DH	21	BM/DH	
		OIL LEVEL	X			13		12	JM	2	DH	5	DH	12	BM/GM	9	BM/GM	29	GW	31	GW	29	DH	19	GW	28	DH	21	BM/DH	
		OIL CHANGE			X	13																						21	JM	12/21 - Oil Looks milky
		SAFETY VALVE	X			13		12	JM	2	JH	5	DH	12	BM/GM	9	BM/GM	29	GW	31	GW	29	DH	19	GW	28	DH	21	BM/DH	
		AIR FILTER		X		13																								
		STRAINER		X		13																								
		BELTS		X		13																								
		BREATHER VALVE		X		13	JM																							
		CHANGE VALVE			X																									
ADD COMPONENTS																														

REMARKS

Sampled & Changed Air compressor oil 1-13-16 BM
Drain + Inspect Surge Tank 3-15-16 JF, DH, JM, Justin
Greased Air Compressor 10-18-16 DH

SURGE TANKS AND MISCELLANEOUS ITEMS
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
4-1A	DODGE S. SURGE TANK	COATING			X					16	SW																			
		INSPECTION			X	13	JM	24	JM																					
		SUMP CHECK		X		13								12	BK	9	BK/GN	29	GN											
		ANODE CHECK	X			13				2	AH	5	AH	12	BK	9	BK/GN	29	GN	31	GN	29	DH	18	~~OK~~	28	JK	21	SW/RH	
		CHECK CONTROLS			X	13																								
		FLUSH SITE TUBE LINES			X	13	JM	24	JM	2	AH	5	AH	12	BK	9	BK/GN													
	TELEMETRY	INSPECT			X	29	RH																							
		CLEAN			X	29	RH																							
		CALIBRATE			X																									
		RADIO TEST		X		29	RH																							
	AIR COMPRESSOR	DRAIN CONDENSATE	X			13	JM	24	JM	2	AH	5	AH	12	BK	9	BK/GN	29	GN	31	GN	29	DH	18	~~OK~~	28	JK	21	DH/SE	
		OIL LEVEL	X			13				2	AH	5	AH	12	BK	9	BK/GN	29	GN	31	GN	29	DH	18	~~OK~~	28	JK	21	DH/JT	
		OIL CHANGE			X	13																								
		SAFETY VALVE	X			13				2	AH	5	AH	12	BK	9	BK/GN	29	GN	31	GN	29	DH	18	~~OK~~	28	JK	21	DH/JT	
		AIR FILTER		X		13																								
		STRAINER		X		13																								
		BELTS		X		13																								
		BREATHER VALVE		X		13	JM	24	JM																					
		CHANGE VALVE			X																									
ADD COMPONENTS																														

REMARKS

1-13-16 Sampled & changed oil on compressor SM		
10-27-16 Compressor continues Run fixed JK		

SURGE TANKS AND MISCELLANEOUS ITEMS
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
4-1A	MARSHALL SURGE TANK	COATING			X					16	DVSS																			
		INSPECTION			X	20	BM/DM																							
		SUMP CHECK		X		20																								
		ANODE CHECK	X			20		18	BB	24	SF	18	BM	13	DH	17	DH	12	BM	11	BM/GM	21	MF/GM	19	DF	9	BB	14	GG/SF	
		CHECK CONTROLS			X	20								13	DH	17	DH													
		FLUSH SITE TUBE LINES			X	20	BM/DM							13	DH	17	DH	12	BM											
	TELEMETRY	INSPECT			X	29	RH																							
		CLEAN			X	29	RH																							
		CALIBRATE			X																									
		RADIO TEST		X		29	RH																							
	AIR COMPRESSOR	DRAIN CONDENSATE	X			20	BM/DM	18	BB	24	SF	18	BM	13	DH	17	DH	12	BM	11	BM/GM	21	MF/GM	18	DF	9	BB	14	GG/SF	
		OIL LEVEL	X			20		18	BB	24	SF	18	BM	13	DH	17	DH	12	BM	11	BM/GM	21	MF/GM	18	DF	9	BB	14	GG/SF	
		OIL CHANGE			X	20																								
		SAFETY VALVE	X			20		18	BB	24	SF	18	BM	13	DH	17	DH	12	BM	11	BM/GM	21	MF/GM	18	DF	9	BB	14	GG/SF	
		AIR FILTER		X		20																								
		STRAINER		X		20																								
		BELTS		X		20																								
		BREATHER VALVE		X		20																								
		CHANGE VALVE			X	20	BM/DM																							
ADD COMPONENTS																														

REMARKS

Changed oil on Compressor 1-20-16 BM need to change again in 4 months

RICHARDTON PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
PUMP 1	OIL CHANGE			X																									
	OIL SAMPLE		X		20	JM																							
	PERFORMANCE	X			20	TM	18	BB	24	SE	18	JM	13	AH	17	AH/TM	13	BM	11	BM/KM	21	MF/LM	26*	MF/LM	16	BB	6	RH	
	VIBRATION			X	6	DS																							
PUMP 2	OIL CHANGE			X																									
	OIL SAMPLE		X		20	JM																							
	PERFORMANCE	X			20	TM	18	BB	24	SE	18	JM	13	AH	17	AH/TM	13	BM	11	BM/KM	21	MF/LM	26*	MF/LM	16	BB	≠	RH	12-6-16 Seal Leaks VNW
	VIBRATION			X	6	DS																							
PUMP 3	OIL CHANGE			X			18	BB					-																
	OIL SAMPLE		X		20	JM																							
	PERFORMANCE	X			20	TM	18	BB	24	SE	18	JM	13	AH	17	AH/TM	13	BM	11	BM/KM	21	MF/LM	26*	MF/LM	16	BB	6	RH	
	VIBRATION			X	6	DS																							
PUMP 4	OIL CHANGE			X																									
	OIL SAMPLE		X		20	JM																							
	PERFORMANCE	X			20	TM	18	BB	24	SE	18	JM	13	AH	17	AH	13	BM	11	BM/KM	21	MF/LM	26*	MF/LM	16	BB	6	RH	
	VIBRATION			X	6	DS																							
PUMP 5	OIL CHANGE			X																									
	OIL SAMPLE		X		20	JM																							
	PERFORMANCE	X			20	TM	18	BB	24	SE	18	JM	13	AH	17	AH	13	BM/KM	11	BM/KM	21	MF/LM	26*	MF/LM	16	BB	6	RH	
	VIBRATION			X	6	DS																							
SUMP PUMP	SERVICE			X	20	JM																							
	INSPECTION			X	20	TM																							
10 TON CRANE	LUBRICATE			X																							6	RH	
	EXERCISE			X	20	JM																					6	RH	
	INSPECT			X	20	TM																					6	RH	
SURGE RELIEF VALVE	INSPECT			X																							14	RH	
	EXERCISE			X																							14	RH	
	STRAINERS			X																							14	SFH	
MAN. CONTROL VALVE	INSPECT			X																							14	RH	
	EXERCISE			X																							14	RH	
SWITCH GEAR	SERVICE			X	29	RH																							
	INSPECT			X	29	RH																							
	CLEAN		X	X	29	RH																							
MOTOR CONTROLLER	INSPECT			X	29	RH																							
	CLEAN			X	29	RH																							
	TEST			X	29	RH																							
	CHECK FUSES			X	29	RH																							
TRANSFORMER	INSPECT			X	29	RH																							
EMER. LIGHTING	TEST			X	20	JM																					6	RH	
GENERATOR	OIL CHANGE			X	NA	JM																							
	FLUID LEVELS	X			20	JM	18	BB	24	SE	18	JM	13	AH	17	AH	13	BM	11	BM/KM	21	MF/LM	26	MF/LM	9	BB	6	RH	
	SAMPLE OIL			X	20																								
	FUEL FILTERS			X	20																								
	BATTERY	X			20		18	BB	24	SE	18	JM	13	AH	17	AH	13	BM	11	BM/KM	21	MF/LM	26	MF/LM	9	BB	6	RH	
	BELTS			X	20																								
	HOSES			X	20	JM																							
	ADJUSTMENT			X	—																								
	VIBRATION			X																									
ADDITIONAL COMPONENTS																													
Automatic Transfer Switch	Clean		X		29	RH																							
	Inspect		X		29	RH																							

REMARKS

changed oil Pump #3 Top Compartment 2-18-16 10907 hrs
Changed throttle bushing & mec Seal on Pump 1 TM/AH 2-25-16

6-7-16 AH/TM replaced Bushing & Mechanical Seal PJ
17-21-11 Replaced Bushing & mechanical Seal PJ TM/AH/JM/RH

10-26-16 LM didn't exercise pump because of generator update

RICHARDTON PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
GENERATOR	AIR CLEANER			X	21	JM																							
	LAMP TESTS			X	21	JM																							
	EXERCISE	X			20	JM	18	BB	24	SK	18	JM	13	DH	17	DH	13	BM	11	BM/GM	21	MV/GM	26	MV/GM	KB	BB	6	RH	
PRESSURE SWITCHES	INSPECT	X			20	JM	18	BB	24	SK	18	JM	13	DH	17	DH	13	BM	11	BM/GM	21	MV/GM	26	MV/GM	KB	BB	6	RH	
	ADJUST			X	28	JM																							
AIR HANDLER	INSPECT			X	20	JM											13	BM											Grain! A/C Fan Motor Bearings 3-14-16 RH
	LUBRICATE			X	20																								
	CLEAN			X	20																								
	FUEL TANK	X			20		18	BB	24	SK	18	JM	25Gal	DH	75	DH	400	BM	400	BM	406	MV/GM	340	MV/GM	KB	BB	6	RH	
	BELTS			X	20	JM																							
	COILS			X																							1	RH	
	ELECTRICAL		X		28	RH																							
	LINKAGES		X		20	JM																							
	RECALIBRATE			X																									
OVERHEAD DOOR	LUBRICATE			X																									
	INSPECT			X	20	JM																							
LOUVERS	INSPECT			X	20	JM																							
FANS	INSPECT			X	20	JM																							
	LUBRICATE			X																									
TELEMETRY	INSPECT			X	27	RH																							
	CLEAN		X		27	RH																							
	CALIBRATION			X																									
	RADIO CHECK		X		28	RH																							
BUILDING	DRAINAGE			X	21	JM																							
	INSPECT			X	21	JM																							
	CLEAN			X	21	JM																							
	SUMPS			X	21	JM																							
PERIMETER FENCES	INSPECT			X	21	JM																							
AIR COMPRESSOR	DRAIN CONDENSATION	X			20	JM	18	BB	24	SK	18	JM	13	DH	7	DH	13	BM	11	BM/GM	21	MV/GM	26	MV/GM	KB	BB	6	RH	
	LUBRICATION		X		20																								
	OIL CHANGE			X	20																								
	SAFETY VALVE	X			20		18	BB	24	SK	18	JM	13	DH	7	DH	13	BM	11	BM/GM	21	MV/GM	26	MV/GM	KB	BB	6	RH	
	AIR FILTER		X		20																								
	STRAINER		X		20																								
	BELTS		X		20																								
	BREATHER VALVE			X	20	JM																							
	CHANGE VALVE			X																									
SURGE TANK	COATING INSPECTION			X					16	JM																			
	CLEAN			X					16	JM																			
	CONTROLS			X					16	JM																			
	CATHODIC CHECK			X																	1	RH							
ADDITIONAL COMPONENTS																													
PUMP CAN OBSERVATION V	CHECK LEVEL AND PUMP OUT			X	28	JM																					14	BB/KB	checked well levels

REMARKS

* = Installed new Generator in November unable to do Maint	Pump 4 Inlet Main valve leaking 12/14/16	

RICHARDTON PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
4160 VOLT GENERATOR	OIL CHANGE			X																									- No, Generator installed.
	FLUID LEVELS	X			20	JM	18	BB	24	SF	18	JM	13	DH	17	DH	13	BM	11	BM/KM	21	MH/JM	26	MH/JM	JM	BB	14	SF/KM	Fluids, Vibration and
	SAMPLE OIL			X	21																								exercise performed by
	FUEL FILTERS			X	20																								CAT Service tech in
	COOLANT FILTERS			X	20																								November. Will need new
	COOLANT SAMPLE			X	21																								OTM For Genset as well
	BATTERY	X			20		18	BB	24	SF	18	JM	13	DH	17	DH	13	BM	11	BM/KM	21	MH/JM	26	MH/JM	JM	BB	14	SF/KM	as new Instruction Sheet
	BELTS			X	20																								For monthly maintenance
	HOSES			X	20	JM																							and exercise. 12-6-16 KM
	ADJUSTMENT			X																									
	VIBRATION			X																									
	AIR CLEANER			X	20	JM																							
	EXERCISE	X			21	JM	18	BB	24	SF	18	JM	13	DH	17	DH	13	BM	11	BM/KM	21	MH/JM	26	MH/JM	JM	BB	14	SF/KM	
	ENGINE HEATERS	X			21	JM	18	BB	24	SF	18	JM	13	DH	17	DH	13	BM	11	BM/KM	21	MH/JM	26	MH/JM	JM	BB	14		
	FUEL LEVEL	X			21	JM	18	BB	24	SF	18	JM	13	DH	17	DH	5090	BM	4990	BM/KM	4910	MH/JM	26	MH/JM	JM	BB	14		
ADDITIONAL COMPONENTS																													

REMARKS

10-26-16 - Hooking up new generator today cannot run yet. KM 11-9-16 Still unable to use generator		

RAY CHRISTENSEN PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
PUMP S1	OIL CHANGE			X															17	SK									
	OIL SAMPLE		X				10	SK																					
	LUBRICATE			X																									
	PERFORMANCE	X			14	SK/JK	9	JK	17	TT	20	TM	12	MF/GM	28*	JW	27	AH	17	SK	15	BM/GM	27	JW	—	—	—	RH	- Bad valve, DNR
	VIBRATION			X		1	9	AH											17	SK									
PUMP S2	OIL CHANGE			X																									
	OIL SAMPLE		X				10	SK																					
	LUBRICATE			X																									
	PERFORMANCE	X			14	SK/JK	9	JK	17	TT	20	TM	12	MF/GM	28	JW	28	JK	17	SK	15	BM/GM	27	JW	17	MF/GM	12	RH	
	VIBRATION			X			9	AH											17	SK									
PUMP S3	OIL CHANGE			X																									
	OIL SAMPLE		X				16	SK																					
	LUBRICATE			X																									
	PERFORMANCE	X			14	SK/JK	9	JK	17	TT	20	TM	12	MF/GM	28	JW	28	JK	17	SK	15	BM/GM	27	JW	17	MF/GM	12	RH	
	VIBRATION			X			9	AH											17	SK									
PUMP E1	OIL CHANGE			X																									
	OIL SAMPLE		X				10	SK																					
	LUBRICATE			X			9	AH																					
	PERFORMANCE	X			14	SK/JK	9	JK	17	TT	20	TM	12	MF/GM	21	JW	27	AH	17	SK	15	BM/GM	27	JW	17	MF/GM	12	RH	
	VIBRATION			X			9	AH											17	SK									
PUMP E2	OIL CHANGE			X																									
	OIL SAMPLE		X				10	SK																					
	LUBRICATE			X			9	AH																					
	PERFORMANCE	X			14	SK/JK	9	JK	17	TT	20	TM	12	MF/GM	21	JW	27	AH	17	SK	15	BM/GM	27	JW	17	MF/GM	12	RH	
	VIBRATION			X		1	9	AH											17	SK									
PUMP E3	OIL CHANGE			X																									
	OIL SAMPLE		X				10	SK																					
	LUBRICATE			X			9	AH																					
	PERFORMANCE	X			14	SK/JK	9	JK	17	TT	20	TM	12	MF/GM	21	JW	27	AH	17	SK	15	BM/GM	27	JW	17	MF/GM	12	RH	
	VIBRATION			X		1	9	AH											17	SK									
PUMP W1	OIL CHANGE			X																									
	OIL SAMPLE		X				10	SK																					
	LUBRICATE			X			9	AH																					
	PERFORMANCE	X			14	SK/JK	9	JK	17	TT	20	TM	12	MF/GM	21	JW	27	AH	17	SK	15	BM/GM	27	JW	17	MF/GM	12	RH	
	VIBRATION			X			9	AH											17	SK									
PUMP W2	OIL CHANGE			X																									
	OIL SAMPLE		X				10	SK																					
	LUBRICATE			X			9	AH																					
	PERFORMANCE	X			14	SK/JK	9	JK	17	TT	20	TM	12	MF/GM	21	JW	27	AH	17	SK	15	BM/GM	27	JW	17	MF/GM	14	RH	
	VIBRATION			X			9	AH											17	SK									
PUMP W3	OIL CHANGE			X																									
	OIL SAMPLE		X				10	SK																					
	LUBRICATE			X			9	AH																					
	PERFORMANCE	X			14	SK/JK	9	JK	17	TT	20	TM	12	MF/GM	21	JW	27	AH	17	SK	15	BM/GM	27	JW	17	MF/GM	12	RH	
	VIBRATION			X		1	9	AH											17	SK									
UNDERDRAIN VAULT	INSPECT			X																									
	SERVICE SUMP PUMP			X																									
	INSPECT SUMP PUMP			X																									

REMARKS

2-9-16 Dan Great Plains did vibrations & Greased Motor
6-7-16 Added 1 Pt to 58 CM
*6-23-16 DID NOT RUN/EXERCISE 5-1 & 5-3 DUE TO LOW SUMP LEVELS

S South Zone Pump # 3 locked out Gate & Check Valve leaking 9-28-16 TT
* Did not run 32 because its locked out 11-17-16

12-25-16 East zone Pump Fail, reset MCC Remote/disconnect T/M/Sim

RAY CHRISTENSEN PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
CLEARWELL	INSPECT OVERFLOW & VENT SCREENS			X																									
	CLEAN			X																									
	INSPECT			X																									
10 TON CRANE	LUBRICATE			X																									
	EXERCISE			X	15	SF											28	JK											
	INSPECT			X	15	SF											28	JK											
CONTROL VALVES	INSPECT			X																									
	EXERCISE			X																									
	STRAINERS			X																									
MAN. CONTROL VALVES	INSPECT			X			9	SK																					
	EXERCISE			X			9	SK																					
SWITCH GEAR	SERVICE			X	26	CM																							
	INSPECT			X	26	CM																							
	CLEAN		X		26	CM																							
MOTOR CONTROLLERS	INSPECT			X	26	|																						
	CLEAN			X	26	|																						
	TEST			X	26	|																						
	CHECK FUSES			X	26	|																						
TRANSFORMER	INSPECT			X	26	|																						
EMER. LIGHTING	TEST			X	26	CM																							
GENERATOR	OIL CHANGE			X																									
	FLUID LEVELS	X			14	SF/JK	9	SK	17	JK	20	CM	12	JM	20	JM	27	AH	17	JK	15	JK/CM	27	JL	17	MF/CM	12	RH	
	SAMPLE OIL			X			10	SK/SF																					
	SAMPLE ANTIFREEZE		X				10	SK/SF																					
	FUEL FILTERS			X																									
	BATTERY	X			14	SF/JK	9	SK	17	JK	20	CM	12	JM	24	JM	27	AH	17	JK	15	JK/CM	27	JL	17	MF/CM	12	RH	
	BELTS			X			9	SK									28	SK											
	HOSES			X			9	SK									28	SK											
	ADJUSTMENT			X																									
	VIBRATION			X																									
	AIR CLEANER			X			9	SK									28	SK											
	LAMP TESTS			X			9	SK									28	SK											
	EXERCISE	X			14	SF/JK	10	SK/SF	17	JK	20	CM/JK	12	JM	21	JM	28	JK	17	JK	15	JK/CM	27	JL	17	MF/CM	12	RH	
AIR HANDLER	INSPECT			X	14	SF																							
	LUBRICATE			X	14	SF																							
	CLEAN			X	14	SF																							
	FUEL TANK	X			14	SK/SF	9	SK	3/4	JK	20	CM	12	JM	20	JM	3/4	AH	17	JK	65	JK/CM	75%	JL	7/8	MF	3/4	RH	
	BELTS			X	14	SF		SF																					
	COILS			X	14	SF																							
	ELECTRICAL		X		26	CM																							
	LINKAGES		X																										
	RECALIBRATE			X																									
ADD. COMPONENTS																													
POWER FACTOR CAPACIT	CHECK BLOWN FUSE LIG	X			26	CM	23	CM	17	JK	20	CM	12	JM	20	JM	27	AH	17	JK	15	JK/CM	27	JL	17	JM	12	RH	*

REMARKS

Replaced Capacitors on E2, E3 PW3, Burnt Wires 2-23-16CM
DID NOT EXERCISE DUE TO LOW TANK LEVELS)
*E2 Capacitor Bank shorted out, will order new unit + replace. 12-12-16 RH - Replaced E2 Cap Bank 12-20-16 RH

RAY CHRISTENSEN PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
LOUVERS	INSPECT			X			9	SK											17	SK									
FANS	INSPECT			X			9	SK											17	SK									
OVERHEAD DOOR	LUBRICATE			X			10	SK																					
	INSPECT			X			10	SK																					
TELEMETRY	INSPECT			X			26	CM																					
	CLEAN		X				1																						
	CALIBRATE			X			26	CM																					
	RADIO CHECK		X				26	CM																					
BUILDING	DRAINAGE			X			10	SK																					
	INSPECT			X			10	SK																					
	CLEAN			X			10	SK																					
	SUMPS			X																									
AIR COMPRESSOR	DRAIN CONDENSATE	X			14	SK/JM	9	SK	17	JT	20	CM	MF/SM	JM	24	JM	28	SK	17	SK	15	BM/SM	27	JM	17	JM	12	KH	
	LUBRICATE		X				10	SK																					
	OIL CHANGE			X			10	SK																					
	SAFETY VALVE	X			14	SK/JM	9	SK	17	JT	20	CM	MF/SM	JM	26	JM	28	SK	17	SK	15	BM/SM	27	JM	17	JM	12	KH	
	AIR FILTER		X				9	SK																					
	STRAINER		X				9	SK																					
	BELTS		X				9	SK																					
	BREATHER VALVE			X			9	SK																					
	CHANGE VALVE			X																									
SURGE TANK	COATING			X					16	JM																			
	INSPECT			X					16	SK																			
	CONTROLS			X					16	JM																			
SLUICE GATE	INSPECT			X																									
	EXERCISE			X																									
SOUTH METER	READ	X			14/28	SK/JM	24	TM	23	JM	27	JT	25	JT	23	JT	26	JM	25	JM	27	CM	25	CM	23	JT	22	JM	
	INSPECT			X																									
EAST METER	READ	X			14/28	SK/JM	24	TM	23	JM	27	JT	25	JT	23	JT	26	JM	25	JM	27	CM	25	CM	23	JT	22	JM	
	INSPECT			X																									
WEST METER	READ	X			14/28	SK/JM	24	TM	23	JM	27	JT	25	JT	23	JT	26	JM	25	JM	27	CM	25	CM	23	JT	22	JM	
	INSPECT			X																									
PRESSURE SWITCHES	INSPECT	X			14	SK/JM	9	SK	17	JT	20	TM	12	SM	20	JM	28	SK	17	SK	15	BM/SM	27	JM	17	MF	12	KH	
	ADJUST			X			9	SK																					
PRESSURE RELIEF VALVES	EXERCISE		X				9	SK																					
PERIMETER FENCES	INSPECT			X			9	SK																					
ADD. COMPONENTS																													
FIRE EXTINGUISHERS	CHARGE LEVEL	X			14	SK/JM	9	SK	17	JT	20	CM	JM	JM	24	JM	28	SK	17	SK	15	BM/SM	27	JM	17	MF	12	KH	

REMARKS

FINISH W... PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
	IN-LINE VALVES	EXERCISE		X		*																								
	PUMP 1	OIL SAMPLE		X		*																								
		OIL CHANGE			X																									
		GREASE		X		*																								
		PERFORMANCE	X			20	SK	11	SF	17	TT	20	CM	12	JM	21	JW	27	AH	17	SK	15	BM	27	JW	17	MP	12	RH	
		VIBRATION		X		*																								
	PUMP 2	OIL SAMPLE		X		*																								
		OIL CHANGE			X																									
		GREASE		X		*																								
		PERFORMANCE	X			20	SK	11	SF	17	TT	20	CM	12	JM	21	JW	27	AH	17	SK	15	BM	27	JW	17	MP	12	RH	
		VIBRATION		X		*																								
	PUMP 3	OIL SAMPLE		X		*																								
		OIL CHANGE			X																									
		GREASE		X		*																								
		PERFORMANCE	X			20	SK	11	SF	17	TT	20	CM	12	JM	21	JW	27	AH	17	SK	15	BM	27	JW	17	MP	12	RH	
	PRESSURE SWITCH	INSPECT	X			20	SK	11	SF	17	TT	20	CM	12	JM	21	JW	27	AH	17	SK	15	BM	27	JW	17	MP	12	RH	
		ADJUST			X																									
	MAIN.CONTROL VALV	INSPECT			X																									
		EXERCISE		X		20	SK	11	SF	17	TT	20	CM	12	JM	21	JW	27	AH	17	SK	15	BM	27	JW	17	MP	12	RH	
	OVERHEAD DOOR	LUBRICATE			X																									
		EXERCISE			X																									
	LOUVERS	INSPECT			X																									
	GENERATOR*	OIL CHANGE			X																									
		FLUID LEVES	X			*																								
		SAMPLE OIL		X		*																								
		FUEL FILTER			X																									
		BATTERY	X			*																								
		BELTS			X																									
		HOSES			X																									
		ADJUSTMENT			X																									
		VIBRATION			X																									
		AIR CLEANER			X																									
		EXERCISE	X			*																								
	BUILDING	DRAINAGE			X																									
		INSPECTION	X			20	SK	11	SF	17	TT	20	TM	12	JM	21	JW	27	AH	17	SK	15	BM	27	JW	17	MP	12	RH	
		CLEAN			X																									
	TELEMETRY	INSPECTION			X			3	CM																					
		CLEAN		X				3	CM																					
		CALIBRATE			X																									
		RADIO CHECK		X				3	CM																					
	MOTOR CONTROLLER	INSPECT			X			1																						
	AND DRIVES	CLEAN			X			1																						
		TEST			X			1																						
		INSPECT VFD FILTE	X			20	SK	3	CM	17	TT	20	TM	12	JM	21	JW	27	AH	17	SK	15	BM	27	JW	17	MP	12	RH	

REMARKS

* Generator was a portable one that doesn't did maintenance on.	* Never Sampled or did vibrations because everything was brand new	

FINISH WATER PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
	METER READING		X			26	wtp	24	wtp	23	wtp	27	wtp	25	wtp	23	wtp	26	wtp	25	wtp	27	wtp	25	wtp	23	wtp	22	wtp	
	SUMP PUMP	INSPECT			X																									
		SERVICE			X																									
	CRANE	INSPECT			X																									
		EXERCISE			X																									
	Cathodic Protection	Potential	X													22	RH													
		Current Survey		X																										

REMARKS

11:00 AM 25.8

JUNG L PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
PUMP #1	OIL CHANGE			X																									Lost power to Building
	OIL SAMPLE		X														20	BM/GM											The Main outside Transfer
	PERFORMANCE	X			Locked out				Locked out		19	MF/BM	18	LM	*	BB	20	BM/GM	18	SF	14	BB	Locked out	BB	Locked out	BM	Locked out	BM	sw. h/h Breaker repaired
	VIBRATION			X					OOP								20	BM/GM											Need to reset it TT
PUMP #2	OIL CHANGE			X																									10-9-16
	OIL SAMPLE		X		13	BM/GM											20	BM/GM											
	PERFORMANCE	X			13	BM/GM	10	BM/GM TM	15	MF/GM	19	MF/BM	18	LM	22	BB	20	BM/GM	18	SF	14	BB	26	BB	16	BM/GM	14	BM/GM	
	VIBRATION			X			9	TM																					
PUMP #3	OIL CHANGE			X																									
	OIL SAMPLE		X		13	BM/GM											20	BM/GM											
	PERFORMANCE	X			13	BM/GM	10	BM/GM TM	15	MF/GM	19	MF/BM	18	LM/BB	*	BB	20	BM/GM	18	SF	14	BB	26	BB	16	BM/GM	14	BM/GM	
	VIBRATION			X			9	TM																					
PRESSURE SWITCHES	INSPECT	X			14	BM/GM	10	BM/GM TM	15	MF/GM	19	MF/BM	18	LM/BB	22	BB	20	BM/GM	18	SF	14	BB	26	BB	16	BM/GM	14	BM/GM	
	ADJUST			X																									
CONTROL VALVES	INSPECT			X	13	BM/GM																							
	EXERCISE			X	13	BM/GM																							
	STRAINERS	BB		X	13	BM/GM																							
MAN. CONTROL VALVE	INSPECT			X	13	BM/GM																							
	EXERCISE			X	13	BM/GM																							
OVERHEAD DOOR	LUBRICATE			X			10	BM/GM																					
	EXERCISE			X			10	BM/GM																					
LOUVERS	INSPECT			X			10	TM																					
GENERATOR	OIL CHANGE			X																									
	FLUID LEVELS	X			13	BM/GM	10	BM/GM	15	LM/MF	19	MF/GM	18	LM	22	BB	20	BM/GM	18	SF	14	BB	26	BB	16	BM/GM	14	BM/GM	
	SAMPLE OIL			X	13	BM/GM																							
	FUEL FILTER			X																									
	BATTERY	X			13	BM/GM	10	BM	15	MF/BM	19	MF/GM	18	LM	22	BB	20	BM/GM	16	SF	14	BB	26	BB	16	BM/GM	14	BM/GM	
	BELTS			X	13	BM/GM																							
	HOSES			X	13	BM/GM																							
	ADJUSTMENT			X																									
	VIBRATION			X																									
	AIR CLEANER			X	13	BM/GM																							
	EXERCISE	X			13	BM/GM	10	BM/GM TM	15	LM/MF	19	MF/BM	18	LM	*	BB	20	BM/GM	16	SF	14	BB	26	BB	16	BM/GM	14	BM/GM	
BUILDING	DRAINAGE			X																									
	INSPECTION			X			10	BM/GM																					
	CLEAN			X			10	TM																	16	BM/GM			
	ADD 1 GALLON H5O TO DRAIN	X			13	BM/GM	10	BM/GM	15	LM	19	MF/BM	18	LM	22	BB	20	BM/GM	18	SF	14	BB	26	BB	16	BM/GM	14	BM/GM	
TELEMETRY	INSPECTION			X	20	RH																							
	CLEAN		X		20	RH																							
	CALIBRATION			X																									
	RADIO CHECK		X				9	RH																					
MOTOR CONTROLLERS	INSPECT			X	14	RH/BM																							
AND DRIVES	CLEAN			X	14	RH/BM																							
	TEST			X	14	RH/BM																							
	INSPECT VFD FILTERS	X			14	RH/BM	10	BM/GM	15	MF/BM	19	LM	15	LM	22	BB	20	BM/GM	18	SF	14	BB	26	BB	16	BM/GM	14	BM/GM	
PROPANE TANK	CHECK LEVEL	X			53%	BM	50%	BM	48%	MF	47%	MF/BM	47%	LM	22	BB	46%	BM/GM	45%	SF	45%	BB	45%	BB	45%	BM	42%	BM/GM	
ADDITIONAL COMPONENTS																													
SLANTING VALVE	INSPECT			X			10	BM/GM											18	SF	14	BB	26	BB	16	BM			
	LUBRICATE			X			10	TM											18	SF					16	BM			
METER READING		X			26	JM	24	MF	23	JM	26	MF	25	MF	23	TT	26	JM	25	MF	27	MF	25	MF	23	TT	22	MF	

REMARKS

1-13-16 Clean pumps 1, 2 + 3 speed controls BM/GM
1-13-16 exercise pumps 1, 2 & 3 Air vacs BM/GM
1-11-16 exercise + clean speed controls on potable water cks

1-13-16 pump 1 locked out for repairs
1-20-16 Install HMI in ATS, mapped motors + tach passed RH
valves GM/TM 2-10-16 changed Heater thermocouple

2-9-16 Dan Grout Plains oil in brothers m
also Greased all motors AH
need heater TM

3-15-16 grease compressor pump #2 MM/MF *010 not exercise due to water shortage

JUNG LAKE [illegible]MP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
480 V GENERATOR	OIL CHANGE			X																									
	FLUID LEVELS	X			14	GM/Km	10	GM	15	MK/Km	19	DEM	18	LM	22	BB	20	BM/Km	18	SF	14	BB	26	BB	16	BM/Km	14	BM/Km	
	SAMPLE OILS			X	14	BM/Km																							
	FUEL FILTERS			X																									
	COOLANT FILTERS			X																									
	COOLANT SAMPLE			X	14	BM/Km	10	GM																					
	BATTERY	X			14	GM/Km	10	GM	15	MK/Km	19	DEM	18	LM	22	BB	20	BM/Km	18	SF	14	BB	26	BB	16	BM/Km	14	BM/Km	
	BELTS			X	14	GM/Km																							
	HOSES			X	14	GM/Km																							
	ADJUSTMENT			X																									
	VIBRATION			X																									
	AIR CLEANER			X			10	GM																					
	EXERCISE	X			14	GM/Km	10	BM/Km	15	MK/Km	19	BM/Km	18	BB/LM	*	BB	**	BM/Km	19	DR	14	BB	26	BB	16	BM/Km	14	BM/Km	
	ENGINE HEATERS	X			14	GM/Km	10	BM/Km	15	MK/Km	19	BM/Km	15	LM	22	BB	20	BM/Km	19	DR	14	BB	26	BB	16	BM/Km	14	BM/Km	
	FUEL TANK LEVEL	X			3390	GM/Km	67%	BM	15	MK/Km	67%	BM/Km	67%	LM	22	BB	20	BM/Km	67%	SF	14	BB	26	BB	57%	BM	57%	BM/Km	
Automatic Transfer Switch	Clean		X		20	RH																							
	Inspect		X		20	RH																							

REMARKS

1-14-16 added 2gal Delvac 15-40 oil to generator
2-16-16 Re-Programmed GTS Controller to load Specs RH
3-31-16 Replaced CB3 w/ Spare CB3 - RH

4-14-16 Interstate did maintenance on generator
8/Aug 480V GenSet ECU Trouble - Replaced by Interstate Diesel Electrical Storm Probably Damaged ECU Unit (DR)

* did not exercise due to water storage BB
** did not exercise due to time Did not Exercise
Due to Smithgroup only wait extra water usage Due to above normal Temperatures

DUNN C. R PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
PUMP #1	OIL CHANGE			X																									
	OIL SAMPLE		X																										
	PERFORMANCE	X			7	LM/DNF	4	LM	10	BM/GN	12	BM/GN	18	BM/JK	10	SF	21	TM/SF	23	TM/GN	30	SF	27	SF	8	GW	20	BM/JH	
	VIBRATION			X					5	AH					10	SF													
PUMP #2	OIL CHANGE			X																									
	OIL SAMPLE		X																										
	PERFORMANCE	X			7	LM/DNF	4	GN	10	BM/GN	12	BM/GN	18	BM/JK	10	SF	21	TM/SF	23	TM/GN	30	SF	27	SF	8	GW	20	BM/JH	
	VIBRATION			X					5	AH					10	SF													
PUMP #3	OIL CHANGE			X																									
	OIL SAMPLE		X																										
	PERFORMANCE	X			7	LM/DNF	4	LM	10	BM/GN	12	BM/GN	18	BM/JK	10	SF	21	TM/SF	23	TM/GN	30	SF	27	SF	8	GW	20	BM/JH/JW	
	VIBRATION			X					5	AH					10	SF													
PRESSURE SWITCHES	INSPECT	X			7	LM/DNF	4	GN	10	BM/GN	12	BM/GN	18	BM/JK	10	SF	21	TM/SF	23	TM/GN	30	SF	27	SF	8	GW	20	BM/JH/JW	
	ADJUST			X																									
MAN. CONTROL VALVE	INSPECT			X																									
	EXERCISE			X																									
10" SOLENOID CONTROL VALVE	INSPECT			X											8	SF	20	SF											
	EXERCISE			X											8	SF	20	SF											
	STRAINERS			X											8	SF	20	SF											
4" PRV VALVE	INSPECT			X											3	SF	21	SF					12	SF			20	BM/JW	
	EXERCISE			X											3	SF	21	SF					12	SF			20	BM/JW	
	STRAINERS			X											3	SF	21	SF					12	SF			20	BM/JW	
SURGE RELIEF VALVE	INSPECT		X		7	LM/DNF																							
	EXERCISE		X		7	LM/DNF																							
	ADJUST			X																									
MOTOR CONTROLLERS	INSPECT			X			17	RH																					
AND DRIVES	CLEAN			X			17	RH																					
	TEST			X			17	RH																					
	INSPECT VFD FILTERS	X			7	LM/DNF	4	LM	10	BM/GN	12	BM/GN	18	BM/JK	10	SF	21	TM/SF	23	TM/GN	30	SF	27	SF	8	GW	20	SF	
BUILDING	DRAINAGE			X																									
	INSPECTION			X																									
	CLEAN			X																									
TELEMETRY	INSPECTION			X			2	RH																					
	CLEAN		X				2	RH																					
	CALIBRATION			X																									
	RADIO CHECK		X				2	RH																					
SUMP PUMP	INSPECT	X			7	LM	4	LM	10	BM/GN	12	BM/GN	18	BM/JK	10	SF	21	TM/SF	23	TM/GN	30	SF	27	SF	8	GW	20	SF	
	SERVICE			X																									
AIR HANDLERS	INSPECT	X			7	LM/DNF	4	LM	10	BM/GN	12	BM/GN	18	BM/JK	10	SF	21	TM/SF	23	TM/GN	30	SF	27	SF	8	GW	20	SF	
	FILTERS	X			7	LM/DNF	4	GN	10	BM/GN	12	BM/GN	18	BM/JK	10	SF	21	TM/SF	23	TM/GN	30	SF	27	SF	8	GW	20	SF	
	LOUVERS	X			7	LM/DNF	4	LM	10	BM/GN	12	BM/GN	18	BM/JK	10	SF	21	TM/SF	23	TM/GN	30	SF	27	SF	8	GW	20	SF	
METER READING		X			7	LM/DNF	4	GN	10	BM/GN	12	BM/GN	18	BM/JK	10	SF	21	TM/SF	23	TM/GN	30	SF	25	SF	23	SF	23	SF	

REMARKS

3-5-16 Dan with Great Plains did vibrations Balance motor P2 - 4-22 Balance P-1 & 3

6-10-16 performed injection test on all 3 pumps

7-11-16 C/A-Valve wasn't opening to SH clean well (exercised and flushed valve).

9-6-16 Calibrated GRL numbers on 10" Discharge Motor per Krohne. Tested @ 100.04% after change. was 3.8% Low before change

10-12-16 4" PRV was backfeeding Treatment Plant/104th Exercised and made small adjustment SF

Pump #2 Failed from pinnacle Had to unplug module DRTB Then reset fault in parameters JT 12-21-16

JK Did Not Pull Oil Samples because So new and under Warranty

DUNN CENTER PUMP STATION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
GENERATOR	OIL CHANGE			X																									
	FLUID LEVELS	X			7		4		10		12		16		10		21		23		30		25		8		20		
	SAMPLE OILS			X																									
	FUEL FILTERS			X																									
	COOLANT SAMPLE			X																									
	BATTERY	X			7		4		10		12		16		10		21		23		30		25		8		20		
	BELTS			X																									
	HOSES			X																									
	ADJUSTMENT			X																									
	VIBRATION			X																									
	AIR CLEANER			X																									
	EXERCISE	X			7		4		10		12		16		10		21		23		30		25		8		20		
	ENGINE HEATERS	X			7		4		10		12		16		10		21		23		30		25		8		20		
PROPANE TANK	CHECK LEVEL	X			60%		60%		100%		57%		57%		57%		58%		57%		57%		57%		8		55%		

DICKINSON WATER TREATMENT PLANT
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
PUMP 1	OIL CHANGE			X																									
	OIL SAMPLE		X																										
	PERFORMANCE	X																											
	VIBRATION			X																									
PUMP 2	OIL CHANGE			X																									
	OIL SAMPLE		X																										
	PERFORMANCE	X																											
	VIBRATION			X																									
TELEMETRY	INSPECTION			X	25	Amy																							
	CLEAN		X		1	1																							
	CALIBRATION			X	25	CM																							
	RADIO CHECK		X																										
VAR. FREQUENCY DRIVE	INSPECT			X	25	CM																							
	CLEAN		X		25	CM																							
	TEST			X	25	CM																							
ADD COMPONENTS																													

REMARKS

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
2-1	AIR-VACS	EXERCISE		X										19	BM/BM											9	SF			
		INSPECT		X										19	DM/BS											9	SF			
	BLOWOFFS	EXERCISE		X																						9	SF			
		INSPECT		X																						9	SF			
	IN-LINE VALVES	EXERCISE		X																						9	SF			
		INSPECT			X																					9	SF			
	LEAK DETECTION	TEST			X																									
2-2A	AIR-VACS	EXERCISE		X										19	DM/BS											17	SF			
		INSPECT		X										19	DM/BS											17	SF			
	BLOWOFFS	EXERCISE		X										19	DM/BS											17	SF			
		INSPECT		X										19	DM/BS											17	SF			
	IN-LINE VALVES	EXERCISE		X										19	DM/BS															
		INSPECT			X									19	DM/BS															
2-2B	AIR-VACS	EXERCISE		X																								15	TM	
		INSPECT		X																								15	TM	
	BLOWOFFS	EXERCISE		X																								15	TM	
		INSPECT		X																								15	TM	
	IN-LINE VALVES	EXERCISE		X																								15	TM	
		INSPECT			X																							15	TM	
2-2C	AIR-VACS	EXERCISE		X																								15	TM	
		INSPECT		X																								15	TM	
	BLOWOFFS	EXERCISE		X										24	SF/BS															
		INSPECT		X										24	SF/BS															
	IN-LINE VALVES	EXERCISE		X										24	SF/BS															
		INSPECT			X									24	SF/BS															
2-2D	AIR-VACS	EXERCISE		X										24	SF/BS													7	BS	
		INSPECT		X										24	SF/BS													7	BS	
	BLOWOFFS	EXERCISE		X										24	SF/BS															
		INSPECT		X										24	SF/BS															
	IN-LINE VALVES	EXERCISE		X										24	SF/BS															
		INSPECT			X									24	SF/BS															
2-2E	AIR-VACS	EXERCISE		X																								7	BB	
		INSPECT		X																								7	BB	
	BLOWOFFS	EXERCISE		X																								7	BB	
		INSPECT		X																								7	BB	
	IN-LINE VALVES	EXERCISE		X																								7	BB	
		INSPECT			X																							7	BB	
2-2F	AIR-VACS	EXERCISE		X										4	BM/BS															
		INSPECT		X										4	BM/BS															
	BLOWOFFS	EXERCISE		X																31	BM/BS									
		INSPECT		X																31	BM/BS									
	IN-LINE VALVES	EXERCISE		X										4	BM/BS															
		INSPECT			X									4	BM/BS															
	ADD. COMPON.													4	BM/BS															

REMARKS

MAIN TRANSMISSIO. D DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
2-3A	AIR-VACS	EXERCISE		X								20	BmKm	11	BmKm															
		INSPECT		X								20	BmKm	11	BmKm															
	BLOWOFFS	EXERCISE		X										11	BmKm					18	BmKm					15	BmKm			
		INSPECT		X										11	BmKm					18	BmKm					15	BmKm			
	IN-LINE VALVES	EXERCISE		X								20	BmKm	11	BmKm															
		INSPECT			X							20	BmKm	11	BmKm															
2-3B	AIR-VACS	EXERCISE		X								13	LM	11	MF									26	LM					
		INSPECT		X								13	MF	11	LM									26	MF					
	BLOWOFFS	EXERCISE		X																				26	LM					
		INSPECT		X																				26	MF					
	IN-LINE VALVES	EXERCISE		X								13	LM																	
		INSPECT			X							13	MF																	
2-3C	AIR-VACS	EXERCISE		X										16	SK											16 *	LM			
		INSPECT		X										16												16	LM			
	BLOWOFFS	EXERCISE		X										16																
		INSPECT		X										16																
	IN-LINE VALVES	EXERCISE		X										16																
		INSPECT			X									16																
2-3E	AIR-VACS	EXERCISE		X								21	MF																	
		INSPECT		X								21	MF																	
	BLOWOFFS	EXERCISE		X										16	MF															
		INSPECT		X										16	MF															
	IN-LINE VALVES	EXERCISE		X								21	MF																	
		INSPECT			X							21	MF																	
2-3F	AIR-VACS	EXERCISE		X								14	MF																	
		INSPECT		X								13	MF																	
	BLOWOFFS	EXERCISE		X										17	MF															
		INSPECT		X										17	MF															
	IN-LINE VALVES	EXERCISE		X										17	MF															
		INSPECT			X									17	MF															
2-3H	AIR VACS	EXERCISE		X																		13-21	DH			10	LH			
		INSPECT		X																		13-21	DH			10	LH			
	BLOW OFFS	EXERCISE		X																		13-21	DH			10	LH			
		INSPECT		X																		13-21	DH			10	LH			
	IN-LINE VALVES	EXERCISE		X																		13-21	DH			10	LH			
	PRV VAULTS	CLEAN			X	28	DH	4	DH	11	DH	6	DH	6	DH	3	DH	8	DH	2	DH	16	DH	4	DH	3	DH	7	DH	
		ADJUST			X																									
		INSPECT	X			28	DH	4	DH	11	DH	6	DH	6	DH	3	DH	8	DH	2	DH	16	DH	4	DH	3	DH	7	DH	
		ANODE TESTS	X			28	DH	4	DH	11	DH	6	DH	6	DH	3	DH	8	DH	2	DH	16	DH	4	DH	3	DH	7	DH	
Hebron Valve	TELEMETRY	INSPECT			X			3	RH																					
		CLEAN			X			3	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				3	RH																					
	METER VAULTS	CLEAN			X	28	DH	4	DH	11	DH	6	DH	6	DH	3	DH	8	DH	2	DH	16	DH	4	DH	3	DH	7	DH	
		METER READ	X			26	DH	24	DH	22	DH	26	DH	25	DH	23	DH	26	T	25	DH	27	T	25	CM	23	DH	22	DH	
		INSPECT	X			28	DH	4	DH	11	DH	6	DH	6	DH	3	DH	8	DH	2	DH	16	DH	4	DH	3	DH	7	DH	
		CHECK CHLORINE	X			28	DH	4	DH	11	DH	6	DH	6	DH	3	DH	8	DH	2	DH	16	DH	4	DH	3	DH	7	DH	
		ANODE TESTS	X			28	DH	11	DH	11	DH	6	DH	6	DH	3	DH	8	DH	2	DH	16	DH	4	DH	3	DH	7	DH	

REMARKS

2-3C Air Vac 10-16-16 closed Air Vacs LM		

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
2-4A	TURN OUT VALVES	EXERCISE		X								12	MF																	
	IN-LINE VALVES	EXERCISE		X								12	MF																	
	BLOWOFFS	EXERCISE		X										5	MF															
		INSPECT		X										5	MF															
2-4B	TURN OUT VALVES	EXERCISE		X		15	LM	9	LM			19	LM													18	LM			
	PRV VAULT	CLEAN			X	15	LM	9	LM																					
		ADJUSTMENT			X			9	LM																					
		INSPECT	X			15	LM	9	LM	8	LM	6	LM	10	LM	10	LM	19	MF	21	LM	9	LM	5	LM	2	LM	8	LM	
		ANODE TESTS	X			15	LM	9	LM	8	LM	6	LM	10	LM	10	LM	19	MF	21	LM	9	LM	5	LM	7	LM	8	LM	
Bucyrus PRV	TELEMETRY	INSPECT			X			16	RH																					
		RADIO TEST		X				16	RH																					
	METER VAULTS	CLEAN			X	5	LM																			2	LM			
		ADJUSTMENT			X																									
		INSPECT	X			5	LM	7	LM	1	LM	1-6	LM	4-10	LM	7-10	LM	25	MF	9	MF	2-8	LM	[illegible]	LM	[illegible]	LM	6-8	LM	
		CHECK CHLORINE	X			5	LM	2	LM	1	LM	1-6	LM	4-10	LM	7-10	LM	25	MF	9	MF	2-8	LM	[illegible]	LM	[illegible]	LM	6-8	LM	
		ANODE TESTS	X			5	LM	2	LM	1	LM	1-6	LM	4-10	LM	7-10	LM	25	MF	9	MF	2-8	LM	[illegible]	LM	[illegible]	LM	6-8	LM	
	IN-LINE VALVES	EXERCISE		X		5	LM					19	LM													18	LM	8	LM	
Bucyrus	BOOSTER STATION	Air Release Valve								15-17	LM															18	LM			
	PUMP 1	OIL CHANGE			X																									
		OIL SAMPLE		X		12	LM																							
		PERFORMANCE	X			6	LM	5	LM	8	LM	5	LM	10	LM	14	LM	21	MF	30	LM	9	LM	5	LM	9	LM	15	LM	
		VIBRATION		X		6	LM																							
	PUMP 2	OIL CHANGE			X	21	LM																							
		OIL SAMPLE		X		12	LM																							
		PERFORMANCE	X			6	LM	5	LM	8	LM	5	LM	10	LM	14	LM	21	MF	30	LM	9	LM	5	LM	9	LM	15	LM	
		VIBRATION		X		6	LM																							
	PUMP 3	OIL CHANGE			X																									
		OIL SAMPLE		X		12	LM																							
		PERFORMANCE	X			6	LM	5	LM	8	LM	8	LM	Lockout		14	LM	21	MF	30	LM	9	LM	5	LM	9	LM	15	LM	
		VIBRATION		X		6	LM																							
	PRESSURE SWITCHES	INSPECT	X			6	LM	5	LM	8	LM	8	LM	10	LM	14	LM	21	MF	30	LM	9	LM	5	LM	9	LM	15	LM	
		ADJUST			X																									
	SUMP PUMP	INSPECT			X	6	LM																			9	LM			
		SERVICE			X	21	LM																							
	CONTROL VALVES	INSPECT			X	21	LM																							
		EXERCISE			X	21	LM																							
		STRAINERS			X	21	LM																							
	MANUAL VALVES	EXERCISE			X	21	LM																							
	MOTOR CONTROL	INSPECT			X																									
		CLEAN			X																									
		TEST			X																									
	ANODES	TEST	X			6	LM	5	LM	8	LM	8	LM	10	LM	14	LM	21	MF	30	LM	9	LM	5	LM	9	LM	15	LM	
	TELEMETRY	INSPECT			X			9	RH																					
		CLEAN		X				9	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				9	RH																					
	VAULT	CLEAN			X	6	LM																			9	LM			
		ANODE TEST	X			6	LM	5	LM	8	LM	8	LM	10	LM	14	LM	21	MF	30	LM	9	LM	5	LM	9	LM	15	LM	
	SURGE RELIEF	EXERCISE		X		21	LM																							
	BLOWOFFS	INSPECT		X								12-14	LM																	
		EXERCISE		X								12-14	LM																	

REMARKS

2-9-16 Adjust pressure on Tip 2 in Bucyrus PRV LM

MAIN TRANSMISSIO...ND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
2-4C	TURN OUT VALVES	EXERCISE		X								15-20	LM			9	LM													
	SCRANTON MTR VAULT	CLEAN			X	14	LM																							
		ADJUSTMENT			X											10	LM													
		INSPECT	X			14	LM	3	LM	2	LM	1	LM	3	LM	10	LM	7	MP	16	MP	2	LM	13	LM	2	LM	7	LM	
		CHECK CHLORINE	X			14	LM	3	LM	2	LM	1	LM	3	LM	10	LM	7	MP	16	MP	2	LM	13	LM	2	LM	7	LM	
		ANODE TESTS	X			14	LM	3	LM	2	LM	1	LM	3	LM	10	LM	7	MP	16	MP	2	LM	13	LM	2	LM	7	LM	
	INLINE VALVES	EXERCISE		X		14	LM					1-5-20	LM			9	LM													
SCRANTON	BOOSTER STATION																													
	PUMP 1	OIL CHANGE			X																									
		PERFORMANCE	X			14	LM	3	LM	2	LM	1	5	17	LM	14	LM	21	MF	30	LM	9	LM	5	LM	9	LM	16	LM	
		VIBRATION		X		5	LM																							
	PUMP 2	OIL CHANGE			X																									
		PERFORMANCE	X			14	LM	8	LM	2	LM	1	5	17	LM	14	LM	*	MF	30	LM	9-20*	LM	5	LM	9	LM	16	LM	
		VIBRATION		X		5	LM																							
	PRESSURE SWITCH	INSPECT	X			14	LM	8	LM	2	LM	1	5	17	LM	14	LM	21	MF	30	LM	9	LM	5	LM	9	LM	16	LM	
	AND PORTS	ADJUST			X																									
	SUMP PUMP	INSPECT			X	14	LM																					16*	LM	
		SERVICE			X																									
	SURGE RELIEF VALVE	INSPECT			X	5	LM																							
		EXERCISE			X	5	LM																							
	MANUAL VALVES	EXERCISE			X	14	LM																							
	MOTOR CONTROLS	INSPECT			X																									
		TEST			X																									
		CLEAN			X																									
	TELEMETRY	INSPECT			X			9	DH																					
		CLEAN			X			9	DH																					
		CALIBRATE			X																									
		RADIO CHECK		X				9	DH																					
	VAULT	CLEAN			X					2	LM																			
		ANODE TESTS	X			14	LM	8	LM	2	LM	1	5	17	LM	14	LM	21	MF	30	LM	9	LM	5	LM	9	LM	16	LM	
	CLEAN OUTS	EXERCISE		X						29-31	LM	14-15	LM																	
	AIR RELEASE VALVES	INSPECT			X					31	LM	14-15	LM																	
		EXERCISE		X						31	LM	14-15	LM																	
2-5A	TURN OUT VALVES	EXERCISE		X						11	JW																			
	METER VAULTS	CLEAN			X					9	JW																			
		ADJUSTMENT			X																									
		INSPECT	X			6	JW	2	JW	9	JW	12	JW	4	JW	1	JW	6	JW	2	JW	16	JW	5	JW	5	JW	1	JW	
		CHECK CHLORINE	X			6	JW	2	JW	9	JW	12	JW	4	JW	1	JW	6	JW	2	JW	16	JW	5	JW	5	JW	1	JW	
		ANODE TESTS	X			6	JW	2	JW	9	JW	12	JW	4	JW	1	JW	6	JW	2	JW	16	JW	5	JW	5	JW	1	JW	
	AIR VAC VALVES	EXERCISE		X						17	JW																			
		INSPECT		X						17	JW																			
	BLOWOFFS	EXERCISE		X						11	JW																			
		INSPECT		X						11	JW																			
	IN-LINE VALVES	EXERCISE		X						17	JW																			

REMARKS

Scranton BPS ran pump #2 with generator 9-20-16 LM	12-16-16 Scranton BPS replaced sump pump	
	7-7-16 Assist Exercise pump #2 because low Reservoir level	

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
2-5B	IN-LINE VALVES	EXERCISE		X										23/9/11	JK															
	BLOWOFFS	EXERCISE		X										1	1															
	COMBINATION AIR	EXERCISE		X																										
	RELEASE VALVES	INSPECT		X																										
	PRV VAULT	CLEAN			X	6	JK	2	JK	9	JK			5	JK			7	JK			8	JK			2	JK	7	JK	
		ADJUST			X																									
		INSPECT	X			6	JK	2	JK	9	JK	14	JK	5	JK	6	JK	7	JK	8	JK	8	JK	5	JK	2	JK	7	JK	
		ANODE TESTS	X			6	JK	2	JK	9	JK	14	JK	5	JK	6	JK	7	JK	8	JK	8	JK	5	JK	2	JK	7	JK	
	METER VAULTS	CLEAN			X	12		3				6				6				3				5		3				
		METER READ	X			26		24		23		26		25		23		26		23		27		25		23		22		
		INSPECT	X			12		3		8		6		5		6		6		2		8		5		3		8		
		CHECK CHLORINE	X			12		3		8		6		5		6		6		2		8		5		3		8		
		ANODE TESTS	X			12		3		8		6		5		6		6		2		8		5		3		8		
Fryburg BPS																														
	PUMP 1	OIL CHANGE			X																									
		OIL SAMPLE		X				2	JW																					
		PERFORMANCE	X			6	JW	2	JW	9	JW	12	JW	4	JW	1	JW	6	JW	2	JW	16	JW	5	JW	3	JW	1	JW	
		VIBRATION A		X		12																								
	PUMP 2	OIL CHANGE			X																									
		OIL SAMPLE		X				2	JW																					
		PERFORMANCE	X			6	JW	2	JW	9	JW	12	JW	4	JW	1	JW	6	JW	2	JW	16	JW	5	JW	3	JW	1	JW	
		VIBRATION A		X		6																								
	PRESSURE SWITCH	INSPECT			X					9	JW																			
		ADJUST			X																									
	SUMP PUMP	INSPECT			X			2	JW															5	JW					
		SERVICE			X																									
	SURGE RELIEF	INSPECT			X			2	JW													16	JW							
	VALVE	EXERCISE			X			2	JW													16	JW							
	MANUAL VALVES	EXERCISE			X			2	JW													16	JW							
	MOTOR CONTROL	INSPECT			X	27	CW																							
		TEST	X			27	CW																							
		CLEAN			X	27	CW																							
	TELEMETRY	INSPECT			X			10	RH																					
		CLEAN			X			10	RH																					
		CALIBRATE			X																									
		RADIO CHECK			X			10	RH																					
	VAULT	CLEAN			X							12	JW																	
		ANODE TESTS	X			6	JW	2	JW	9	JW	12	JW	4	JW	1	JW	6	JW	2	JW	16	JW	5	JW	3	JW	1	JW	
		CHECK CHLORINE	X			6	JW	2	JW	9	JW	12	JW	4	JW	1	JW	6	JW	2	JW	16	JW	5	JW	3	JW	1	JW	

REMARKS

A Corrosion plates did not have readings on Fryburg BPS

MAIN TRANSMISSIO[illegible]D DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
2-5B																														
Beach BPS	PUMP 1	OIL CHANGE			X																									
		OIL SAMPLE #8		X		4/																								
		PERFORMANCE	X			4	JK	4	JK	8	JK	18	JK	4	JK	2	JK	7	JK	2	JK	7	JK	5	JK	3	JK	8	JK	
		VIBRATION		X																				5						
	PUMP 2	OIL CHANGE			X																									
		OIL SAMPLE #8		X		4																								
		PERFORMANCE	X			4	JK	4	JK	8	JK	18	JK	4	JK	2	JK	7		2		7		5		3		8		
		VIBRATION		X																				5						
	PRESSURE SWITCH	INSPECT			X	4		4		8		18		4		2	JK	7		2		7		5		3		8		
		ADJUST			X																									
	SUMP PUMP	INSPECT			X	4		4		8		18		4		2	JK	7		2		7		5		3		8		
		SERVICE			X	4																								
	SURGE RELIEF	INSPECT			X	4		4		8		18		4		2	JK	7		2		7		5		3		8		
	VALVE	EXERCISE			X	4		4		8		18						7												
	MANUAL VALVES	EXERCISE			X	4																								
	MOTOR CONTROL	INSPECT			X			5	CM							2	JK			2		7		5		3		8		
		TEST	X			4	JK	4	JK	8	JK	18	JK	4		2	JK	7		2		7		5		3		8		
		CLEAN			X			87	CM																					
	TELEMETRY	INSPECT			X																									
		CLEAN			X																									
		CALIBRATE			X																									
		RADIO CHECK			X			27	CM																					
	VAULT	CLEAN			X	4	JK					18	JK			2	JK			2				5						
		ANODE TESTS	X			4	JK	4	JK	8	JK	18	JK	4	JK	2	JK	7	JK	2	JK	7		5		3		8		
		CHECK CHLORINE	X			4	JK	4	JK	8	JK	18	JK	4	JK	2	JK	7	JK	2	JK	7		5		3		8	JK	
Medora PRV		CLEAN			X	6	JK			8	JK			5	JK			6	JK			8	JK			3	JK	7		
		ADJUST			X																									
		INSPECT	X			6	JK	3	JK	8		14	JK	5		6	JK	6		8		8		5	JK	3		7		
		ANODE TESTS	X			6		3		8		14		5		6		6		8		8		5		3		7		
		METER READ	X			26		24		23		26		25		23		26		25		27		25		23		22		
		CHECK CHLORINE	X			6		3		8		14		5		6		6		8		8		5		3		7		
	TELEMETRY	INSPECT			X																									
		CLEAN			X																									
		CALIBRATE			X																									
		RADIO CHECK			X																									

REMARKS

#8 No antifreeze Just Grease in Beach BPS pumps

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
2-6A	AIR VACS	EXERCISE		X		25/26	Gm			1	Gm																			
		INSPECT		X		25/26	Gm			1	Gm																			
	BLOWOFFS	EXERCISE		X		23/24	Gm			1	Gm																			
		INSPECT		X		23/24	Gm			1	Gm																			
	IN-LINE VALVES	EXERCISE		X		22	Gm																							
	PRV VAULTS	CLEAN			X	7/12	Gm																							
		ADJUSTMENT			X																									
		INSPECT	X			7/12	Gm	2	Gm	1/9	Gm	5	Gm	5	Gm	1/3	Gm	7	Gm	2	Gm	7/8	Gm	4	Gm	2/3	Gm	1	Gm	
		ANODE TESTS	X			7/12	Gm	2	Gm	1/9	Gm	5	Gm	5	Gm	1/3	Gm	7	Gm	2	Gm	7/8	Gm	4	Gm	2/3	Gm	1	Gm	
Regent PRV	TELEMETRY	INSPECT			X			16	RH																					
		RADIO TEST		X				16	RH																					
	METER VAULTS	CLEAN			X	7/12	Gm																							
		METER READ	X			26	Gm	24	Gm	23	Gm	26	Gm	25	Gm	23	Gm	26	Gm	25	Gm	27	Gm	25	Gm	23	Gm	22	Gm		
		INSPECT	X			26	Gm	2	Gm	1	Gm	5	Gm	5	Gm	1	Gm	7	Gm	2	Gm	7	Gm	4	Gm	2	Gm	1	Gm	
		CHECK CHLORINE	X			26	Gm	2	Gm	1	Gm	5	Gm	5	Gm	1	Gm	7	Gm	2	Gm	7	Gm	4	Gm	2	Gm	1	Gm	
		ANODE TESTS	X			26	Gm	2	Gm	1	Gm	5	Gm	5	Gm	1	Gm	7	Gm	2	Gm	7	Gm	4	Gm	2	Gm	1	Gm	
2-6B	TURN OUT VALVES	EXERCISE		X										24	Bm	2	Bm													
	PRV VAULT	CLEAN			X	11	Bm					6	Bm							2	Bm									
		ADJUSTMENT			X	11	Bm																							
		INSPECT	X			11	Bm	3	Bm	2	Bm	6	Bm	3	Bm	7	Bm	5	Bm	2	Bm	6	Bm	11	Bm	9	Bm	5	Bm	
		ANODE TESTS	X			11	Bm	3	Bm	2	Bm	6	Bm	3	Bm	7	Bm	5	Bm	2	Bm	6	Bm	11	Bm	9	Bm	5	Bm	
	METER VAULTS	CLEAN			X	11	Bm					6	Bm							2	Bm									
		ADJUSTMENT			X	11	Bm													2	Bm									
		INSPECT	X			11	Bm	3	Bm	2	Bm	6	Bm	3	Bm	7	Bm	5	Bm	2	Bm	6	Bm	5	Bm	9	Bm	5	Bm	
		CHECK CHLORINE	X			11	Bm	3	Bm	2	Bm	6	Bm	3	Bm	7	Bm	5	Bm	2	Bm	6	Bm	5	Bm	9	Bm	5	Bm	
		ANODE TESTS	X			11	Bm	3	Bm	2	Bm	6	Bm	3	Bm	7	Bm	5	Bm	2	Bm	6	Bm	6	Bm	9	Bm	5	Bm	
	IN-LINE VALVES	EXERCISE		X										24	Bm	2	Bm													
Burt BPS	PUMP 1	OIL CHANGE			X																					30	Gm			
		OIL SAMPLE		X																						2	Gm	7	Gm	
		PERFORMANCE	X			7	Gm	11	Gm/Bm	2	Gm	1	Gm	13	Gm	2	Gm	12	Gm	3	Gm	7	Gm	4	Gm	2	Gm	7	Gm	
		VIBRATION		X																						30	Gm			
	PUMP 2	OIL CHANGE			X																					30	Gm			
		OIL SAMPLE		X																						2	Gm	7	Gm	
		PERFORMANCE	X			7	Gm	11	Gm/Bm	2	Gm	1	Gm	13	Gm	2	Gm	12	Gm	3	Gm	7	Gm	4	Gm	2	Gm	7	Gm	
		VIBRATION		X																						30	Gm			
	PRESSURE SWITCH	INSPECT	X			7	Gm	11	Gm/Bm	2	Gm	1	Gm	13	Gm	2	Gm	12	Gm	3	Gm	7	Gm	4	Gm	2	Gm	7	Gm	
		ADJUST			X																									
	SUMP PUMP	INSPECT			X			11	Gm/Bm																					
		SERVICE			X																									
	CONTROL VALVES	INSPECT			X			11	Gm/Bm																					
		EXERCISE			X			11	Gm/Bm																					
		STRAINERS			X			11	Gm/Bm																					
	SURGE RELIEF VALVE	INSPECT		X				11	Gm/Bm																					
		EXERCISE		X				11	Gm/Bm																					

REMARKS

1-11-16 check pressure switch settings at N.L
Elgin + Carson meter vaults + clean speed controls + snubbers

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
2-6B	MANUAL VALVES	EXERCISE			X																									
	MOTOR CONTROL	INSPECT			X																									
		CLEAN			X																									
		TEST			X																									
	TELEMETRY	INSPECT			X			16	RH																					
		CLEAN		X				16	RH																					
		CALIBRATE			X																									
		RADIO CHECK		X				16	RH																					
	BLOWOFFS	EXERCISE		X						12/24	GM			24	BM	2	BM			25	GM									
		INSPECT		X						12/24	GM			24	BM	2	BM			25	GM									
	AIR-VACS	EXERCISE		X						8	GM			24	BM	2	BM													
2-7A	AIR-VACS	EXERCISE		X								2	TM	4	TM															
		INSPECT		X								2	TM	4	TM															
	BLOWOFF	EXERCISE		X								2	TM	4	TM															
		INSPECT		X								2	TM	4	TM															
	IN-LINE VALVES	EXERCISE		X								2	TM	4	TM															
	TURN OUT VALVES	EXERCISE		X								2	TM	4	TM															
2-7B	AIR-VACS	EXERCISE		X								29	TM	28	TM															
		INSPECT		X								29	TM	28	TM															
	BLOWOFFS	EXERCISE		X								29	TM	28	TM															
		INSPECT		X								29	TM	28	TM															
	TURN OUT VALVES	EXERCISE		X								29	TM	28	TM															
	IN-LINE VALVES	EXERCISE		X								29	TM	28	TM															
Gladstone PRV	PRV VAULT	CLEAN			X	6	JM	4	JM	21	TM	14	TM	9	TM	6	TM	11	TM	15		12	TM	5	TM	9	TM	14	TM	
		ADJUSTMENT			X																									
		INSPECT	X			6	JM	4	JM	21	TM	14	TM	9	TM	6	TM	11	TM	15	TM	12	TM	5	TM	9	TM	14	TM	
		ANODE TESTS	X			6	JM	4	JM	21	TM	14	TM	9	TM	6	TM	11	TM	15	TM	12	TM	5	TM	9	TM	14	TM	
	TELEMETRY	INSPECT			X			3	RH																					
		RADIO TEST		X				3	RH																					
	CHLORINE	CHECK	X			6	JM	4	JM	21	TM	14	TM	9	TM	6	TM	11	TM	15	TM	12	TM	5	TM	9	TM	14	TM	
	METER VAULTS	CLEAN			X	6	JM	4	JM	21	TM	14	TM	9	TM	6	TM	11	TM	15	TM	12	TM	5	TM	9	TM	14	TM	
		ADJUSTMENT			X							17	JM																	
		INSPECT	X			6	JM	4	JM	21	TM	14	TM	9	TM	6	TM	11	TM	15	TM	12	TM	5	TM	9	TM	14	TM	
		METER READ	X			6	JM	4	JM	21	TM	14	TM	9	TM	6	TM	11	TM	15	TM	12	TM	5	TM	9	TM	14	TM	
		CHECK CLORINE	X			6	JM	4	JM	21	TM	14	TM	9	TM	6	TM	11	TM	15	TM	12	TM	5	TM	9	TM	14	TM	
		ANODE TESTS	X			6	JM	4	JM	21	TM	14	TM	9	TM	6	TM	11	TM	15	TM	12	TM	5	TM	9	TM	14	TM	
2-7C	AIR-VACS	EXERCISE		X																				11	AH					
		INSPECT		X																				11	AH					
	BLOWOFFS	EXERCISE		X																				11	AH					
		INSPECT		X																				11	AH					
	TURN-OUT VALVES	EXERCISE		X																				11	AH					
	IN-LINE VALVES	EXERCISE		X																				11	AH					
	PRV VAULTS	CLEAN			X			5	AH	2	AH	5	AH	3	AH	2	AH	17	AH	9	AH	9	AH	5	AH	2	AH	2	AH	
		ADJUSTMENT			X																									
		INSPECT	X			2	AH	5	AH	2	AH	5	AH	3	AH	2	AH	17	AH	9	AH	9	AH	5	AH	2	AH	2	AH	
		ANODE TESTS	X			2	AH	5	AH	2	AH	5	AH	3	AH	2	AH	17	AH	9	AH	9	AH	5	AH	2	AH	2	AH	

REMARKS

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
2-7C	TYPE 2 PRV'S	INSPECT			X													26	TS									12/9	TS	
		ADJUST			X													26	TS											
	METER VAULTS	CLEAN			X											7	TS	13	TS	9	TS	26	TS	24	TS	23	TS			
		ADJUSTMENT			X																									
		INSPECT			X																					2	TS	9/13	TS	
		METER READ	X			26	JF	24	JF	23	JF	26	TS	25	JF	23	TS	26	TS	25	TS	27	TS	25	TS	23	TS	22	TS	
		CHECK CHLORINE	X			12	JF	9	JF	17	JF	6	TS	16	JF	7	TS	13	TS	9	TS	29	TS	24	TS	25	TS	1	TS	
		ANODE TESTS	X			12	JF	9	JF	17	JF	6	TS	16	JF	7	TS	13	TS	9	TS	29	TS	24	TS	25	TS	1	TS	
Halliday BPS	BOOSTER STATION	CLEAN			X			2	DH	2	AH	5	AH	3	AH	14	AH	12	AH	2	AH	9	AH	5	AH	2	AH	1	AH	
		ADJUSTMENT			X																									
		INSPECT	X			2	AH	2	AH	2	AH	5	AH	3	AH	16	AH	12	AH	2	AH	9	AH	5	AH	2	AH	1	AH	
		ANODE TESTS	X			2	AH	2	AH	2	AH	5	AH	3	AH	16	AH	12	AH	2	AH	9	AH	5	AH	2	AH	1	AH	
		LUBE PUMPS		X				Took out of Service																					
		PUMP VIBRATION		X				Took out of Service																					
	TELEMETRY	INSPECT			X	27	RH																							
		CLEAN			X	27	RH																							
		CALIBRATE			X																									
		RADIO TEST		X		27	RH																							
	CHLORINE	CHECK	X			2	AH	2	AH	2	AH	5	AH	3	AH	16	AH	12	AH	2	AH	9	AH	5	AH	2	AH	1	AH	
	PRESSURE SWITCH	INSPECT	X			2	AH	2	AH	2	AH	5	AH	3	AH	16	AH	12	AH	2	AH	9	AH	5	AH	2	AH	1	AH	
2-8A	IN-LINE VALVES	EXERCISE		X						17	BK																			
	BLOWOFFS	EXERCISE		X						17	BK																			
	AIR-VACS	EXERCISE		X						17	BK																			
		INSPECT		X						17	BK																			
	PRV VAULTS	CLEAN			X	15	JF																							
		ADJUST			X																									
		INSPECT	X			15	JF	9	JF	8	GN	18	JF	24	GN	28	TS	13	GN	29	GN	28	GN	12	GN	8	GN	21	GN	
		ANODE TESTS	X			15	JF	9	JF	8	GN	18	JF	24	GN	28	TS	13	GN	24	GN	27	GN	12	GN	8	GN	21	GN	
Beulah PRV	TELEMETRY	INSPECT			X			4	RH																					
		RADIO TEST		X				4	RH																					
	METER VAULT	CLEAN			X																									
		METER READ	X			7	JF	4	JF	17	JF	7	JF	25	TS	23	JF	26	TS	25	TS	27	TS	25	TS	8	GN	12	JF	
		INSPECT	X			7	JF	4	JF	17	JF	7	JF	18	TS	28	JF	21	JF	17	JF	13	JF	24	JF	8	GN	12	JF	
		CHLORINE CHECK	X			7	JF	4	JF	17	JF	7	JF	18	TS	28	JF	21	JF	17	JF	13	JF	24	JF	8	GN	12	JF	
		ANODE TEST	X			7	JF	4	JF	17	JF	7	JF	18	TS	28	JF	21	JF	17	JF	13	JF	24	JF	8	GN	12	JF	
	TURN OUT VALVES	EXERCISE		X										3	JF															
2-8B	IN-LINE VALVES	EXERCISE		X								20	JF	3	JF															
	BLOWOFFS	EXERCISE		X								20	JF	3	JF															
	AIR-VACS	INSPECT		X								20	JF	3	JF															
		EXERCISE		X								20	JF	3	JF															
	PRV VAULTS	CLEAN			X																									
		ADJUST			X																									
		INSPECT	X			25	JF	9	JF	7	JF	18	JF	24	GN	29	JF	13	GN	24	GN	28	GN	12	GN	25	GN	21	GN	
		ANODE TEST	X			25	JF	9	JF	7	JF	18	JF	24	GN	29	JF	13	GN	24	GN	28	GN	12	GN	25	GN	21	GN	

REMARKS

Goddard Valley, 2-7C, 12/20/16 installed new heater JF

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
Hazen PRV	TELEMETRY	INSPECT			X			11	RH																					
		RADIO TEST		X				21	RH																					
	METER VAULT	CLEAN			X	12	SF																							
		METER READ	X			26	SF	24	SF	23	GN	26	GN	25	GN	23	GN	26	GN	25	GN	27	GN	25	GN	23	GN	20	GN	
		INSPECT	X			12	SF	8	SF	17	GN	15	GN	24	GN	9	GN	7	GN	9	GN	30	GN	10	GN	23	GN	20	GN	
		CHLORINE CHECK	X			12	SF	8	SF	17	GN	15	GN	24	GN	9	GN	7	GN	9	GN	30	GN	10	GN	23	GN	20	GN	
		ANODE TEST	X			12	SF	8	SF	17	GN	15	GN	24	GN	9	GN	7	GN	9	GN	30	GN	10	GN	23	GN	20	GN	
Center BPS	BOOSTER STATION																													
	PUMP 1	OIL CHANGE			X			2	GP																					
		OIL SAMPLE		X		19	DH																							
		PERFORMANCE	X			21	BK	11	BK	21	SF	18	SF	23	SF	9	SF	11	SF	8	SF	6	SF	12	SF	*	TT	2	SF	
		VIBRATION		X				2	GP																					
	PUMP 2	OIL CHANGE			X																									
		OIL SAMPLE		X		19	DH																							
		PERFORMANCE	X			21	BK	4	BK	21	SF	18	SF	23	SF	9	SF	11	SF	8	SF	6	SF	12	SF	*	TT	2	SF	
		VIBRATION		X		15	GP																							
	PUMP 3	OIL CHANGE			X																									
		OIL SAMPLE		X		19	DH																							
		PERFORMANCE	X			21	BK	4	BK	21	SF	18	SF	23	SF	9	SF	11	SF	8	SF	6	SF	12	SF	*	TT	2	SF	
		VIBRATION		X		15	GP																							
	SUMP PUMP	INSPECT			X	21	BK	4	BK	21	SF	18	SF	23	SF	9	SF	11	SF	8	SF	6	SF	12	SF	*	TT	2	SF	
		SERVICE			X																									
	SURGE RELIEF VALVE	INSPECT			X	21	BK																							
		EXERCISE			X																									
	MANUAL VALVES	EXERCISE		X		21	BK																							
	METER CONTROLS	INSPECT			X			22	RH																					
	+UFAS	TEST			X			22	RH																					
		CLEAN			X			22	RH																					
	TELEMETRY	INSPECT			X			3	RH																					
		CLEAN			X			3	RH																					
		CALIBRATE			X																									
		RADIO CHECK		X				3	RH																					
	VAULT	CLEAN			X	21	BK									21	SF													
		ANODE TESTS	X			21	BK	4	BK	21	SF	18	SF	23	SF	9	SF	11	SF	8	SF	6	SF	12	SF	*	TT	2	SF	
	TURN OUT VALVES	EXERCISE		X		21	BK																							

REMARKS

Pump motor on #1 was removed, Replaced Top & Yth Just oil Seal. New oil was Reinstalled 2-3-16

QP = Great Plains of Bismarck

* November maintance never got Completed Due to weather issues at the Center Bps. TT

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
2-8C	IN-LINE VALVES	EXERCISE		X								30	DH							24	DH									
	BLOW OFFS	EXERCISE		X								30	DH							24	DH									
	AIR-VACS	EXERCISE		X								30	DH							24	DH									
		INSPECT		X								30	DH							24	DH									
	TURN OUT VALVES	EXERCISE		X								30	DH							24	DH									
	PRV VAULT	CLEAN			X	11	DH	5	DH	2	DH	5	DH			M	DH	11	DH	4	DH	12	DH	16	DH	14	DH	12	DH	
		ADJUST			X																									
		INSPECT	X			11	DH	3	DH	2	DH	5	DH	23	DH	14	DH	11	DH	4	DH	12	DH	16	DH	14	DH	12	DH	
		CHLORINE CHECK	X			11	DH	3	DH	2	DH	5	DH	23	DH	14	DH	11	DH	4	DH	12	DH	16	DH	14	DH	12	DH	
		ANODE TEST	X			11	DH	3	DH	2	DH	5	DH	23	DH	14	DH	11	DH	4	DH	12	DH	16	DH	14	DH	12	DH	
	METER VAULTS	CLEAN			X	11	DH									14	DH	11	DH	4	DH	12	DH							
		ADJUST			X	11	DH																							
		INSPECT	X			11	DH	5	DH	2	DH	5	DH	24	DH	14	DH	12	DH	9	DH	7	DH	5/16	DH	9	DH	15	DH	
		CHLORINE CHECK	X			11	DH	4	DH	2	DH	5	DH	24	DH	14	DH	12	DH	9	DH	7	DH	5/16	DH	9	DH	13	DH	
		ANODE TEST	X			11	DH	4	DH	2	DH	5	DH	24	DH	11	DH	12	DH	9	DH	7	DH	5/16	DH	9	DH	13	DH	
2-8D	IN-LINE VALVES	EXERCISE		X						2	DH									24	DH									
	BLOW OFFS	EXERCISE		X						2	DH									24	DH									
	AIR-VACS	EXERCISE		X						2	DH									24	DH									
		INSPECT		X						2	DH									24	DH									
	TURN OUT VALVES	EXERCISE		X						2	DH									24	DH									
	MWWS VFD	CLEAN			X	12	DH	1	DH	2	DH	5	DH	25	DH	20	DH	13	DH	16	DH	6	DH	25	DH	23	DH	12	DH	
		ADJUST			X																									
		INSPECT	X			12	DH	1	DH	2	DH	5	DH	25	DH	20	DH	13	DH	16	DH	6	DH	25	DH	23	DH	12	DH	
		ANODE TESTS	X			12	DH	1	DH	2	DH	5	DH	25	DH	20	DH	13	DH	16	DH	6	DH	25	DH	23	DH	12	DH	
		METER READING	X			26	DH	21	DH	23	DH	26	DH	25	DH	23	DH	26	DH	25	DH	27	DH	25	DH	23	DH	12	DH	
		CHLORINE CHECK	X			12	DH	1	DH	2	DH	5	DH	25	DH	20	DH	13	DH	16	DH	16	DH	25	DH	23	DH	12	DH	
	PRESSURE SWITCHES	INSPECT			X	12	DH																							
		ADJUST			X																									
	PRESSURE TANK	FLUSH		X		12	DH	1	DH	2	DH	5	DH	25	DH	20	DH	13	DH	16	DH	6	DH							
		CHECK AIR PRES.			X																									
	TELEMETRY	CLEAN			X			4	RH																					
		INSPECT			X			4	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				4	RH																					
2-8E	IN-LINE VALVES	EXERCISE		X																31	TS									
	BLOW OFFS	EXERCISE		X																31	TS									
	AIR-VACS	EXERCISE		X																31	TS									
		INSPECT		X																31	TS									
	TURN OUT VALVES	EXERCISE		X																31	TS									

REMARKS

2-24-16 Clean IFDs + Electrical Panels RH MWWS VFD		

MAIN TRANSMISSIO. ND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
2-8F	IN-LINE VALVES	EXERCISE		X				10																						
	BLOW OFFS	EXERCISE		X				10																						
	AIR-VACS	EXERCISE		X				10																						
		INSPECT		X				10																						
	TURN OUT VALVES	EXERCISE		X				10																						
	METER VAULTS	CLEAN			X	6																								
		ADJUST			X	6																								
		INSPECT	X			10		11		9		10		12		2		7		9		7		27		22		8		
		CHLORINE CHECK	X			10		11		9		10		12		2		7		9		7		27		22		8		
		ANODE TEST	X			10		11		9		10		12		2		7		9		7		27		22		8		
Killdeer Mtn BPS	BOOSTER STATION	CLEAN			X	4		4																						
		ADJUSTMENT			X																									
		INSPECT	X			4		4		10		11		9		13		5		16		15		13		16		12		
		ANODE TESTS	X			4		4		10		11		9		13		5		16		15		13		16		12		
		LUBE PUMPS *		X																										
		PUMP VIBRATION*		X																										
	TELEMETRY	INSPECT			X			8	RH																					
		CLEAN			X			8	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				8	RH																					
	CHLORINE	CHECK	X			4		4		10		11		9		13		5		16		15		13		.		12		
	PRESSURE SWITCH	INSPECT	X			4		4		10		11		9		13		5		16		15		13		10		12		
		ADJUST			X																									
	PRESSURE TANK	FLUSH		X				4																						
		CHECK AIR PRES.			X																									
N Fairfield BPS	BOOSTER STATION	CLEAN			X	6																								
		ADJUSTMENT			X																									
		INSPECT	X			6		4		17		11		5		16		7		9		13		13		14		13		
		ANODE TESTS	X			6		4		17		11		5		16		7		9		13		13		14		13		
		LUBE PUMPS *		X																										
		PUMP VIBRATION*		X																										
	TELEMETRY	INSPECT			X			8	RH																					
		CLEAN			X			8	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				8	RH																					
	CHLORINE	CHECK	X			6		4		17		11		5		16		7		9		13		13		14		13		
	PRESSURE SWITCH	INSPECT	X			6		4		17		11		5		16		7		9		13		13		14		13		
		ADJUST			X																									
	PRESSURE TANK	FLUSH		X				4																						
		CHECK AIR PRES.			X																									

REMARKS

2-11-16 Clean UFM's + Electrical Panels RH Killdeer Mtn	* Did not Lubricate, or check Vibrations on Killdeer mtn bps	
3-2-16 Clean UFM's + Electrical Panels RH N. Fairfield	* Did not Lubricate or check Vibrations at N Fairfield Bps	

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
3-1E	AIR VACS	EXERCISE		X																31	RK									
		INSPECT		X																31	RK									
	BLOW OFFS	EXERCISE		X																31	RK									
		INSPECT		X																31	RK									
	IN-LINE VALVES	EXERCISE		X																31	RK									
Monast PRV	PRV VAULTS	CLEAN			X	15	JF							17	GN	9	GN	6	GN	3	GN	8	GN	10	GN	4	GN	8	GN	
		ADJUST			X																									
		INSPECT	X			15	JF	8	JF	1	GN	6	GN	17	GN	9	GN	6	GN	3	GN	8	GN	10	GN	8	GN	8	GN	
		ANODE TESTS	X			15	JF	8	JF	1	GN	6	GN	17	GN	9	GN	6	GN	3	GN	8	GN	10	GN	8	GN	8	GN	
7-1A	TURN OUT VALVES	EXERCISE		X						2	Tm																			
	AIR RELEASE VALVE	INSPECT		X						2	Tm																			
		EXERCISE		X						2	Tm																			
	CLEAN OUTS	EXERCISE		X						2	Tm																			
7-1B	AIR-VACS	EXERCISE		X						4	Tm	28	Tm																	
		INSPECT		X						4	Tm	28	Tm																	
	BLOWOFFS	EXERCISE		X						4	Tm	28	Tm	2	Tm															
		INSPECT		X						4	Tm	28	Tm	2	Tm															
	IN-LINE VALVES	EXERCISE		X								28	Tm	2	Tm															
	TURN-OUT VALVES	EXERCISE		X								28	Tm	2	Tm															
	PRV VAULT	CLEAN			X	5	Jm	4	Tm	21	Tm	14	Tm	16	Tm	14	Tm	20	Tm	16	Tm	6	Tm	5	Tm	8	Tm	6	Tm	
		ADJUSTMENT			X																									
		INSPECT	X			5	Jm	4	Tm	21	Tm	14	Tm	16	Tm	14	Tm	20	Tm	16	Tm	6	Tm	5	Tm	8	Tm	6	Tm	
		ANODE TESTS	X			5	Jm	4	Tm	21	Tm	14	Tm	16	Tm	14	Tm	20	Tm	16	Tm	6	Tm	5	Tm	8	Tm	6	Tm	
		CHECK CHLORINE	X			5	Jm	4	Tm	21	Tm	14	Tm	16	Tm	14	Tm	20	Tm	16	Tm	6	Tm	5	Tm	8	Tm	6	Tm	
	METER VAULTS	CLEAN			X	5	Jm	4	Tm	21	Tm	14	Tm	16	Tm	14	Tm	20	Tm	16	Tm	6	Tm	5	Tm	8	Tm	6	Tm	
		ADJUSTMENT			X																									
		INSPECT	X			5	Jm	4	Tm	21	Tm	14	Tm	16	Tm	14	Tm	20	Tm	16	Tm	6	Tm	5	Tm	8	Tm	6	Tm	
		METER READ	X			5	Jm	4	Tm	21	Tm	14	Tm	16	Tm	14	Tm	20	Tm	16	Tm	6	Tm	5	Tm	8	Tm	6	Tm	
		CHECK CHLORINE	X			5	Jm	4	Tm	21	Tm	14	Tm	16	Tm	14	Tm	20	Tm	16	Tm	6	Tm	5	Tm	8	Tm	6	Tm	
		ANODE TESTS	X			5	Jm	4	Tm	21	Tm	14	Tm	16	Tm	14	Tm	20	Tm	16	Tm	6	Tm	5	Tm	8	Tm	6	Tm	
New Hradec BPS	BOOSTER STATION	CLEAN			X	5	Jm	4	Jm	21	Tm	14	Tm	17	Tm	6	Tm	12	Tm	9	Tm	7	Tm	3	Tm	8	Tm	5	Tm	
		ADJUSTMENT			X																									
		INSPECT	X			5	Jm	4	Jm	21	Tm	14	Tm	17	Tm	6	Tm	12	Tm	9	Tm	7	Tm	3	Tm	8	Tm	5	Tm	
		ANODE TESTS	X			5	Jm	4	Jm	21	Tm	14	Tm	17	Tm	6	Tm	12	Tm	9	Tm	7	Tm	3	Tm	8	Tm	5	Tm	
		CHECK CHLORINE	X			5	Jm	4	Jm	21	Tm	14	Tm	17	Tm	6	Tm	12	Tm	9	Tm	7	Tm	3	Tm	8	Tm	5	Tm	
	TELEMETRY	INSPECT			X			8	RH																					
		CLEAN			X			8	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				8	RH																					
	TYPE 2 PRV'S.	INSPECT			X							4	Tm	2	Tm															
		ADJUSTMENT			X							4	Tm	2	Tm															

REMARKS

2-11-16 Clean VFD's and Electrical Panels RH New Hradec BPS

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
7-1C	IN-LINE VALVES	EXERCISE		X								4	TM	2	TM															
	TYPE 2 PRV'S	INSPECT			X							4	TM	2	TM															
		ADJUST			X																									
	ARV VALVES	EXERCISE		X								4	TM	2	TM															
		INSPECT			X							4	TM	2	TM															
	CLEAN OUTS	EXERCISE		X								4	TM	2	TM															
County Line	CONTROL VAULT	CLEAN			X	5	jm	4	jm	21	TM	14	TM	17	TM	6	TM	12	TM	9	TM	7	TM	3	TM	8	TM	5	TM	
		ADJUSTMENT			X																									
		INSPECT	X			5	jm	4	jm	21	TM	14	TM	17	TM	6	TM	12	TM	9	TM	7	TM	3	TM	8	TM	5	TM	
		ANODE TESTS	X			5	jm	4	jm	21	TM	14	TM	17	TM	6	TM	12	TM	9	TM	7	TM	3	TM	8	TM	5	TM	
7-2	TURN-OUT VALVES	EXERCISE		X		4	TM	5	GM																					
	PRV VAULT	CLEAN			X	11	MF																							
		ADJUSTMENT			X																									
		INSPECT	X			11	MF	10	MF	3	MF	4	MF	4	MF	6	MF	11	MF	3	MF	13	MF	4	MF	1	MF	8		
		ANODE TESTS	X			11	MF	10	MF	3	MF	4	MF	4	MF	6	MF	11	MF	3	MF	13	MF	4	MF	1	MF	8		
	TYPE 2 PRV'S	INSPECT			X							19	GM	3	GM									6	GM					
		ADJUST			X							19	GM	3	GM									6	GM					
	AIR RELEASE VALVES	INSPECT		X				10	MF	18/21	GM																			
		EXERCISE		X				10	MF	13/24	GM																			
	CLEANOUTS	INSPECT		X		28	GM	5/8	GM	24	GM																			
		EXERCISE		X		28	GM	5/8	GM	24	GM																			
	INLINE VALVES	EXERCISE		X		28	GM	5/8	GM	24	GM																			
7-2A	IN-LINE VALVES	EXERCISE		X												19	JW													
	TURN-OUT VALVES	EXERCISE		X												18	JW													
	TYPE 2 PRV'S	INSPECT			X					9	JW																			
		ADUST			X																									
	AIR RELEASE valve	EXERCISE		X												19	JW													
		INSPECT			X											19	JW													
	CLEAN OUTS	EXERCISE		X												18	JW													
7-3	TURN OUT VALVE	EXERCISE		X		27	GM																							
	AIR RELEASE VALVES	INSPECT		X						17/18	GM																			
		EXERCISE		X					GM	18	2"																			
	CLEANOUTS	INSPECT		X		22/27	GM	2/3	GM																					
		EXERCISE		X		22/27	GM																							
	INLINE VALVES	INSPECT		X		26/27	GM																							
		EXERCISE		X		26/27	GM																							
	TYPE 2 PRV'S	INSPECT			X							19	GM											7	GM					
		ADJUST			X							19	GM											7	GM					

REMARKS

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
7-3A	TURN OUT VALVE	EXERCISE		X		22	GM																							
	CLEANOUTS	EXERCISE		X				3/5	GM																					
	TYPE 2 PRV'S	INSPECT			X					22	GM	14	GM											5/10	GM					
		ADJUST			X					22	GM	14	GM											5/10	GM					
	AIR VACS	INSPECT		X						14/16	GM																			
		EXERCISE		X						14/16	GM																			
	INLINE VALVES	EXERCISE		X		26	GM	5/8	GM																					
Mott	PNEUMATIC BPS	CLEAN			X	15	GM																							
		ADJUSTMENT			X																									
		INSPECT	X			15	GM	3	GM	1	GM	1	GM	6	GM	2	GM	8	GM	3	GM	8	GM	5	GM	2	GM	1	GM	
		ANODE TESTS	X			15	GM	3	GM	1	GM	1	GM	6	GM	2	GM	8	GM	3	GM	8	GM	5	GM	2	GM	1	GM	
	PRES. SWITCHES	INSPECT			X	15	GM																							
		ADJUST			X																									
	PRESSURE TANK	FLUSH		X		15	GM	3	GM	1	GM	1	GM	6	GM	2	GM	8	GM	3	GM	8	GM	5	GM	2	GM	1	GM	
		CHECK AIR PRES.			X																							1	GM	
7-3B	TURN-OUT VALVES	EXERCISE		X						30	LM					16	LM													
	CLEANOUTS	EXERCISE		X						30	LM																			
	TYPE 2 PRV'S	INSPECT			X					11	LM															1	LM			
		ADJUST			X																									
	AIR VACS	INSPECT		X						30	LM																			
		EXERCISE		X						30	LM																			
	INLINE VALVES	EXERCISE		X						11-30	LM					16	LM													
7-3C	TURN-OUT VALVES	EXERCISE		X				23	MF																					
	CLEANOUTS	EXERCISE		X				23	MF																					
	AIR RELEASE VALVES	INSPECT		X				23	MF																					
		EXERCISE		X				23	MF																					
	WRB VFD BOOSTER	CLEAN			X	16	MF																							
		ADJUST			X																									
		INSPECT	X			16	MF	9	MF	1	MF	4	MF	4	MF	6	MF	5	MF	3	MF	1	MF	3	MF	1	MF	6	MF	
		ANODE TESTS	X			16	MF	9	MF	1	MF	4	MF	4	MF	6	MF	5	MF	3	MF	1	MF	3	MF	1	MF	6	MF	
	PRESSURE SWITCHES	INSPECT			X	16	MF																							
		ADJUST			X																									
	INLINE VALVES	EXERCISE		X				17-26	LM																					
7-4	TURNOUT VALVES	EXERCISE		X				17-26	LM	9-17-18	LM			18	LM	16	LM													
	PRV VAULT	CLEAN			X			2	LM																					
		ADJUSTMENT			X			2	LM																					
		INSPECT	X			15	LM	2	LM	9	LM	6	LM	12	LM	10	LM	19	MF	24	LM	8-15	LM	4	LM	3	LM	7	LM	
		ANODE TESTS	X			15	LM	2	LM	9	LM	6	LM	12	LM	10	LM	19	MF	24	LM	8-15	LM	4	LM	3	LM	7	LM	
	TYPE 2 PRV'S	INSPECT			X			23-26	LM	9-11	LM	8	LM									22-29	LM	5-14	LM					
		ADJUST			X																	29	LM					6-7	LM	
	INLINE VALVES	EXERCISE		X		15	LM	17-25	LM	9-18	LM																			
	CLEANOUTS	INSPECT		X				17-25	LM	18	LM									23	LM									
		EXERCISE		X				17-25	LM	18	LM									23	LM									
	AIR RELEASE VALVES	INSPECT		X				26	LM	18	LM																			
		EXERCISE		X				26	LM	18	LM																			

REMARKS

12-6.7.2016 Adjust DCV valve at Hettinger West

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
7-5A	TURNOUT VALVES	EXERCISE		X		29	AH					19	DH													22-25	DH			
	CLEANOUTS	EXERCISE		X		29	DH													11-18	DH					22-25	DH			
	INLINE VALVES	EXERCISE		X																						22-25	DH			
	TYPE 2 PRV'S	INSPECT			X					23-24	DH													27	DH					
		ADJUST			X																									
	AIR VACS	INSPECT		X																						22-25	DH			
		EXERCISE		X																						22-25	DH			
7-5B	TURNOUT VALVES	EXERCISE		X																						25-30	DH			
	CLEANOUTS	EXERCISE		X				11	DH							22	DH									25-30	DH			
	INLINE VALVES	EXERCISE		X																						25-30	DH			
	AIR VACS	INSPECT		X																						25-30	DH			
		EXERCISE		X																						25-30	DH			
	HEBRON VFD BPS	CLEAN			X	28	DH	4	DH	11	DH	8	DH	6	DH	15	DH	1	DH	25	DH	9	DH	5	DH	4	DH	2	DH	
		ADJUSTMENT			X																									
		INSPECT	X			28	AH	4	DH	11	DH	8	DH	6	DH	15	DH	1	DH	25	DH	9	DH	5	DH	4	DH	2	DH	
		ANODE TESTS	X			28	AH	4	DH	11	DH	8	DH	6	DH	15	DH	1	DH	25	DH	9	DH	5	DH	4	DH	2	DH	
	PRESSURE SWITCHES	INSPECT			X	28	DH	4	DH	11	DH	8	DH	6	DH	15	DH	1	DH	25	DH	9	DH	5	DH	4	DH	2	DH	
		ADJUST			X																									
	PRESSURE TANK	FLUSH		X		28	DH	4	DH	11	DH	8	DH	6	DH	15	DH	1	DH	25	DH	9	DH	5	DH	4	DH	2	DH	
		CHECK AIR PRES.			X					11	DH																			
7-6A	TURNOUT VALVES	EXERCISE		X		22	Gm	22	Bm							2	Bm			24	Bm									
	CLEANOUTS	EXERCISE		X				22	Bm	1	Gm					2	Bm			24	Bm									
	TYPE 2 PRV'S	INSPECT			X					16	Bm	19	Bm											13	Bm	2	Bm			
		ADJUST			X					16	Bm	19	Bm											13	Bm	2	Bm			
	AIR RELEASE VALVES	INSPECT		X												2	Bm			24	Bm									
		EXERCISE		X												2	Bm			24	Bm									
	INLINE VALVES	EXERCISE		X		22	Gm	22	Bm	9	Gm					2	Bm			24	Bm									
	PLC VFD BPS	CLEAN			X	12	Bm							5	Bm															
		ADJUSTMENT			X	12	Bm																							
		INSPECT	X			12	Bm	8	Bm	1	Bm	11	Bm	5	Bm	16	Bm	16	Bm	2	Bm	16	Bm	10	Bm	7	Bm	5	Bm	
		ANODE TESTS	X			12	Bm	8	Bm	1	Bm	11	Bm	5	Bm	16	Bm	16	Bm	2	Bm	16	Bm	10	Bm	7	Bm	5	Bm	
	PRES. SWITCHES	INSPECT			X	12	Bm							5	Bm							16	Bm	10	Bm					
		ADJUST			X	12	Bm																							
	PRESSURE TANK	FLUSH		X		12	Bm	8	Bm	1	Bm	11	Bm	5	Bm	16	Bm	16	Bm	2	Bm	16	Bm	10	Bm	7	Bm	5	Bm	
		CHECK AIR PRES.			X																					23	Bm			
	BURT VFD BPS	CLEAN			X	15	GM																							
		ADJUSTMENT			X	15	GM																							
		INSPECT	X			15	GM	3	GM	1	GM	1	GM	6	GM	2	GM	8	GM	3	GM	7	GM	5	GM	2	GM	1	GM	
		ANODE TESTS	X			15	GM	3	GM	1	GM	1	GM	6	GM	2	GM	8	GM	3	GM	8	GM	5	GM	2	GM	1	GM	
	PRES. SWITCHES	INSPECT			X	15	GM																							
		ADJUST			X																							21	GM	
	PRESSURE TANK	FLUSH		X		15	GM	3	GM	1	GM	1	GM	6	GM	2	GM	8	GM	3	GM	8	GM	5	GM	2	GM	1	GM	
		CHECK AIR PRES.			X																							20	GM	

REMARKS

2-22-16 Clean VFDs + Electrical Panels RH Hebron BPS	1-12-16 PLC VFD clean snubbers + check pressure switch settings	

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
7-6B	TURNOUT VALVES	EXERCISE		X				9	BM			25	BM																	
	CLEANOUTS	EXERCISE		X				9	BM			25	BM																	
	INLINE VALVES	EXERCISE		X				9	BM			25	BM																	
	TYPE 2 PRV'S	INSPECT			X					9	BM													13	BM					
		ADJUST			X					9	BM													13	BM					
	AIR RELEASE VALVES	INSPECT		X								25	BM																	
		EXERCISE		X								25	BM																	
	COFFIN BUTTES VFD	CLEAN			X	7	BM							3	BM											9	BM			
		ADJUST			X	7	BM																							
		INSPECT	X			7	BM	3	BM	1	BM	10	BM	3	BM	8	BM	5	BM	3	BM	10	BM	11	BM	9	BM	5	BM	
		ANODE TESTS	X			7	BM	3	BM	1	BM	10	BM	3	BM	8	BM	5	BM	3	BM	10	BM	11	BM	9	BM	5	BM	
	TELEMETRY	INSPECT			X			11/6	RH																					
		CLEAN			X			11/6	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				11/6	RH																					
	PRESSURE SWITCHES	INSPECT			X	7	BM																							
		ADJUST			X																									
	PRESSURE TANK	FLUSH		X		7	BM	3	BM	1	BM	10	BM	3	BM	8	BM	5	BM	3	BM	6	BM	11	BM	9	BM	5	BM	
		CHECK AIR PRES.			X																					23	BM			
7-7A	TURNOUT VALVES	EXERCISE		X						11-31	LM	14-15	LM	20	LM	8	LM													
	CLEANOUTS	EXERCISE		X						29-31	LM	14	LM	20	LM															
	INLINE VALVES	EXERCISE		X		15	LM			11-31	LM	14-15	LM	20	LM	8	LM													
	TYPE 2 PRV'S	INSPECT			X			19	LM	3-8-11	LM	12-20	LM			1	LM					28	LM	19	LM					
		ADJUST			X											1	LM													
	AIR RELEASE VALVES	INSPECT		X										20	LM															
		EXERCISE		X										20	LM															
	PERKINS METER VAULT	CLEAN			X	15	LM																	4	LM					
		ADJUST			X																			28	LM			8	LM	
		INSPECT			X																									
		METER READ	X			15	LM	2	LM	9	LM	6	LM	12	LM	14	LM	19	LM	24	LM	8	LM	4	LM	3	LM	8	LM	
		CHECK CHLORINE	X			15	LM	2	LM	9	LM	6	LM	12	LM	14	LM	19	LM	24	LM	8	LM	4	LM	3	LM	8	LM	
		ANODE TESTS	X			15	LM	2	LM	9	LM	6	LM	12	LM	14	LM	19	LM	24	LM	8	LM	4	LM	3	LM	8	LM	
	TELEMETRY	INSPECT			X			11/6	RH																					
		CLEAN			X			11/6	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				11/6	RH																					
7-7B	TURNOUT VALVES	EXERCISE		X				19	LM					5-1-17	LM	7-8	LM			31	LM	1	LM							
	INLINE VALVES	EXERCISE		X				19	LM					5-1-17	LM	7-8	LM			31	LM	1	LM							
	CLEANOUTS	EXERCISE		X										5-1-17	LM							1	LM							
	TYPE 2 PRV'S	INSPECT			X			19	LM	4	LM											30	LM	13-20	LM					
		ADJUST			X																									
	AIR RELEASE VALVES	INSPECT		X				19	LM					5-1-17	LM	7	LM					1	LM							
		EXERCISE		X				19	LM					5-1-17	LM	9	LM					1	LM							
	RHAME VFD BPS	CLEAN			X			8	LM																					
		ADJUST			X																									
		INSPECT	X			6	LM	8	LM	3	LM	7	LM	3	LM	2	LM	7	LM	16	LM	2	LM	13	LM	2	LM	6	LM	
		ANODE TESTS	X			6	LM	8	LM	3	LM	7	LM	3	LM	2	LM	7	LM	16	LM	2	LM	13	LM	2	LM	6	LM	
		CHLORINE CHECK	X			6	LM	8	LM	3	LM	7	LM	3	LM	2	LM	7	LM	16	LM	2	LM	13	LM	2	LM	6	LM	

REMARKS

Adjust pressure up 5lb on Type 2 PRV # 14-1 LM
12-7-16 clean Rhubbecs Coffin Buttes VFD

PCMV - 10-28-16 Adjust outlet pressure down on 1" and 6" CLAVAL

12-8-16 Adjust outlet pressure on 6" CLAVAL

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
7-7B	RHAME VFD BPS																													
	PRESSURE SWITCHES	INSPECT			X			8	LM																					
		ADJUST			X																									
	PRESSURE TANK	FLUSH		X				9	LM																					
		CHECK AIR PRESSURE			X			8	LM																					
	TELEMETRY	INSPECT			X			9	LH																					
		CLEAN			X			9	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				9	RH																					
2013-1	INLINE VALVES	EXERCISE		X												8	LM													
	CLEANOUTS	EXERCISE		X												8	LM													
Rhame	METER VAULT	CLEAN			X			11	LM																					
		ADJUSTMENT			X																									
		INSPECT	X			6	LM	11	LM	10	LM	7	LM	5	LM	2	LM	7	mF	15	mF	2	LM	12	LM	2	LM	20	LM	
		ANODE TESTS	X			6	LM	11	LM	10	LM	7	LM	5	LM	2	LM	7	mP	15	mF	2	LM	13	LM	2	LM	20	LM	
		CHLORINE CHECK	X			6	LM	11	LM	10	LM	7	LM	5	LM	2	LM	7	mP	15	mP	2	LM	12	LM	2	LM	20	LM	
7-8A	INLINE VALVES	EXERCISE		X										9/23	JK															
	TURNOUT VALVES	EXERCISE		X										9/23																
	TYPE 2 PRV'S	INSPECT			X									9/23										12	JK					
		ADJUST			X																			12	JK					
	AIR RELEASE VALVES	EXERCISE		X										9/23										12	JK					
		INSPECT			X									9/23										12	JK					
	CLEANOUTS	EXERCISE		X										9/28										12	JK					
	WEST MEDORA VFD	CLEAN			X	5	JK			3	JK			4	JK	1	JK					7	JK					6	JK	
		ADJUST			X																									
		INSPECT	X			5		3	JK	3		6	JK	4	JK	1	JK	6	JK	2	JK	7	JK	4	JK	2	JK	6	JK	
		ANODE TESTS	X			5		3	JK	3		6	JK	4	JK	1	JK	6	JK	2	JK	7	JK	4	JK	2	JK	6	JK	
	PRESSURE SWITCHES	INSPECT			X	5		3	JK	3																				
		ADJUST			X	5																								
	PRESSURE TANK	FLUSH		X		5																								
		CHECK AIR PRES.			X	5														5	JK							6	JK	
7-8B	BEACH SA																													
	TURNOUT VALVES	EXERCISE		X		27	JK	8	JK															24	JK					
	INLINE VALVES	EXERCISE		X		27	JK	8	JK															24	JK					
	CLEANOUTS	EXERCISE		X		27	JK	8	JK															24	JK					
	TYPE 2 PRV'S	INSPECT			X	27	JK	8	JK													26	JK							
		ADJUST			X	27	JK	8	JK																					
	AIR RELEASE VALVES	INSPECT		X		27	JK	8	JK													26	JK							
		EXERCISE		X		27	JK	8	JK													26	JK							
	GOLVA VFD BOOSTER	CLEAN			X	5	JK																							
		ADJUST			X	5	JK																							
		INSPECT	X			5	JK	3	JK	7	JK	11	JK	3	JK	2	JK	5	JK	2	JK	7	JK	4	JK	1	JK	5	JK	
		ANODE TESTS	X			5	JK	3	JK	7	JK	11	JK	3	JK	2	JK	5	JK	2	JK	7	JK	4	JK	1	JK	5	JK	
	PRESSURE SWITCHES	INSPECT			X	5	JK	3	JK	7	JK	11	JK	3	JK	2	JK	5	JK	2	JK	7	JK	4	JK	1	JK	5	JK	
		ADJUST			X	5	JK																							
	PRESSURE TANK	FLUSH		X		5	JK																							
		CHECK AIR PRES.			X	5	JK									2	JK							4	JK					

REMARKS

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
7-8B	TELEMETRY	INSPECT			X																									
		CLEAN			X																									
		CALIBRATE			X																									
		RADIO TEST		X												13	CM													
	GOLVA METER VAULT	CLEAN			X	4	JK	3	JK			11	JK	4	JK	2	JK			2	JK			4	JK	3	JK			
		ADJUSTMENT			X	4	JK																							
		INSPECT			X	4	JK	3	JK					4	JK					2	JK			4	JK	3	JK			
		METER READING	X			26	JK	24	JK	23	JK	26	JK	25	JK	23	JK	26	JK	25	JK	27	JK	25	JK	23	JK	22	JK	
		CHECK CHLORINE	X			4		3		3		11		4		2		6		2		8		4		3		6		
		ANODE TESTS	X			4	1	3	1	8	1	11	1	4	1	2	1	6	1	2	1	8	1	4	1	3	1	6	1	
	FRYBURG SA																													
	TURNOUT VALVES	EXERCISE		X										11/24	JK									12	JK					
	INLINE VALVES	EXERCISE		X										11/24	1									12	JK					
	CLEANOUTS	EXERCISE		X										11/24	1									12	JK					
	TYPE 2 PRV'S	INSPECT			X									11/24	1									12	JK					
		ADJUST			X									11/24	1									12	JK					
	AIR RELEASE VALVES	INSPECT		X										11/24	1									12	JK					
		EXERCISE		X										11/24	1									12	JK					
7-8C	CROWN BUTTE SA																													
	TURNOUT VALVES	EXERCISE		X										10	DH							15	DH							
	INLINE VALVES	EXERCISE		X										10	DH							15	DH							
	CLEANOUTS	EXERCISE		X																		15	DH							
	AIR RELEASE VALVES	INSPECT		X																		15	DH							
		EXERCISE		X																		15	DH							
	CROWN BUTTE VFD BPS	CLEAN			X	12	DH	1	DH	1	DH	5	DH	25	DH	28	DH	13	DH	11	DH	7	DH	5	DH	23	DH	8	DH	
		ADJUST			X	12	DH																							
		INSPECT	X			12	DH	1	DH	1	DH	5	DH	12	DH	28	DH	13	DH	11	DH	7	DH	5	DH	23	DH	8	DH	
		ANODE TESTS	X			12	DH	1	DH	1	DH	5	DH	12	DH	28	DH	13	DH	11	DH	7	DH	5	DH	23	DH	8	DH	
	PRESSURE SWITCHES	INSPECT			X	12	DH	1	DH	1	DH	5	DH	12	DH	28	DH	13	DH	11	DH	7	DH			23	DH	8	DH	
		ADJUST			X																									
	PRESSURE TANK	FLUSH		X		12	DH	1	DH	1	DH	5	DH	12	DH	28	DH	13	DH	11	DH	7	DH			23	DH	8	DH	
		CHECK AIR PRESSURE			X																									
	TELEMETRY	INSPECT			X			4	DH																					
		CLEAN			X			11	DH																					
		CALIBRATE			X																									
		RADIO TEST		X				4	DH																					

REMARKS

2-22-16 Clean VFA's + Electrical Panels RH N. Crown Butte BPS

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
7-8C	TOWER HILL SA																													
	TURNOUT VALVES	EXERCISE		X								26	Bm																	
	INLINE VALVES	EXERCISE		X								26	Bm																	
	CLEANOUTS	EXERCISE		X								26	Bm																	
	TYPE 3 PRV'S	INSPECT			X									17	Bm															
		ADJUST			X									17	Bm															
	AIR RELEASE VALVES	INSPECT		X								21	Bm																	
		EXERCISE		X								21	Bm																	
	TOWER HILL VFD BPS	CLEAN			X			4	Bm																					
		ADJUST			X			4	Bm																					
		INSPECT	X			12	Bm	4	Bm	7	Bm	11	Bm	9	Bm	6	Bm	11	Bm	3	Bm	7	Bm	10	Bm	7	Bm	8	Bm	
		ANODE TESTS	X			12	Bm	4	Bm	7	Bm	11	Bm	9	Bm	6	Bm	11	Bm	3	Bm	7	Bm	10	Bm	7	Bm	8	Bm	
	PRESSURE SWITCHES	INSPECT			X			4	Bm																					
		ADJUST			X			4	Bm																					
	PRESSURE TANK	FLUSH		X		12	Bm	4	Bm	7	Bm	11	Bm	9	Bm	6	Bm	11	Bm	3	Bm	7	Bm	10	Bm	7	Bm	8	Bm	
		CHECK AIR PRES.			X																					23	Bm			
	TELEMETRY	INSPECT			X			4	RH																					
		CLEAN			X			11	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				11	RH																					
7-8C	JUNCTION INN SA																													
	TURNOUT VALVES	EXERCISE		X						28	Bm			10	Bm					4	Bm									
	INLINE VALVES	EXERCISE		X						28	Bm			10	Bm					4	Bm									
	CLEANOUTS	EXERCISE		X						28	Bm			10	Bm					4	Bm									
	TYPE 2 & 3 PRV'S	INSPECT			X							4	Bm											26	Bm					
		ADJUST			X							4	Bm											26	Bm					
	AIR RELEASE VALVES	INSPECT		X								14	Bm																	
		EXERCISE		X								14	Bm																	
	MASTER METER	READ METER	X			26	Bm	24	Bm	23	Bm	26	Bm	25	Bm	23	Bm	26	Bm	25	Bm	27	Bm	25	Bm	23	Bm	22	Bm	
	TELEMETRY	INSPECT			X			11	RH																					
		CLEAN			X			4	RH																					
		CALIBRATION			X																									
		RADIO TEST		X				4	RH																					
7-8D	TURNOUT VALVES	EXERCISE		X														6	JW											
	CLEANOUTS	EXERCISE		X														6	JW											
	INLINE VALVES	EXERCISE		X														6	JW											
	AIR RELEASE VALVES	INSPECT		X										4	JW															
		EXERCISE		X										4	JW															
	S. FRYBURG VFD	CLEAN			X			2	JW																					
		ADJUST			X																									
		INSPECT	X			6	JW	2	JW	9	JW	12	JW	4	JW	1	JW	6	JW	2	JW	16	JW	5	JW	9	JW	1	JW	
		ANODE TESTS	X			6	JW	2	JW	9	JW	12	JW	4	JW	1	JW	6	JW	2	JW	16	JW	5	JW	9	JW	1	JW	
		METER READING	X			26	BB	24	BB	23	BB	26	BB	25	BB	23	BB	26	BB	25	BB	27	BB	25	BB	23	BB	22	BB	
		CHECK CHLORINE	X			6	JW	2	JW	9	JW	12	JW	4	JW	1	JW	6	JW	16	JW	16	JW	5	JW	9	JW	1	JW	
	PRESSURE SWITCHES	INSPECT			X	27		2	JW																					
		ADJUST			X																									
	PRESSURE TANK	FLUSH		X		6	JW																							
		CHECK AIR PRES.			X	6	JW																							

REMARKS

2-4-16 check pressure switch settings + clean snubbers + service relay valve at Tower Hills VFD Bm.

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
7-8E	TURNOUT VALVES	EXERCISE		X				17	JW					16	BB															
	INLINE VALVES	EXERCISE		X				17	JW					16	BB															
	CLEANOUTS	EXERCISE		X				19	JW					16	BB															
	AIR RELEASE VALVES	INSPECT		X										16	BB															
		EXERCISE		X										16	BB															
	TYPE 2 PRV	INSPECT		X				19	JW																					
		ADJUST		X				19	JW																					
	FAIRFIELD VFD	CLEAN			X	6	JW																							
		ADJUSTMENT			X																									
		ANODE TESTS	X			6	JW	2	JW	9	JW	12	JW	4	JW	1	JW	6	JW	2	JW	16	JW	5	JW	3	JW	1	JW	
		CHECK CHLORINE	X			6	JW	2	JW	9	JW	12	JW	4	JW	1	JW	6	JW	2	JW	16	JW	5	JW	3	JW	1	JW	
	PRESSURE SWITCHES	INSPECT			X	6	JW																							
		ADJUST			X																									
	PRESSURE TANK	FLUSH		X				19	JW																					
		CHECK AIR PRES.			X			19	JW																					
	TELEMETRY	INSPECT			X			8	RH																					
		CLEAN			X			8	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				8	RH																					
7-8F	TURNOUT VALVES	EXERCISE		X				25	JK									5/19	JK											
	CLEANOUTS	EXERCISE		X				25	"									5/19	"											
	INLINE VALVES	EXERCISE		X				25	"									5/19	"											
	AIR RELEASE VALVES	INSPECT		X				25	"									5/19	"											
		EXERCISE		X				25	"									5/19	"											
	TYPE 2 & 3 PRV'S	INSPECT		X				25	"									5/19	"											
		ADJUST		X				25	"									5/19	"											
7-8G	TURNOUT VALVES	EXERCISE		X										16	BB															
	INLINE VALVES	EXERCISE		X										16	BB															
	CLEANOUTS	EXERCISE		X										16	BB															
	AIR RELEASE VALVES	INSPECT		X										16	BB															
		EXERCISE		X										16	BB															
	TYPE 2 PRV	INSPECT			X							216	BB					18	BB											
		ADJUST			X							216	BB					18	BB											
7-8H	INLINE VALVES	EXERCISE		X														6	JW											
	CLEANOUTS	EXERCISE		X														6	JW											
7-9A	TURNOUT VALVES	EXERCISE		X												14	BK													
	INLINE VALVES	EXERCISE		X												14	BK													
	CLEANOUTS	EXERCISE		X												22	BK			30	JF									
	AIR RELEASE VALVES	INSPECT		X												22	BK													
		EXERCISE		X												22	BK													
	METER VAULTS	CLEAN			X	7	JF	4	JF	17	JF	7	JF	9	JF	21	BK JF	6	JF	17	JF	19	JF	12	JF	*	JT	5	JF	
		ADJUSTMENT			X																									
		INSPECT	X			7	JF	4	JF BK	17	JF	7	JF	9	JF	21	JF BK	6	JF	17	JF	19	JF	18	JF	*	JT	5	JF	
		CHECK CHLORINE	X			7	JF	4	JF BK	17	JF	7	JF	9	JF	21	JF BK	6	JF	17	JF	19	JF	12	JF	*	JT	5	JF	
		ANODE TESTS	X			7	JF	4	JF BK	17	JF	7	JF	9	JF	21	JF BK	6	JF	17	JF	19	JF	12	JF	*	JT	5	JF	

REMARKS

2-22-16 Clean VFD's + Electrical Panels RH Fairfield BPS 2/21/16 - Exercise Type 2 PRVS 7-9A	* November monthlys Didn't get Done at this Vault Due to Snow JT U	

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
7-9B	TURNOUT VALVES	EXERCISE		X		11	BB	10	BB							14	BB													
	IN-LINE VALVES	EXERCISE		X		11	BB	10	BB							14	BB													
	CLEANOUTS	EXERCISE		X		11	BB	10	BB																					
	AIR RELEASE VALVES	INSPECT		X		11	BB	10	BB																					
		EXERCISE		X		11	BB	10	BB									7	BB	17	BB									
	TYPE 2 & 3 PRV'S	INSPECT			X			29	BB	10	BB			3	BB															
		ADJUST			X																									
	WEST KILLDEER VFD	CLEAN			X	12	BB																							
		ADJUSTMENT			X																									
		ANODE TESTS	X			12	BB	3	BB	9	BB	21	BB	16	BB	13	BB	5	BB	9	BB	8	BB	17	BB	16	BB	15	BB	
		CHECK CHLORINE	X			12	BB	3	BB	9	BB	21	BB	16	BB	13	BB	5	BB	9	BB	8	BB	17	BB	16	BB	15	BB	
	PRESSURE SWITCHES	INSPECT			X																									
		ADJUST			X																									
	PRESSURE TANK	FLUSH		X		12	BB																							
		CHECK AIR PRES.			X																									
7-9C	TURN OUT VALVES	EXERCISE		X						14	JS																			
	IN-LINE VALVES	EXERCISE		X						18	JS																			
	CLEANOUTS	EXERCISE		X		27	JF			18	JS									3	JS									
	AIR RELEASE VALVES	INSPECT		X																3	JS									
		EXERCISE		X																3	JS									
	TYPE 2 & 3 PRV'S	INSPECT			X			2	JF																					
		ADJUST			X																									
7-9D	TURN OUT VALVES	EXERCISE		X						18	GN																			
	IN-LINE VALVES	EXERCISE		X						18	GN																			
	CLEANOUTS	EXERCISE		X						18	GN																			
	AIR RELEASE VALVES	INSPECT		X						18	GN																			
		EXERCISE		X						18	GN																			
	TYPE 2 & 3 PRV'S	INSPECT			X	JF	JF/GN																							
		ADJUST			X																									
7-9E	TURN OUT VALVES	EXERCISE		X																23	JF	27	JF	19	JF					
	IN-LINE VALVES	EXERCISE		X																23	JF	27	JF	19	JF					
	CLEANOUTS	EXERCISE		X				17	JF	1	JF			23	JF	1	JF	25	JS	29	JF	27	JF	19	JF	2	JF	8	JF	
	AIR RELEASE VALVES	INSPECT		X						2	JF																			
		EXERCISE		X						2	JF																			
	TYPE 2 & 3 PRV'S	INSPECT			X			3	JF													1	JF	13	JF	2	JF			
		ADJUST			X																									
HWY 1806 VFD	BOOSTER STATION	CLEAN			X	19	DKF	17	JF	10	GN	6	GN	17	GN	23	GN	7	GN	3	GN	30	GN							
		ADJUST			X																									
		INSPECT	X			19	DKF	17	JF	10	GN	6	GN	17	GN	23	GN	7	GN	3	GN	30	GN	13	GN	4	GN	20	GN	
		ANODE TESTS	X			19	DKF	17	JF	10	GN	6	GN	17	GN	23	GN	7	GN	3	GN	30	GN	13	GN	4	GN	20	GN	
		CHLORINE CHECKS	X			19	DKF	17	JF	10	GN	6	GN	17	GN	23	GN	7	GN	3	GN	30	GN	13	GN	4	GN	20	GN	
	PRESSURE SWITCHES	INSPECT			X																									
		ADJUST			X																									
	PRESSURE TANK	FLUSH		X																3	GN									
		CHECK AIR PRES.			X																									

REMARKS

2-11-16 Clean VFD's and Electrical Panels RH W. Killdeer Mtn. KPS		

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
7-9E																														
S Center VFD	BOOSTER STATION	CLEAN			X																									
		ADJUST			X															8	JF									
		INSPECT	X			20	JF	16	JF	3	JF	18	JF	10	JF	27	JF	8	JF	4	JF	8	JF	10	JF	3	JF	2	JF	
		ANODE TESTS	X			20	JF	16	JF	3	JF	18	JF	10	JF	27	JF	8	JF	4	JF	8	JF	10	JF	3	JF	2	JF	
		CHLORINE CHECKS	X			20	JF	16	JF	3	JF	18	JF	10	JF	27	JF	8	JF	4	JF	8	JF	10	JF	3	JF	2	JF	
	PRESSURE SWITCHES	INSPECT			X															8	JF									
		ADJUST			X															8	JF				JF					
	PRESSURE TANK	FLUSH		X		20	JF																	16	JF					
		CHECK AIR PRES.			X																			10	JF					
7-9F	TURN OUT VALVES	EXERCISE		X																23/31	DH									
	IN-LINE VALVES	EXERCISE		X																23/31	DH									
	CLEANOUTS	EXERCISE		X																23/31	DH	15	DH							
	AIR RELEASE VALVES	INSPECT		X																24	DH									
		EXERCISE		X																24	DH									
	TYPE 2 & 3 PRV'S	INSPECT			X			4/9	JF/BS													22/26	DH							
		ADJUST			X			4/9	JF/BS																					
MWWS VFD	BOOSTER STATION	CLEAN			X																									
		ADJUST			X																									
		INSPECT	X			JF																		23	DH	22	DH	15	DH	
		ANODE TESTS	X			JF																		23	DH	22	DH	15	DH	
		CHLORINE CHECKS	X			JF																		23	DH	22	DH	15	DH	
	PRESSURE SWITCHES	INSPECT			X																									
		ADJUST			X																									
	PRESSURE TANK	FLUSH		X																								15	DH	
		CHECK AIR PRES.			X																									
7-9G BID	TURN OUT VALVES	EXERCISE		X		22	SF	25	SF																					
SCH #2	IN-LINE VALVES	EXERCISE		X		22	SF	25	SF																					
	CLEANOUTS	EXERCISE		X		6,12	SF	13,23	SF	15,22	SF	6	SF	5	SF															
	AIR RELEASE VALVES	INSPECT		X				1/-	1/-																					
		EXERCISE		X				26	15																					
	TYPE 2 & 3 PRV'S	INSPECT			X			25	SF																					
		ADJUST			X																									
7-9G BID	TURN OUT VALVES	EXERCISE		X																								19	TS	
SCH #1	IN-LINE VALVES	EXERCISE		X																								19	TS	
	CLEANOUTS	EXERCISE		X																								19	TS	
	AIR RELEASE VALVES	INSPECT		X																								19	TS	
		EXERCISE		X																								19	TS	
	TYPE 2 & 3 PRV'S	INSPECT			X																									
		ADJUST			X																									
Golden Valley VFD	BOOSTER STATION	CLEAN			X																							29	TS	
		ADJUST			X																									
		INSPECT	X			JF																		26	TS	23	TS	15	TS	
		ANODE TESTS	X			JF																		26	TS	23	TS	15	TS	
		CHLORINE CHECKS	X			JF																		26	TS	23	TS	15	TS	
	PRESSURE SWITCHES	INSPECT			X																									
		ADJUST			X																									
	PRESSURE TANK	FLUSH		X																								15	TS	
		CHECK AIR PRES.			X																									

REMARKS

10 23 16 Il... 2 ... went in Service
Missouri West water ALSO Golden West VFD

MAIN TRANSMISSION AND DISTRIBUTION LINES
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
SCS	AIR RELEASE VALVES	EXERCISE		X						17-13	RH																			
		INSPECT		X						17-18	AH																			
	IN-LINE VALVES	EXERCISE		X														21	AK											
	TURNOUT VALVES	EXERCISE		X														21	AK											
	CLEANOUTS	EXERCISE		X						17-16	AH							21	AK									9	AH	
	TYPE 2 PRV'S	INSPECT			X					22	AH													26-27	BH					
		ADJUST			X					22	AH													26-27	AH					
MISC	OBSER WELLS	INSPECT		X												1/2	RH													
	SETTLEMENT	INSPECT			X																									
	MARKER POSTS	INSPECT			X																									
		REFLECTORS			X																									
	WEED CONTROL	SPRAY OR MOW			X																									
	BACTI-TESTS	SAMPLE	X																											
	FENCES	INSPECT			X																									
	O&M CENTER	INVENTORY			X																									
		CLEAN			X																									

REMARKS

RAW WATER AND FRE... WATER RESERVOIRS
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
3-1A	ZAP RESERVOIR	INSPECT			X																			14	MIDCO					MIDCO DIVING DIVE TEAM CLEAN
		CLEAN		X																				14	MIDCO					AND INSPECT
	VAULT	INSPECT			X																									
		CLEAN			X																									
	CATHODIC	INSPECT	X			11	RH	1	RH	7	RH	4	RH	2	RH	6	RH	5	RH	9	RH	8	RA	4	RH	3	RH	5	RH	
		ADJUST			X																									
	VALVES	EXERCISE			X																									
	TELEMETRY	INSPECT			X			3	RH																					
		CLEAN			X			3	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				3	RH																					
3-1B	ZAP RESERVOIR	INSPECT			X																			17	MIDCO					MIDCO DIVING DIVE TEAM CLEAN
		CLEAN		X																				17	MIDCO					AND INSPECT
	CATHODIC	INSPECT	X			11	RH	1	RH	7	RH	4	RH	2	RH	6	RH	5	RH	9	RH	8	RH	4	RH	3	RH	5	RH	
		ADJUST			X																									
	VALVES	EXERCISE			X																									
5-1	RICHARDTON RESER.	INSPECT			X																			19	MIDCO					MIDCO DIVING DIVE TEAM CLEAN
		CLEAN		X																				19	MIDCO					AND INSPECT
	CATHODIC	INSPECT	X			13	RH	1	RH	3	RH	4	RH	2	RH	6	RH	5	RH	9	RH	8	RH	4	RH	9	RH	5	RH	
		ADJUST			X																									
	VALVES	EXERCISE			X																									
	UNDER DRAIN	INSPECT			X																									
	TELEMETRY	INSPECT			X	29	RH																							
		CLEAN			X	29	RH																							
		CALIBRATE			X																									
		RADIO TEST		X		29	RH																							
5-2	DICKINSON RESERVOIR	INSPECT			X											9	TK							22	MIDCO					MIDCO DIVING DIVE TEAM CLEAN
		CLEAN			X																			22	MIDCO					AND INSPECT
	VAULT	EXERCISE VALVES		X										11	LH/MF	9	TK													
		INSPECT			X									11	LH/MF															
		CLEAN			X																									
	UNDER DRAIN	INSPECT			X											9	TK													
	TELEMETRY	INSPECT			X			10	RH																					
		CLEAN			X			10	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				10	RH																					
5-3	NEW ENGLAND RESERVOIR	INSPECT			X									4	MP															
		CLEAN			X																									
	VAULT	INSPECT			X	5	MF	9	MF	2	MF	4	MF	4	MF	6	MF	11	MF	3	MF	1	MF	4	MF	1	MF	6	MF	
		CLEAN			X	5	MF	9	MF	2	MF	4	MF	4	MF	6	MF	11	MF	3	MF	1	MF	4	MF	1	MF	6	MF	
	CATHODIC	INSPECT	X			7	CM	17	CM	23	CM	14	CM	5	CM	3	CM	8	CM	15	CM	29	CM	21	CM	3	CM	29	CM	
		ADJUST			X																									
	VALVES	EXERCISE			X																									

REMARKS

RAW WATER AN[illegible]ESH WATER RESERVOIRS
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
5-3	TELEMETRY	INSPECT			X			9	RH																					
		CLEAN			X			9	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				9	RH																					
5-3A	NEW ENGLAND RESERVOIR	INSPECT			X									4	MF															
		CLEAN			X																									
	CATHODIC	INSPECT			X	7	CM	17	CM	23	CM	14	CM	5	CM	3	CM	8	CM	15	CM	29	CM	21	CM	3	CM	29	CM	
	VALVES	EXERCISE			X																									
5-4	JUNG LAKE RESERVOIR	INSPECT			X																									
		CLEAN			X																									
	CONTROL ROOM	INSPECT			X	5	MF	9	MF	1	MF	4	MF	16	MF	13	MF	18	MF	3	MF	1	MF	3	MF	1	MF	5	MF	
		CLEAN			X	5	MF	9	MF	1	MF	4	MF	16	MF	13	MF	18	MF	3	MF	1	MF	3	MF	1	MF	5	MF	
	VALVES	EXERCISE			X																									
	RECIRC PUMP	INSPECT			X									16	MF											11	MF			
	RECIRC HEATER	INSPECT			X																									
	OBSTR LIGHTS	INSPECT			X	5	MF	9	MF	1	MF	4	MF	16	MF	13	MF	18	MF	3	MF	1	MF	3	MF	1	MF	5	MF	
	OBSTR LIGHTS	TEST PHOTO CELL	X			5	MF	9	MF	1	MF	4	MF	16	MF	13	MF	18	MF	3	MF	1	MF	3	MF	1	MF	5	MF	
	TELEMETRY	INSPECT			X			9	RH																					
		CLEAN			X			9	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				9	RH																					
5-5	BUCYRUS RESERVOIR	INSPECT			X									4	LM															
		CLEAN			X																									
	VAULT	INSPECT	X			5	LM	2	LM	1	LM	5	LM	4	LM	2	LM	28	MF	18	MF	7	LM	4	LM	1	LM	20	LM	
		CLEAN			X	5	LM																							
		CHLORINE CHECK	X			5	LM	2	LM	1	LM	5	LM	4	LM	2	LM	28	MF	18	MF	7	LM	4	LM	1	LM	20	LM	
		ANODE TESTS	X			5	LM	2	LM	1	LM	5	LM	4	LM	2	LM	28	MF	18	MF	7	LM	4	LM	1	LM	20	LM	
	CATHODIC	INSPECT	X			5	LM	2	LM	1	LM	5	LM	4	LM	2	LM	28	MF	KB	MF	7	LM	4	LM	1	LM	20	LM	
		ADJUST			X																									
	TELEMETRY	INSPECT			X			16	RH																					
		CLEAN			X			16	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				16	RH																					
	VALVES	EXERCISE			X	5	LM																							
5-6	BURT RESERVOIR	INSPECT			X									6	GM					23	DIVER					2	GM			INLAND POTABLE DIVE TEAM CLEAN
		CLEAN			X															23	DIVER									AND INSPECT
	VAULT	INSPECT	X			15	GM	3	GM	1	GM	1	GM	6	GM	2	GM	8	GM	2	GM	8	GM	5	GM	2	GM	1	GM	
		CLEAN			X	15	GM																							
		CHLORINE CHECK	X			15	GM	3	GM	1	GM	1	GM	6	GM	2	GM	8	GM	3	GM	8	GM	5	GM	2	GM	1	GM	
		ANODE TESTS	X			15	GM	3	GM	1	GM	1	GM	6	GM	2	GM	8	GM	3	GM	8	GM	5	GM	2	GM	1	GM	
	CATHODIC	INSPECT			X	15	GM																							
	TELEMETRY	INSPECT			X			16	RH																					
		CLEAN			X			16	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				16	RH																					
	VALVES	EXERCISE			X	15	GM																							

REMARKS

RAW WATER AND FRE[illegible] WATER RESERVOIRS
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
5-8	BOWMAN RESERVOIR	INSPECT			X							21	LM													2	LM			
		CLEAN			X																									
	VAULT	INSPECT	X			14	LM	3	LM	2	LM	1	LM	3	LM	2	LM	7	MF	9	MF	2	LM	11	LM	2	LM	7	LM	
		CLEAN			X							6	LM																	
		CHLORINE CHECK	X			14	LM	3	LM	2	LM	1	LM	3	LM	2	LM	7	MF	9	MF	2	LM	11	LM	2	LM	7	LM	
		ANODE TESTS	X			14	LM	3	LM	2	LM	1	LM	3	LM	2	LM	7	MF	9	MF	2	LM	11	LM	2	LM	7	LM	
	CATHODIC	INSPECT	X			14	LM	3	LM	2	LM	1	LM	3	LM	2	LM	7	MF	9	MF	2	LM	11	LM	2	LM	7	LM	
		ADJUST			X																									
	TELEMETRY	INSPECT			X			9	RH																					
		CLEAN			X			9	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				9	RH																					
	VALVES	EXERCISE			X	14	LM					15	LM																	
5-9	BELFIELD RESERVOIR	INSPECT			X							12	JW																	
		CLEAN			X																									
	VAULT	INSPECT	X			6	JW	7	JW	9	JW	12	JW	4	JW	1	JW	6	JW	2	JW	16	JW	5	JW	4	JW	1	JW	
		CLEAN			X							12	JW																	
		CHLORINE CHECK	X			6	JW	7	JW	9	JW	12	JW	4	JW	1	JW	6	JW	2	JW	16	JW	5	JW	3	JW	1	JW	
		ANODE TESTS	X			6	JW	7	JW	9	JW	12	JW	4	JW	1	JW	6	JW	2	JW	16	JW	5	JW	0	JW	1	JW	
	CATHODIC	INSPECT	X			12	RH	27	CM	23	CM	19	CM	25	CM	13	CM	29	CM	5	RH	29	RH	31	RH	X	X	20	RH	
		ADJUST			X																									
	VALVES	EXERCISE			X							12	JW																	
	UNDER DRAIN	INSPECT			X							12	JW																	
5-10	FRYBURG RESERVOIR	INSPECT			X																									
		CLEAN			X																									
	VAULT	INSPECT	X			6	JK	2	JK	9	JK	5	JK	5	JK	1	JK	7	JK	1	JK	8	JK	3	JK	2	JK	5	JK	
		CLEAN			X	10	JK			9	JK			5	JK			7	JK	1	JK	8	JK			2	JK			
		CHLORINE CHECK	X			6	JK	2	JK	9	JK	5	JK	5	JK	1	JK	7	JK	1	JK	8	JK	3	JK	2	JK	5	JK	
		ANODE TESTS	X			10	JK	2	JK	9	JK	5	JK	5	JK	1	JK	7	JK	1	JK	8	JK	3	JK	2	JK	5	JK	
	CATHODIC	INSPECT	X			12	RH	27	CM	23	CM	24	CM	25	CM	13	CM	29	CM	5	RH	29	RH	31	RH	X	X	20	RH	
		ADJUST			X																									
	TELEMETRY	INSPECT			X			10	RH																					
		CLEAN			X			10	RH																					
		CALIBRATE			X																									
		RADIO TEST			X			10	RH																					
	VALVES	EXERCISE		X										5	JK					1	JK									
	UNDER DRAIN	INSPECT			X									5	JK					1	JK									
5-11	BEACH RESERVOIR	INSPECT			X																									
		CLEAN			X																									
	VAULT	INSPECT	X			5	JK	1	JK	7	JK	18	JK	3	JK	2	JK	5	JK	2	JK			4	JK	1	JK	8	JK	
		CLEAN			X			1	JK					3	JK	2	JK			2	JK									
		CHLORINE CHECK	X			5	JK	1	JK	7	JK	18	JK	3	JK	2	JK	5	JK	2	JK			4	JK	1	JK	8	JK	
		ANODE TESTS	X			5	JK	1	JK	7	JK	18	JK	3	JK	2	JK	5	JK	2	JK			4	JK	1	JK	8	JK	
	CATHODIC	INSPECT	X			27	RH	26	CM	23	CM					13	CM	29	CM	5	RH	29	RH	31	RH	2	RH	20/21	RH/JK	
		ADJUST			X																									
	TELEMETRY	INSPECT			X			26	CM																					
		CLEAN			X			26	CM																					
		CALIBRATE			X																									
		RADIO TEST			X			26	CM																					
	VALVES	EXERCISE			X											2	JK							4	JK					
	UNDER DRAIN	INSPECT		X						7	JK					2	JK					7	JK							

REMARKS

ok missed Cathodic inspect in Belfield Reservoir for November

RAW WATER AND FRESH WATER RESERVOIRS
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
5-13	DAVIS BUTTE RESERVOIR	INSPECT			X	5	Jm	4	Jm	21	Tm	14	Tm	17	Tm	6	Tm	12	Tm	9	Tm	7	Tm	3	Tm	8	Tm	5	Tm	
		CLEAN			X	5	Jm	4	Jm	21	Tm	14	Tm	17	Tm	6	Tm	12	Tm	9	Tm	7	Tm	3	Tm	8	Tm	5	Tm	
	VAULT	INSPECT			X	5	Jm	4	Jm	21	Tm	14	Tm	17	Tm	6	Tm	12	Tm	9	Tm	7	Tm	3	Tm	8	Tm	5	Tm	
		CLEAN			X	5	Jm	4	Jm	21	Tm	14	Tm	17	Tm	6	Tm	12	Tm	9	Tm	7	Tm	3	Tm	8	Tm	5	Tm	
	CATHODIC	INSPECT	X			13	RH	1	RH	3	RH	4	RH	2	RH	6	RH	5	RH	9	RH	8	RH	4	RH	9	RH	5	RH	
		ADJUST			X			4																						
	TELEMETRY	INSPECT			X			10	RH																					
		CLEAN			X			10	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				10	RH																					
	VALVES	EXERCISE			X																									
	DAVIS BUTTES TELEMETRY	INSPECT			X			10	RH																					
		CLEAN			X			10	RH																					
		RADIO TEST		X				10	RH																					
5-14	HEBRON RESERVOIR	INSPECT			X															23	DIVER									INLAND POTABLE TANK TEAM CLEAN
		CLEAN			X															23	DIVER									AND INSPECT
	VAULT	INSPECT	X			28	AH	5	AH	16	AH	8	AH	6	AH	14	AH	8	AH	3	AH	15	AH	5	AH	4	AH	2	AH	
		CLEAN			X	28	AH	5	AH	16	AH	8	AH	6	AH	16	AH	8	AH	3	AH	15	AH	5	AH	4	AH	2	AH	
		CHLORINE CHECK	X			28	AH	5	AH	16	AH	8	AH	6	AH	16	AH	8	AH	3	AH	15	AH	5	AH	4	AH	2	AH	
		ANODE TESTS	X			28	AH	5	AH	16	AH	8	AH	6	AH	10	AH	8	AH	3	AH	15	AH	5	AH	4	AH	2	AH	
	CATHODIC	INSPECT			X																									N/A
	TELEMETRY	INSPECT			X			3	RH																					
		CLEAN			X			3	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				3	RH																					
	VALVES	EXERCISE		X						2	BK											21	AH							
5-15A	ZAP POTABLE RES	INSPECT			X	14	BK			2	BK			25	BK			13	BK					25	BK					
	RESERVOIR	CLEAN			X	14	BK							16																MCGUIRE IRON COATING REPAIRS
	CATHODIC	INSPECT	X																											N/A - Rectifier Not in use
		ADJUST			X																									
	TELEMETRY	INSPECT			X			3	RH																					
		CLEAN			X			3	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				3	RH																					
	VALVES	EXERCISE		X		14	BK			2	BK			25	BK			13	BK	16	BK									
5-15B	2nd ZAP POTABLE RES.	INSPECT			X																									
	RESERVOIR	CLEAN			X															16	BK									
	CATHODIC	INSPECT	X																											N/A - Rectifier Not in use
		ADJUST			X																									
	TELEMETRY	INSPECT			X			3	RH																					
		CLEAN			X			3	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				3	RH																					
	VALVES	EXERCISE		X														13	BK											

REMARKS

6-9-16 Fixed leaks on Hebron Res.		

RAW WATER AND FRESH WATER RESERVOIRS
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
5-16	CENTER TANK	INSPECT			X							16	SF									1	JF	12	SF					
		CLEAN			X																									
	CONTROL ROOM	INSPECT			X	21	BK	4	BK	21	SF	18	SF	18	SF	15	TS	7	SF	21	TS	14	SF	12	JF	23	TS	5	JF	
		CLEAN			X	21	BK	4	BK	21	SF	18	SF											12	JF	23	TS			
	VALVES	EXERCISE		X								18	SF											12	SF					
	HEAT TRACE LIGHTS	INSPECT	X			21	BK	4	BK	21	SF	18	SF	18	SF	15	TS	7	SF	21	SF	14	JF	12	JF	23	TS	5	JF	
	OBSTR LIGHTS	INSPECT			X	21	BK	4	BK	21	SF	18	SF	18	SF	15	TS	7	SF	21	SF	14	SF							
	OBSTR LIGHTS	TEST	X			21	BK	4	BK	21	SF	18	SF	18	SF	15	TS	7	SF	21	SF	14	JF	12	SF	23	TS	4	BK	
	TELEMETRY	INSPECT			X			4	RH																					
		CLEAN			X			4	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				4	RH																					
	CATHODIC	INSPECT	X			21	BK	4	BK	21	SF	18	SF	18	TS	15	TS	7	SF	21	SF	14	JF	12	SF	23	TS	5	SF	N/A - Rectifier Not in USE
5-17	DUNN CENTER RES.	INSPECT			X																									
		CLEAN			X																									
	CONTROL ROOM	INSPECT			X																									
		CLEAN			X																									
	VALVES	EXERCISE		X						18	SF																			
	HEAT TRACE TAPE	INSPECT	X			6	SF	11	SF	18	SF	6	SF	*		*		*		*		*		26	SF	17	SF	19	SF	
	OBSTRUCTION LIGHTS	INSPECT			X																									
		TEST	X			6	SF	11	SF	12	SF	6	SF	11	SF	2	SF	7	SF	23	SF	29	SF	26	SF	17	SF	19	SF	
	TELEMETRY	INSPECT			X			2	RH																					
		CLEAN			X			2	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				2	RH																					
	CATHODIC	INSPECT	X																											N/A - Rectifier Not in USE
		ADJUST			X																									
	CHLORINE RESIDUAL	TEST	X			6	SF	11	SF	18	SF	6	SF	11	SF	2	SF	7	SF	23	SF	29	SF	26	SF	17	SF	19	SF	
8-1	HALLIDAY RESERVOIR	INSPECT			X					18	JK																			
		CLEAN			X																									
	VAULT	INSPECT	X			7	SF	4	SF	18	JK	5	SF	11	SF	22	SF	26	SF	30	SF	29	SF	26	SF	18	SF	9	SF	
		CLEAN			X					18	JK																			
		CHLORINE CHECK	X			7	SF	4	SF	18	JK	5	SF	11	SF	22	SF	26	SF	30	SF	29	SF	26	SF	19	SF	9	SF	
		ANODE TESTS	X			7	SF	4	SF	18	SF	5	SF	11	SF	22	SF	26	SF	30	SF	29	SF	26	SF	19	SF	9	SF	
	CATHODIC	INSPECT			X																									N/A - Rectifier Not in Use
	TELEMETRY	INSPECT			X			3	RH																					
		CLEAN			X			3	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				3	RH																					
	VALVES	EXERCISE			X																			7	SF					
	UNDER DRAIN	INSPECT			X																									
	TANK RECIRC PUMP	INSPECT			X																									

REMARKS

Center Reservoir Tank New vent installed 4-16-16
Drain Diffuser installed 4-16- Ryan

* Heat trace turned off at Dunn Center Res.

RAW WATER AN[illegible]ESH WATER RESERVOIRS
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
8-1A	NEW HRADEC RESERVOIR	INSPECT			X	5	bm	4	bm	21	TM	14	tm	17	tm	6	tm	12	tm	9	tm	7	tm	3	tm	8	tm	5	tm	
		CLEAN			X											6	tm	12	tm											
	VAULT	INSPECT	X			5	jm	4	jm	21	Tm	14	tm	17	tm	6	tm	12	tm	9	tm	7	tm	3	tm	8	tm	5	tm	
		CLEAN			X	5	jm	4	jm	21	tm	14	tm	17	tm	6	tm	12	tm	9	tm	7	tm	3	tm	8	tm	5	tm	
		CHLORINE CHECK	X			5	SM	4	jm	21	TM	14	TM	17	TM	6	TM	12	TM	9	TM	7	TM	3	TM	8	TM	5	TM	
	Non-metallic Concrete Vault	ANODE TESTS	X			N/A	N/A																							
	CATHODIC	INSPECT			X																									N/A - Rock Dam Not in use
	TELEMETRY	INSPECT			X			8	RH																					
		CLEAN			X			8	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				8	RH																					
	VALVES	EXERCISE			X																									
	UNDER DRAIN	INSPECT			X																									
	TANK RECIRC PUMP	INSPECT			X															9	TM	7	TM	3	TM	8	TM	5	TM	
8-2	FAIRFIELD RESERVIOR	INSPECT			X															24	DIVER									INLAND POTABLE DIVE TEAM CLEAN
		CLEAN			X															24	DIVER									AND INSPECT
	VAULT	INSPECT	X			6	Jw	2	Jw	9	Jw	12	Jw	4	Jw	1	Jw	6	Jw	2	Jw	16	Jw	5	Jw	8	Jw	1	Jw	
		CLEAN			X					9	Jw																			
		CHLORINE CHECK	X			6	Jw	2	Jw	9	Jw	12	Jw	4	Jw	1	Jw	6	Jw	2	Jw	16	Jw	5	Jw	8	Jw	1	Jw	
	UNDER DRAIN	INSPECT			X																									
	TELEMETRY	INSPECT			X			8	RH																					
		CLEAN			X			8	RH																					
		CALIBRATE			X																									
		RADIO TEST		X				8	RH																					
	VALVES	EXERCISE			X							12	Jw																	
8-3	KILLDEER MT. RES.	INSPECT			X			1	BB																					
		CLEAN			X			1	BB																					
	CONTROL ROOM	INSPECT			X			1	BB																					
		CLEAN			X			1	BB																					
	VALVES	EXERCISE		X				1	BB																					
	HEAT TRACE TAPE	INSPECT	X			4	BB	1	BB	10	BB	21	BB	9	BB	16	BB	5	BB	16	BB	15	BB	19	BB	16	BB	21	BB	
	OBSTRUCTION LIGHTS	INSPECT			X			1	BB															19	BB					
		TEST	X			4	BB	1	BB	10	BB	21	BB	9	BB	16	BB	5	BB	16	BB	15	BB	19	BB	16	BB	21	BB	
	TELEMETRY	INSPECT			X			8	RH																					
		CLEAN			X			8	RH																					
		CALIBRATE			X																									
		RADIO TEST		X		4	BB	8	RH																					
	CATHODIC	INSPECT	X																											N/A - Rock Dam Not in use
		ADJUST			X																									
	CHLORINE RESIDUAL	TEST	X			4	BB	1	BB	10	BB	21	BB	9	BB	16	BB	5	BB	16	BB	15	BB	19	BB	16	BB	21	BB	

REMARKS

CATHODIC PROTECTION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
2-2G	2-2AB EMS BOXES	POTENTIAL TESTS		X	X							21	RH	5	RH	28/30	RH	13	RH	11	RH	13	RH	5	RH	3	RH			
		CURRENT SURVEY			X																									
	2-2AB RECTIFIER	EFFICIENCY TEST	X			5	RH	1	RH	1	RH	5	RH	2	RH	6	RH	5	RH	9	RH	8	RH	5	RH	3	RH	5	RH	
		ANODE TESTS	X			5	RH	1	RH	1	RH	5	RH	2	RH	6	RH	5		9		8		5	RH	3		5		
		INSPECT	X			5	RH	1	RH	1	RH	5	RH	2	RH	6	RH	5		9		8		5	RH	3		5		
		ADJUSTMENTS			X																									
		CLEAN			X																									
2-2H	2-2C EMS BOXES	POTENTIAL TESTS		X	X							21	RH	5	RH	6	RH	11	RH	11	RH	21	RH	10	RH	7	RH			
		CURRENT SURVEY			X											8	RH													
	2-2D EMX BOXES	POTENTIAL TESTS		X	X							21	RH	5	RH	6	RH	14	RH	11	RH	21	RH	10	RH	7	RH			
		CURRENT SURVEY			X											8	RH													
	2-2EF EMX BOXES	POTENTIAL TESTS		X	X									5	RH	6	RH	15	RH	11	RH	21	RH	12	RH	9	RH			
		CURRENT SURVEY			X											21	RH													
	2-2C RECTIFIER	EFFICIENCY TEST	X			5	RH	1	RH	1	RH	5	RH	2	RH	6	RH	5	RH	9	RH	8	RH	10	RH	7	RH	5	RH	
		ANODE TESTS	X			5	RH	1	RH	1	RH	5	RH	2	RH	6	RH	5		9		8		10		7		5		
		INSPECT	X			5	RH	1	RH	1	RH	5	RH	2	RH	6	RH	5		9		8		10		7		5		
		ADJUSTMENTS			X																									
		CLEAN			X																									
	2-2D RECTIFIER	EFFICIENCY TEST	X			5	RH	1	RH	1	RH	5	RH	2	RH	6	RH	5	RH	9	RH	8	RH	10	RH	7	RH	5	RH	* Rectifier 2-2D only putting out -1750 Anodes Depleted CM
		ANODE TESTS	X			5	RH	1	RH	1	RH	5	RH	2	RH	6		5		9		8		10		7		5		
		INSPECT	X			5	RH	1	RH	1	RH	5	RH	2	RH	6		5		9		8		10		7		5		
		ADJUSTMENTS			X																									
		CLEAN			X																									
	2-2EF RECTIFIER	EFFICIENCY TEST	X			5	RH	1	RH	1	RH	5	RH	2	RH	6	RH	5	RH	9	RH	8	RH	12	RH	9	RH	5	RH	
		ANODE TESTS	X			5	RH	1	RH	1	RH	5	RH	2	RH	6		5		9		8		12		9	RH	5		
		INSPECT	X			5	RH	1	RH	1	RH	5	RH	2	RH	6		5		9		8		12		9	RH	5		
		ADJUSTMENTS			X			2	RH	9	RH																			
		CLEAN			X																									
2-1A/3D	2-1 EMS BOXES	POTENTIAL TESTS		X	X							N/A	RH	N/A	RH	6	RH	6	RH	11	RH	13	RH	5	RH	3	RH			
		CURRENT SURVEY			X											13/14	RH													
	2-3A EMX BOXES	POTENTIAL TESTS		X	X									24	CM	2	CM			16	CM	29	CM	20	CM	9				
		CURRENT SURVEY			X													19	RH											
	2-3B EMS BOXES	POTENTIAL TESTS		X	X									4	CM	2	CM			16	CM	29	CM	20	CM	9	CM			
		CURRENT SURVEY			X													19	CM											
	2-3C EMS BOXES	POTENTIAL TESTS		X	X									4	CM	2	CM			16	CM	29	CM	20	CM	25	CM			
		CURRENT SURVEY			X													12	RH											
ADD COMPONENTS																														

REMARKS

4-21-16 2-1 Rectifier Out of Service RH
5-5-16 2-1 " " " " RH
5-23-16 Repaired Anode wires For 2-1 rectifier RH/cm

* 2-2D Rectifier only putting out -1750 CM Anodes Depleted

CATHODIC PROTECTION
OPERATIONS AND MAINTENANCE
2016

M - MONTHLY A - ANNUALLY P - PERIODICALLY

CONTR	COMPONENT	MAINTENANCE	M	A	P	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY	REMARKS
2-1A.3D	2-1 RECTIFIER	EFFICIENCY TEST	X			5	RH	1	RH	1	RH	5	RH	2	RH	6	RH	5	RH	9	RH	8	RH	5	RH	3	RH	5	RH	
		ANODE TESTS	X			5	RH	1	RH	1	RH	5	RH	2	RH	6	RH	5	1	9	1	8	1	5	RH	3	RH	5	1	
		INSPECT	X			5	RH	1	RH	1	RH	5	RH	2	RH	6	RH	5	1	9	1	8	1	5	RH	3	RH	5	1	
		ADJUSTMENTS			X																									
		CLEAN			X																									
	2-3A RECTIFIER	EFFICIENCY TEST	X			5	RH	1	RH	2	RH	5	RH	2	RH	2	CM	21	CM	16	CM	29	CM	20	CM	9	CM	29	CM	
		ANODE TESTS	X			5	RH	1	RH	2	RH	5	RH	2	RH	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		INSPECT	X			5	RH	1	RH	2	RH	5	RH	2	RH	2	CM	21	CM	16	CM	29	CM	20	CM	9	CM	29	CM	
		ADJUSTMENTS			X																									
		CLEAN			X																									
	2-3B RECTIFIER	EFFICIENCY TEST	X			5	RH	1	RH	2	RH	5	RH	2	RH	2	CM	21	CM	16	CM	29	CM	20	CM	9	CM	29	CM	
		ANODE TESTS	X			5	RH	1	RH	2	RH	5	RH	2	RH	1		1	1	1	1	1	1	1	1	1		1	1	
		INSPECT	X			5	RH	1	RH	2	RH	5	RH	2	RH	2	CM	21	CM	16	CM	29	CM	20	CM	9	CM	29	CM	
		ADJUSTMENTS			X																									
		CLEAN			X																									
	2-3C RECTIFIER	EFFICIENCY TEST	X			5	RH	1	RH	2	RH	5	RH	2	RH	2	CM	21	CM	16	CM	29	CM	20	CM	25	CM	29	CM	
		ANODE TESTS	X			5	RH	1	RH	2	RH	5	RH	2	RH	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		INSPECT	X			5	RH	1	RH	2	RH	5	RH	2	RH	2	CM	21	CM	16	CM	29	CM	20	CM	25	CM	29	CM	
		ADJUSTMENTS			X																									
		CLEAN			X																									
2-3G	2-3E EMS BOXES	POTENTIAL TESTS		X	X							4	CM	5	CM	3	CM	8	CM	15	CM	30	CM	21	CM	3	CM			
		CURRENT SURVEY			X													12/18	RH	11	CM									
	2-3F EMS BOXES	POTENTIAL TESTS		X	X							4	CM	5	CM	3	CM			15	CM	30	CM	21	CM	3	CM			
		CURRENT SURVEY			X													27												
	2-3EF #1 RECTIFIER	EFFICIENCY TEST	X			28	CM	17	CM	29	RH	14	CM	5	CM	3	CM	28	CM	12	CM	15	RH	20	CM	3	CM	28	CM	
		ANODE TESTS	X			28	1	1	1	29	RH	1	1	1	1	1	1	1	1	1		15	1	1	1	1	1	1	1	
		INSPECT	X			28	CM	17	CM	29	RH	14	CM	5	CM	3	CM	28	CM	12	CM	15	1	20	CM	3	CM	28	CM	
		ADJUSTMENTS			X																									
		CLEAN			X																									
	2-3EF #2 RECTIFIER	EFFICIENCY TEST	X			28	CM	17	CM	29	RH	14	CM	5	CM	3	CM	8	CM	11	CM	15	RH	19	CM	3	CM	28	CM	
		ANODE TESTS	X			1	1		1	29	RH	1	1	1	1	1	1	1	1	1	1	15	1	1	1	1	1	1	1	
		INSPECT	X			28	CM	17	CM	29	RH	14	CM	5	CM	3	CM	8	CM	11	CM	15	—	19	CM	3	CM	28	CM	
		ADJUSTMENTS			X																									
		CLEAN			X																									
	2-3EF #3 RECTIFIER	EFFICIENCY TEST	X			28	CM	17	CM	29	RH	14	CM	5	CM	3	CM	8	CM	11	CM	15	RH	21	CM	3	CM	28	CM	
		ANODE TESTS	X			1	1		1	29	RH	1	1	1	1	1	1	1	1	1	1	15	1	1	1	1	1	1	1	
		INSPECT	X			28	CM	17	CM	29	RH	14	CM	5	CM	3	CM	8	CM	11	CM	15	—	21	CM	3	CM	28	CM	
		ADJUSTMENTS			X																									
		CLEAN			X																									
	2-3EF #4 RECTIFIER	EFFICIENCY TEST	X			28	CM	17	CM	29	RH	14	CM	5	CM	3	CM	7	CM	15	CM	15	RH	21	CM	3	CM	28	CM	
		ANODE TESTS	X			1	1		1	29	RH	1	1	1	1	1	1	1	1	1	1	15	1	1	1	1	1	1	1	
		INSPECT	X			28	CM	17	CM	29	RH	14	CM	5	CM	3	CM	7	CM	15	CM	15	—	21	CM	3	CM	28	CM	
		ADJUSTMENTS			X																									
		CLEAN			X																									
ADD COMPONENTS																														

REMARKS

7-12-16 CP Annuals on 2-3E WTP to RCPS		
7-18-16 CP " " " North + West		

DISTRIBUTION SYSTEM

MAINTENANCE SCHEDULES

WATER TREATMENT PLANTS

PREVENTATIVE MAINTENANCE REPORTS

Southwest Water Authority

Memo

To: Andy Erickson, Grace Rixen-Handford

From: Andrew Sokolofsky

Date: 3/16/2017

Re: Year-end Maintenance Report (2016)

Andy, Grace

Find attached, copies of the Preventive Maintenance Program and a maintenance Work Order List for the Dickinson Water Treatment Facilities.

Work orders are used in conjunction with more in-depth maintenance projects or if a history of the work preformed may be useful for future reference. Inconsequential items are not recorded.

The list below shows a lower than normal maintenance demand for the past year. This is due in-part to less required maintenance, more time devoted to water treatment because of treating water on demand along with new learning curves needed in operations due to construction, and also time spent in training new employees.

Thanks, AJ

DATE	Work Orders			ALL MAINTENANCE ITEMS INCLUDING WORK ORDERS		
	Completed	Started Uncompleted	Not Yet Addressed	Completed	Started Uncompleted	Not Yet Addressed
2008	24	5	5	106	7	16
2009	28	7	4	89	7	24
2010	35	12	2	105	19	31
2011	54	37	20	125	37	20
2012	53	12	11	138	18	15
2013	46	12	9	129	15	18
2014	29	11	9	107	14	16
2015	23	9	9	64	13	13
2016	25	7	6	110	10	3

Water Treatment Plant
811 West Broadway
Dickinson, ND. 58601

Phone: 701-225-9149
asokolofsky@swwater.com

Mailing Address:
4665 2nd ST SW
Dickinson, ND. 58601

Date of Origin	By	Work Order#	Priority Level 1	2	3	TEC	Equipment	Job Description	Date Started and Technician	Date Com-plete
01/21/11	KK	1103	X			E	Fill Pump	Soft-start going into a fault / replace breaker	1/21/11,CM	2/23/16
06/24/15	AS	1519	X				Building and Grounds	Alarms not working	6/24/15.KK,CM	2/10/16
06/25/15	AS	1520			X	E	Building and Grounds	Exterior Garage , breaker relocation.	6/25/15,KK	3/17/16
01/01/16	GM	1601		X			Basin 106	Yearly routine maintenance		2/4/16
01/01/16	GM	1602		X			Basin 105	Yearly routine maintenance		3/1/16
01/01/16	GM	1603		X			Slaker 106	Yearly routine maintenance		2/10/16
01/01/16	GM	1604		X			Slaker 105	Yearly routine maintenance		2/25/16
01/05/16	AJ	1605	X			C	Gravity filter #5	Repair surface rake	1/5/16,AS,LR,SR,TR	1/7/16
01/08/16	Gm	1606		X			DPS CL2 regulator	5 years required maintenance by Hawkins Chemical	1/8 SR,LF	1/8/16
01/13/16	AS	1607			X		Heating System	Replace broken heaters and steam traps	01/13/16, KK,CM,JF,SR,TR	10/12/16
01/27/15	GM	1609		X			APA 6000	Check sample 1 or fluid alarm	1/15/16,GM	6/14/16
03/16/16	AS	1610	X				South Dehumidifier	Belt Broke	3/16/16, SR, JF, TR	6/20/16
04/04/16	AS	1611	X			E	Compressor #1	Motor died	4/4/16, LR, SR, CM	4/5/16
06/03/16	AS	1613	X				Meter 5	Meter 5 not reading on SCADA	6/3 AS	6/3/16
06/14/16	AS	1614	X			E	Greenleaf Vac Pumps	Replace vacuum pumps	6/14 AS, GM, TR, CM	6/30/16
08/15/16	AS	1617		X			#3 compressor	oil leak	8/15 JF	8/19/16
08/12/16	AS	1618	X				#1 compressor	Motor burnt up	8/12 JF,AS,SR,CM,TR	8/16/16
08/23/16	AS	1620	X				105 Slaker	Belt not moving	8/23 AS,SR,JF,CM	8/23/16
08/23/16	AS	1621	X				South Lime Silo	Not auto filling 105	8/23 AS,SR,CM	10/19/16
08/25/16	AS	1622		X			Backwash Pump Air vac	Leaking	8/23 AS,SR,JF,TR	8/29/16
10/18/16	AS	1624	X				Lime System	106 north rotory feeder bearing replacement	10/18 TR,SR	10/24/16
01/12/15	GM	1503		X		E	BW Reservoir	Sludge valve stopped working	1/12/15,AS,JF,TR,SR	8/25/16
11/26/16	GM	1627	X				106 Slaker	Paddle shaft gearbox/motor hot, making noise	11/26 GM	12/5/16
12/12/16	SR	1629	X				Slaker 106	Valbia water valve not working	12/12 SR, TR	12/13/16
12/21/16	AS	1630	X				Slaker 105	Valbia water valve not working	12/21 AS,TR	12/29/16
11/01/12	GM	1202			X	I	Backwash Pump Station	BW and Recycle pump fail, PLC reboot after running/hand		
11/19/11	GM	1140		X		I	Chem Pumps feed rate	PH4 and F chem pump feed rate low running Basin 105	12/1/11	
11/06/08	GM	822			X	E	Elevator	Replace terminal block and ele. Box under elevator (ele)		
08/07/09	GM	2009-5			X		Welding Maintenance	MFG. tool to rotate paddle shaft on slakers		

ote: TEC. Outside Assistance

= Distribution

= IT / Microcomm

= Electrician

= Contractor

Date of Origin	By	Work Order#	Priority Level 1	2	3	TEC	Equipment	Job Description	Date Started and Technician	Date Com-plete
01/25/11	CM	2011-2			X	E	Milliamp System	Repair bad connection on isolator transformer		
01/25/11	DL	2011-3		X			G.L. Filter	#4 north effluent valve sticking	2/15/11,SR	
05/12/11	GM	2011-5		X			Gravity filters	Replace positioner coupling on #7 filter		
08/27/11	GM	1125		X		E	#6 High Service Pump	Keystone valve buzzing after power outage	8/16/11,	
04/20/12	JL	1219			X		Building and Grounds	Xypex crack in Basin 106 wall, basement west.		
05/20/13	GM	1225			X		105 Daybin Vibrator	Leaking air.	5/20/13,SR	
04/11/14	GM	1411			X	I	Nusance Alarms	Audio alarm for Jung Lake, pinch valve - remove.		
05/18/14	GM	1417		X		E	New Pump Station	Maintenance due to new pump station construction	5/18/14,All	
01/07/15	GM	1502			X	E	CO2 Compressor	Move disconnect and starter from can 3 to can 4.		
04/30/15	CM	1513		X		E	PLC	Repair cable end on west PLC DH-485 card.		
01/27/16	GM	1608		X			GL. Filters	#2 Vac pump making noise.	1/27/16,GM	
06/01/16	AS	1612			X		Meter 6	Red lion not totalizing when pump 6 runs	6/1 AS	
06/27/16	AS	1615	X				CL2 Line	CL2 dropping off when using east tank	6/27 AS	
08/01/16	AS	1616		X			Filter #5 Effluent valve	Effluent valve leaking.	8/1 AS	
08/17/16	AS	1619		X			106 Slaker	Replace multiple worn parts		
10/03/16	AS	1623			X	E	Electrical System	Complete Amp draw test on all loads.	10/3 CM	
10/20/16	AS	1625	X			E	Generator	Transfer switch not activating	10/20 CM	
10/21/16	GM	1626			X		CO2 Tanks	Maintenance due to Bi-annual inspection	10/21 GM	
12/05/16	AS	1628	X			E	North Silo Filter Fan	Doesn't run in hand	12/5 AS,CM	

Note: TEC. Outside Assistance

D = Distribution

I = IT / Microcomm

E = Electrician

C = Contractor

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
COMPRESSOR #1																	X									
In Service									4-4	LR							8-1	DL								
Out of Service																										
Check Coolant Lines	1		1-7	JF	2-10	LR	3-15	LR	4-4	LR	5-10	SR	6-16	DL	7-11	DL	8-1	DL	9-9	DL			11-23	DL	12-19	DL
Tank cut-in/out	1	1	1-7	JF	2-10	LR	3-15	LR	4-4	LR	"	"	"	"	"		81	DL	"		10-19	DL	"	"	"	
Check Oil Level	1		1-7	JF	2-10	LR	3-15	LR	4-4	LR	"	"	"	"	"		8-18	JF	"		10-19	DL	"		"	
Ck Relief Valves	6						3-15	LR						✓			8-1	DL	"				"		"	
Check Belt Tension/Cond/Align.	6													✓			8-18	JF			10-19	DL				
Change Oil	A								4-4	LR							8-1	DL	—				11-23	DL		
Replace Air Filter	A																8-18	JF	—						12-5	JF
Check Heat and vibration	1		1-7	JF	2-10	LR	3-15	LR	4-4	LR	"	"	6-16	DL	7-11	DL	8-1	DL	"		10-19		11-23			
Drain tank moisture	1		1-7	JF	2-10	LR	3-15	LR	4-4	LR	"	"	"	"	"		"				"		"			
COMPRESSOR #2																										
In Service					2-16	LR											O		X							
Out of Service									4-4	LR	5-23	LR					8-1	DL	9-9	DL						
Check Oil Level	1				2-22	LR	3-15	LR	4-4	LR	5-23	LR	6-16	DL	7-11	DL					10-19	DL	11-23	DL	12-19	DL
Ck Relief Valves 12-16	6													✓	7-11	"					"		"		"	
Check Belt Tension/Cond/Align. 12-31	6													✓	"	"										
Change Oil	A								4-4	LR							8H	DL					11-23	DL		
Check tank moisture blow-off	W				2-29	LR	3-15	LR	4-4 (47oz)	LR																
Change Air Filter	A																									
Check cut-in / out Pressure	1				2-29	LR	70/105	LR	4-4	LR	5-23	LR	6-16	DL	7-11	DL	8-1	DL			10-19	DL	11-23	DL	12-19	DL
Check Heat and vibration	1				2-22	LR	3-15	LR	4-4	LR	5-23	LR	"	"	"		"									
COMPRESSOR #3																	X		O		X					
In Service									4-4	LR							8-1	DL	9-9	DL	10-19	DL				
Out of Service					2-16	LR					5-23	LR														
Check Oil Level	1		1-7	JF	2-10	LR			4-4	LR	5-10	SR	6-16	DL	7-11	DL	—	—	9-9	DL	10-19	DL	11-23	DL	12-19	DL
Ck Relief Valves 9-27	6				2-10	LR			4-6	LR									9-9	DL						
Check Belt Tension/Cond/Align.	6				2-10	LR													"							
Change Oil 12-31	A								4-4	LR							8-1	DL	—				11-29	JF		
Check tank moisture blow-off	W		1-7	JF	2-10	LR			4-6	LR													xxx Plugged			
Change Air Filter	A																		—							
Check cut-in / out Pressure	1		62/98	JF	62/98	LR			4-4	LR	"	"	6-16	DL	7-11	DL	8-1	DL	"							
Check Heat and vibration	1		1-7	JF	2-10	LR			4-4	LR	"	"	"	"	"		"		9-9	DL	10-19	DL	11-23	DL	12-19	DL
																					"		"		"	

COMMENTS

Compressor #1 motor burned up, replaced w/ used motor from inventory

$ Compressor #1 motor burned up - bought new motor from General Steel + Supply. #1 back in service 8-16 - AMP Draw: A-6.7 B-6.7 C-6.5 High is 9

8-18 Comp. #1 oil leaking from heads of low + high pressure stages - Head Bolts are tight

Blow off plugged on Comp #1 - 12-5 - cleaned

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
DRYER #1																										
In Service									4-4	LR																
Check Dryer Fan Operation	1		1-7	JF	2-10	LR			4-4	LR	5-10	SR	6-16	DL	7-11	DL	8-1	DL	9-9	DL	10-18	DL	11-16	DL	12-19	DL
Blow out Dryer with air 12/10		1							4-12	LR																
Change Particulate Filter 5/18		1									5-18	LR ✓														
Change Dryer Particulate Filter 5/18		1									5-18	" ✓														
Check Freon PSI 12-22		1																								
																										✓
DRYER #2																										
In Service					2-16	LR					5-23	LR									OS					
Check Dryer Fan Operation	1				2-29	LR	3-15	LR	4-4	LR	5-23	LR	6-16	DL	7-11	DL	8-1	DL	9-9	DL	10-18	DL				
Blow out Dryer with air 12-10		1							4-12	LR									11				11-16	DL	12-19	DL
Change Particulate Filter 3-5		1					3-15	LR																		
Check Freon PSI 12-22		1																								
																										✓
Misc.																										
Change Coalescing Filter MTP	A																									
Drain Coalescing Filter MTP	2		1-7	JF	2-10	LR			4-4	LR																
Change Coalescing Filter MXP	A																									
Filter Replacement.		5																								

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
LAB TURBIDIMETER																										
Primary Calibration	~~4~~	4	1-26	DL					4-10	DL									9-6	DAL			11-1	DL		
Secondary Calibration	4		1111	AH	~~HH~~	AH	1111	AH	111	AH	TTH	A-H	~~HH~~	AH	1111	AH	1111	AH			1111	DL	11 J	AH	1111	AH
Clean / Adjust Bulb	4								4-10	DL					7-18	DL							11-1	DL		
Replace Bulb																										
MISC. LAB																										
Replace PH Meter Electrode	A																									
~~Clean Water Distiller~~	A																									
Check TDS Meter Calibration	3		1-26	DL					4-10	DL																
Replace Sink Carbon Filter	A														7-25	DL									12-12	DL
Clean PH Meter Electrode	A		1-11	DL			3-28	DL	4-18	DL			6-27	JF	7-18	DL	8-8	JF			10-10	DL	11-28	DL	12-19	JF
SPECTRO DR/2700																										
Replace Lamp Assembly	A																									
Adjust Lamp Calibration		1																								
Spec Check		1	1-26	DL					4-10	DL					7-25	DL							11-1	DL		
RUN UPS - POWER LOSS		1			2/23	CM																				
R.O. UNIT																										
Change Filters		A																								

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
BASIN 106 INJECTION UNIT																										
Check Water/ CO2 Pressure	1		01/04	AS			3-11	DL	4-25	DL	5-26	DL	6-24	DL	7-11	DL	8-1	DL	9-9	DL	10-20	DL	11-23	DL	12-15	DL
Check For Leaks	1		1/7	AS			3-11	DL	4-25	DL	"		6-24	DL	"	"	"	"	"		"		"		"	
Calibrate / Clean Sensor / Acid	A	B							4-25	DL																
Replace Salt Bridge	A								4-25	DL																
Replace Cell Buffer	A								4-25	DL																
Replace Probe	A																									
Calibrate Control Valve		1																								
Lube Actuator Shaft		1																								
																			9-9	DL						
																			9-9	DL						
BASIN 105 INJECTION UNIT																										
Check Water/ CO2 Pressure	1		01/04	AS							5-26	DL	6-24	DL	7-11	DL	8-1	DL	9-9	DL	10-20	DL	11-23	DL	12-15	DL
Check For Leaks	1		1/7	AS							"		6-24	DL	"	"	"	"	"		"		"		"	
Calibrate / Clean Sensor / /Acid	A	B									5-18	DL														
Replace Salt Bridge	A																									
Replace Cell Buffer	A										5-18	DL														
Replace Probe	A																									
Calibrate Control Valve		1	1/7	AS																						
Lube Actuator Shaft		1	1/7	AS																						
MISC.																										
Check Primary PSI Regulator	1		1/4	AS			3-11	DL	4-26	DL	5-26	DL	6-24	DL	7-11	DL	8-1	DL	9-9	DL	10-20	DL	11-20	DL	12-15	DL
Check Auto CO2 Valve																										
Check Auto H20 Valve																										
Exercise 24" Bypass Valve	3		1/8	AS							5-26	DL							9-9	DL						

COMMENTS

System Inspection 10-3-16 (ED)

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
13 TON C02 STORAGE TANK																										
Check for leaks	A																21000		28000							
Tank Pressure Level	1		254	AS			255	DL	255	DL	260	DL	255	DL	256	DL	258	DL	255	DL	258	DL	255	DL	257	DL
Clean Unit	A																				-					
Check PSI Relief Valve		2																								
Alternate Relief Valves	6												6-24	DL							10-3	ED				
26 TON C02 STORAGE TANK																										
Blow Down Vaporizer	6												6-24	DL							10-3	ED				
Check Vaporizer Amperage	6												6-24	DL							10-3	ED				
Check for leaks	A																		9-9	DL						
Check Sight Glass	6												6-24	DL							10-3	ED				
Tank Pressure Level	1		252	AS			265	DNL	260	DL	265	DL	260	DL	260	DL	262	DL	258	DL	252	DL	254	DL	256	DL
Check Compressor Oil Level	6												6-24	DL					9-9	DL						
Clean Condensing Coil		1																								
Clean Unit	A																		9-9	DL	10-3	ED				
Check PSI Relief Valve		2											6-24	DL							10-3	ED				
Alternate Relief Valves	6																				10-3	DL				
Bi-annual Contract Inspection 7/14		2																								

COMMENTS

Contract Inspection 10-3-16 (ED)

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
ELEVATOR																										
Check Pipestand Oil Level	6				✓								6-28	DL												
Grease All Zerks and Gears		1											6-28	DL												
Lube Door and Brake Linkage		1											6-28	DL												
Check Cable Condition	6				✓								6-28	DL												
Check Operation	6				✓								6-28	DL												
Lube Switch Linkage		1																								
Inspection		3											6-28	DL												
CRANE PUMPING STATION																										
Clean and Lube Load Chain		1																								
Grease Trolly Gear / Pin Rail		1																								
Check Brake Mechanism	6																									
Check Brake Parts / Gears		1																								
Check Load Chain / Hook	6			NOT IN USE																						
Check Hook Latch / collars	6																									
Check Pins / Bolts / Sheaves	6																									
Check Hand Wheel / Yoke	6																									
Check Loadblock Housing	6																									
Check Structure / Trolly	6																									
CRANE CHLORINE ROOM																										
Clean and Lube Load Chain/Rail																										
Grease Bottom Hook		1																					11-21	DL		
Lube trolley wheel gears		1																					11-21	DL		
Check for loose/broken parts																							11-21	DL		
Inspection		1																					—			
Check Oil		A																					—			
																							11-21	DL		

COMMENTS

EQUIPMENT	HRS	DATE	HRS	BY	DATE	HRS	BY	DATE	HRS	BY	DATE	HRS	BY	DATE	HRS	BY
Ck Engine Oil Level	8 to 10		957		3-15-16	111.5	SR/DL				10-24	140	DL			
Ck Engine Air Filter Air System	8 to 10				X						X					
Ck Engine Cooling System	8 to 10				X											
Fuel Filter Trapped Water	8 to 10				X											
Lube Required Pointls	8 to 10				X											
Ck Tires	8 to 10				X											
Ck Seat Belt and Items	8 to 10				X											
Ck Interlock Control Sys.	8 to 10				X											
Ck Horn / Backup Alarm	8 to 10				X											
Ck Safety Signs/Treads	8 to 10				X											
Ck Operators Cab	8 to 10				X											
Ck Indicator/lights	8 to 10				X											
Ck Heater Filter	8 to 10				X											
Ck Hydraulic Fluid	8 to 10				X											
Ck Hydraulic Hoses/Tubes	50				X											
Ck Final Drive Fluid Level	50				X											
Ck Operator Manual Control	50				X											
Ck Wheel Nuts	50				X											
Clean Spark Arrester	100				X											
Ck/Service Battery	100				X											
Replace Fuel Filter	200															
Ck Engine/Hydro Belt Drive	200															
Ck Engine Belts	250															
Ck Interlock Bypass	250															
Change oil and Filter	100-200															
Replace Charge Filter and Reservoir breather	500															
Replace hydraulic / Hydrostatic Filter	1000															
Replace Final Drive Fluid	1000															
Adjust Engine Valves	1000															
Replace Coolant	2 years															

COMMENTS

2016

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Snow Blower																										
Grease Auger Shaft		1																								
Check Cutting Edge Condition	2																									
Check Skid Shoe Condition	2																				10-4	DL				
Check Bob-Tach Wedge Mounts		1																			S					
Lube Auger Chain		1																								
Check Fasteners and Hoses		1																								
Clean at Storage		1																			S					
Hydraulic Forks																										
Check Fork Condition		1																								
Lube Attachment		1																			10-4	DL				
Check Overall Condition		1																			S					
Check Fastners and Hoses		1																								
Snow Bucket																										
Check Cutting Edge	2																									
Check Overall Condition		1																			10-4	DL				
																					S					
Lopro Bucket																										
Check Cutting Edge	2																									
Check Overall Condition		1																			10-4	DL				
																					S					
Manual Forks																										
Check Fork Condition	2																									
Check Overall Condition		1																			10-4	DL				
																					S					

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
2014 FORKLIFT																										
Check Brake/General Operation	1		1-15	LR			3-17	DL	4-27	DL	5-23	DL	6-27	DL	7-25	DL	8-12	DL	9-12	DL	10-26	DL	11-21	DL	12-19	DL
Check for Loose Connections	1		1-15	LR															X							
Lubricate Drive Unit	1		1-15	LR															X							
Check Battery Water Level	1		1-15	LR															X							
Check Hydraulic Oil	3																		X				11-21	DL		
Check Belt Condition	6																		X				11-21	DL		
Grease Real Wheel and Swivel	6																		X							
Check Gear / Lube Rear Wheel	6																		X							
Change Hydraulic Oil		1																								
Remove Chain and Clean	A																									
1971 FORKLIFT	1																									
Check Brake/General Operation	1		1-15	LR			3-17	DL	4-27	DL	5-23	DL	6-27	DL	7-25	DL	8-12	DL	9-12	DL	10-26	DL	11-21	DL	12-19	DL
Check for Loose Connections	1		1-15	LR									6-27	DL												
Check Battery Water Level	6												6-27	DL												
Check Hydraulic Oil	6																									
Check Belt Condition	6																									
Lube Fork Rollers and Pivots	6																									
Lube Chain	6																									
Grease Real Wheel and Swivel	6																									
Check Gear / Lube Rear Wheel																										

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
DUST COLLECTOR																										
Grease Motor		1					3-17	DL																		
Lube Shaker Mechanism	8																		9-20	DL/MV						
Lube Vent Door	8																									
Check Filter Bags	6																									
Check V-Belt	6																									
Clean return line	1																									
BASIN 106 ROTORY FEEDER															7-8	6M	8-16	SR								
Grease Chain / Check Tension		1					3-17	DL																		
Check Gear Reduction Oil	6						3-17	DL																		
Change Reduction Oil																										
Check Air Vent	3						3-17	DL					6-28	DL					9-14	DL						
Check Packing Air / Heat	6						3-17	DL																		
BASIN 106 SCREW CONVEY.																										
Change Reduction Oil																										
Grease Bearings		1					3-17	DL																		
Check V-Belt		1					3-17	DL																		
Grease Plug Valve		1																								
Check Reduction Oil	6						3-17	DL																		
BASIN 105 ROTORY FEEDER																										
Grease Chain / Check Tension		1					3-17	DL																		
Check Gear Reduction Oil	6						3-17	DL																		
Change Reduction Oil																										
Check Air Vent	3						3-17	DL					6-28	DL					9-14	DL						
Check Packing Air / Heat	6																									
BASIN 105 SCREW CONVEY.																										
Change Reduction Oil																										
Grease Bearings		1					3-17	DL																		
Check V-Belt		1					3-17	DL																		
Grease Plug Valve		1																								
Check Reduction Oil	6						3-17	DL																		

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
DUST COLLECTOR																										
Grease Motor		1					3-17	DL											9-20	DL						
Lube Shaker Mechanism	8						3-17	DL											9-20	DL						
Lube Vent Door	8						3-17	DL											9-20	DL						
Check Filter Bags	6						3-17	DL											9-20	DL						
Check V-Belt	6						3-17	DL											9-20	DL						
Clean Return Line															7-8	6m	8-16	SR	9-20	DL						
BASIN 106 ROTORY FEEDER							3-17	DL																		
Grease Chain / Check Tension		1					3-17	DL																		
Check Gear Reduction Oil	6						3-17	DL																		
Change Reduction Oil																										
Check Air Vent	3						3-17	DL					6-28	DL					9-14	DL						
Check Packing Air / Heat	6																									
BASIN 106 SCREW CONVEY.																										
Change Reduction Oil																										
Grease Bearings		1					3-17	DL																		
Check V-Belt		1					3-17	DL																		
Grease Plug Valve		1																								
Check Reduction Oil	6						3-17	DL																		
BASIN 105 ROTORY FEEDER																										
Grease Chain / Check Tension		1					3-17	DL																		
Check Gear Reduction Oil	6						3-17	DL																		
Change Reduction Oil																										
Check Air Vent	3						3-17	DL					6-28	DL					9-14	DL						
Check Packing Air / Heat	6																									
BASIN 105 SCREW CONVEY.																										
Change Reduction Oil																										
Grease Bearings		1					3-17	DL																		
Check V-Belt		1					3-17	DL																		
Grease Plug Valve		1																								
Check Reduction Oil	6						3-17	DL																		

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
AIR BLOWER																										
Grease Bearings		1																								
Grease Motor Bearings		1																								
Check V-Belt	6						3-17	DL					6-28	DL												
Check Oil Level	3						3-17	DL																		
Change Oil																										
Check Air Intake Filter		1					3-17	DL																		
Check Heat / Vibration	2						3-17	DL					6-28	DL					9-25	DL						
MISC.																										
Check Silencer Moisture	6						3-17	DL																		
Lube Relief Valve		1					3-17	DL																		
Blow Dust From Motors	6						3-17	DL					6-28	DL					9-14	DL						

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
AIR BLOWER																										
Grease Bearings		1					3-17	DL																		
Grease Motor Bearings		1					3-17	DL																		
Check V-Belt	6						3-17	DL					6-28	DL												
Check Oil Level	3						3-17	DL																		
Change Oil																										
Check Air Intake Filter		1					3-17	DL																		
Check Heat / Vibration	2						3-17	DL					6-28	DL					9-20	DL						
MISC.																										
Check Silencer Moisture	6						3-17	DL																		
Lube Relief Valve		1																								
Blow Dust From Motors	6						3-17	DL					6-28	DL					9-14	DL						

COMMENTS

2016

BLOWER #2

PREVENTIVE MAINTENANCE

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
CHLORINE ANALYZER																										
Check Water Flow Volume 9/15	3																									
Clean Colorimeter 9/15	3																									
Replace Pump Tubing 10/15		1																								
Replace Analyzer Tubing 10/15		2																								
Check Calibration 7/15		1																								
Clean Water Strainer (Banjo)	W		1-12	SR/LR			3/17	6M	4/28	6M	5/12	6M	6/1	6M	7/13	6M	8/24	6M	9/1	6M	1	6M	11	6M	11	6M
Clean Water Strainer (Below) 9/14	A								4/28	JF																
Change out Reagents	A						3/8		4/13	6M	5/12	JF	6/15	6M	7/21	6M	8/24	6M								
NORTH CL2 CONTROLLER																										
Check for Chlorine leaks	A						3/17	6M																		
Clean Components	A																									
Check Calibration	A														7/25	6M										
IN SERVICE																			9/14	JF 6M						
SOUTH CL2 CONTROLLER																										
Check for Chlorine leaks	A						3/17	6M																		
Clean Components	A																									
Check Calibration	A																									
IN SERVICE									4/8	6M					7/25	6M									12/2	6M
MISC. CHLORINE																										
Clean / Inspect Gas Feeders	6																									
Replace CL2 Vacuum Line 10/13	A																									
Clean Ejector	A																									
Clean Switchover	A																									
Operate Switchover	1		1-12	SR/LR																						
Check Flow Transducer Blow-off	1		1-12	SR/LR	2/23	6M	3/17	6M	4/20	6M	5/4	6M	6-1	MK 6M	7/13	6M	8/4	6M	9/1	6M	10/19	6M	11/3	6M	12/8	6M
BOOSTER PUMPS																										
Check Heat / Vibration #1 Pump	1		1-12	SR/LR	2/23	6M	3/17	6M	4/13	6M	5/4	6M	6-1	6M	7/28	6M	8/4	6M	9/15	6M						
Check Heat / Vibrfation #2 Pump	1				2/10	6M			4/20	6M			6-15	6M	7/13	6M		9/1	6M				11/3	6M	12/8	6M
Clean Suction Strainer	A						IIII		II		III		IIII		IIII		III	6M	II		I	6M	II	6M	III	
Grease Motor Bearings 11/15		1																								
CHLORINE GAS MONITORS																										
Receiver Response Test	1				2/10	6M	3/17	6M	4/20	6M	5/4	6M	6-1	6M	7/13	6M	8/4	6M	9/1	6M	10/19	6M	11/9	6M	12/2	6M
Replace Sensors		A																								
Calibration		1																								
Test Alarm Telemetry 5/15		1																			10/19	6M				

12-29-15 Calibrate new gas monitors by Kent

4-8-16 SWITCH TO SO CONTROLLER

CLEANED BLOW-OFF STRAINER 4-8-16 - 9-1-16

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
AMMONIUM SULFATE PUMP																										
Clean / Check Operation	1				3/16	GM	3/17	GM	4/20				6/29	GM			8/24	GM	9/15	GM	10/28	GM/DM	11/3	GM	12/2	GM
Install Pump Kit 7/15		A													7/23	GM					10/28	GM/DM				
EYEWASH STATION																										
Dodge - Clean and Flush	1				2/16	GM	3/17	GM	4/20	GM	5/4	GM	6/1	GM	7/18	GM	8/4	GM	9/1	GM	10/19	GM	11/9	GM	12/2	GM
RPS - Change Solution 8/15	6		1-26	SR/LR													7									
RPS - Clean Station	6		"	"																						
EXHAUST FANS																										
Chlorine Fan Grease / Inspect		1																								
Lubricate Louvers		1									5/4	GM														
Check / Operate	1		1-12	SR/LR	2/10	GM	3/28	GM	4/20	GM	5/4	GM	6/1	MK	7/13	GM			9/1	MK	10/24	GM			12/2	GM
CHLORINE HOIST																										
Check Oil / Lube and Ck Chain	6												6/1	MK GM												
Check Limit Switch 3/15		1																								
Check Motor / Load Brake 7/15		1											6/1	MK GM												
Lube Sheave / Bearings 10/15		1											6/1	MK GM												
Contract Inspection. 2/15		1																								
OVERHEAD DOORS																										
Lube Chain / Gears / Sprocket		1	1-26	SR/LR									6/1	MK GM												
Check Oil Level		1											6/1	MK GM												
WIND SOCK																										
Check Sock Condition	1		1-12	SR/LR	3/10	GM	3/17	GM	4/20	GM	5/4	GM	6/23	GM	7/13	GM	8/4	GM	9/1	GM	10/19	GM	11/9	GM	12/2	GM
PERMAG PUMP																										
Check Leaks / Temp / Flow	1																									
Install Pump Kit		A																								

COMMENTS INSTALL KIT - PUMP #.4 32745 7/23/16 - IN SERVICE: 7-25-16
" SPARE PUMP 10/28/16 #.5184498

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
#1 TURBIDIMETER																										
Primary Calibration	6										5/23	JF	6/27	JF	7/11	TR	8/8	JF			10/24	TR				
Secondary Calibration	W																									
Check Water Flow to Meter	1		696	AS			740	TR	700	TR	730	TR	710	TR	690	TR	700	TR	680	TR	680	TR	490	TR	510	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack																										
#2 TURBIDIMETER																										
Primary Calibration	6														7/11	TR										
Secondary Calibration	W																									
Check Water Flow to Meter	1		635	AS			700	TR	680	TR	720	TR	700	TR	660	TR	670	TR	660	TR	670	TR	615	TR	610	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack																										
#3 TURBIDIMETER																										
Primary Calibration	6				2-2	LR			4/11	TR			6/27	JF	7/11	TR										
Secondary Calibration	W																									
Check Water Flow to Meter	1		340	AS			290	TR	420	TR	460	TR	430	TR	400	TR	460	TR	440	TR	430	TR	410	TR	400	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack																										
#4 TURBIDIMETER																										
Primary Calibration	6																									
Secondary Calibration	W														7/11	TR	8/8	JF								
Check Water Flow to Meter	1		310	AS			210	TR	340	TR	630	TR	790	TR	670	TR	680	TR	680	TR	680	TR	655	TR	660	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack																										
SCW TURBIDIMETER																										
Primary Calibration	4								4/11	TR							8/8	JF			10/31	JF			1	
Secondary Calibration	W																									
Check Water Flow to Meter	1		110	AS			100	TR	140	TR	165	TR	175	TR	170	TR	170	TR	180	TR	300	TR	310	TR	320	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack			1/22	KA																						

COMMENTS

4/19/16 Replace Mod Bus in #3 turbidimeter, did preventative on #3. #3 was dead after a Power loss on UPS

New Calibration Standards 8/1/16 10/24 Replace head on #1 turbidimeter

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
#5 TURBIDIMETER																										
Primary Calibration	6										5/19	SF			7/11	TR										
Secondary Calibration	W																									
Check Water Flow to Meter	1		490	AS			278	TR	280	TR	105	TR	240	TR	220	TR	250	TR	240	TR	280	TR	320	TR	210	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack																										
#6 TURBIDIMETER																										
Primary Calibration	6																									
Secondary Calibration	W														7/11	TR	8/31	OL								
Check Water Flow to Meter	1		260	AS			295	TR	270	TR	270	TR	320	TR	350	TR	230	TR	220	TR	140	TR	160	TR	170	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack							3/18	SF																		
#7 TURBIDIMETER																										
Primary Calibration	6																									
Secondary Calibration	W														7/11	TR										
Check Water Flow to Meter	1		465	AS			190	SF	240	TR	200	TR	240	TR	140	TR	220	TR	160	TR	250	TR	185	TR	210	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack									4/1	SF																
NCW TRUBIDIMETER																										
Primary Calibration	4								4/11	TR																
Secondary Calibration	W																8/29	TR							12/21	MK
Check Water Flow to Meter	1		85	AS			120	TR	110	TR	190	TR	210	TR	210	TR	230	TR	150	TR	140	TR	125	TR	150	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack																										
Misc.																										
Flush All Meter Supply Lines		1																								

Replaced Cuvette on #5 5/19/16

New Calibration standards 8/1/16

COMMENTS

8/23/16 #5 turbidimeter died Mod Bus died - waiting on replacement
8/26/16 Switched #6 Mod bus to #5
8/27/16 replaced lamp in Gravity Filament turbidimeter, replaced dessicant pack in #5

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
AIR BLOWER																										
Check Oil Level	4						3-7	SR LR							7/14	KK							11/17	KK		
Change Oil		2																								
Check Belt Condition	6						"	"											9/22	KK						
Lube Relief Valve	6																		9/22	KK						
Grease Motor Bearings		2					"	"																		
Grease Blower Bearings		2					"	"																		
Check Air Filter Inlet		1					"	"																		
VACUUM PUMPS																										
Clean Line Strainer		1					3-7	SR LR																		
Check Water Solenoid Valve	4						"	"							7/14	KK										
Check Vacuum Cut-in / Cut-out	4		*Still having issues																							
PIPE GALLERY																										
Check Water / Air Leaks	3						3-7	SR LR					6/21	KK					9/22	KK					12/22	KK
Check Valve Operation	3												6/21	KK					9/22	KK					12/22	KK
Lube Valve Cylinders																										
Work Valves in Area	A																									
MISC.																										
Check Sight Glass	3						3-7	SR LR					6/21	KK					9/22	KK					12/22	KK
Measure Media Depth	6		1-12	All																						
HTH Filters																										
#1			1-22	22"																						
#2			1-12	24.56																						
#3			1-20	23"																						
#4			1-14	21.9"																						
2016 - budget anthracite																										

3-3-16 - Put new Y Discs in both Vac. Check Valves

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
BACKWASH PUMP																										
Grease Stuffing Box	6						3-7	SR LR											9/22	KK						
Check Oil Level	1						"	"	4-27	LR	5-10	SR	6/23	KK	7/14	KK	8/23	KK	9/22	KK	10/17	KK	11/22	KK	12/22	KK
Change Oil																										
Check Packing	1						3-22	LR	4-27	LR			6/23	KK	7/14	KK	8/23	KK	9/22	KK	10/17	KK	11/22	KK	12/22	KK
Check Heat / Vibration	1						3-22	LR	4-27	LR			6/23	KK	7/14	KK	8/23	KK	9/22	KK	10/17	KK	11/22	KK	12/22	KK
Clean Equipment																										
Oil Analysis																										
Lube Valve Cylinders																										
MISC.																										
Bleed Drip Legs	6						3-7	SR LR											9/22	KK						
Lube Valves	A																									
Check Valve Operation		1					"	"																		
Work Valves in Area																										
Media Depth	6		1-5	DL																						
Calibration		2																								
HTH Filters																										
#5			1-4	25"																						
#6			1-5	27.3"																						
#7			1-6	26"																						

COMMENTS

EQUIPMENT	MISC.	OIL	FILTER	LUBRICATION
EYE WASH STATIONS (3)	Lab / Chlorine North / Chem. Feed Room			
Flush Operate				
Clean Station				
Check High Temp Limit.	CL2 North			
SECURITY SYS.				
Service Contract/Test Sensors	PCS / Password = Pipeline		Enercell Batteries	
Test Phone Communication	PCS to put system in stand-by		All sensor batteries are CR123A -3V	
Siren Test	Phone connection 225-9147		Flood = 9 volt and CR123A	
Battery Replacement	Fill out check sheet		Panic button = CR2	
CHLORINE GAS MONITOR				
Receiver Test				
Sensor Response Test	.05 ppm Warning / 3.0 ppm Alarm			
Calibration	Calcium Hypochlorite Bottle			
Replace Sensor				
Alarm Telemetry Test				
Test Cl2 Exhaust Fan ~~Strob~~ STROBE light	Ackowledge #4 on on-call cell phone			
Check Exterior ~~Strob~~ light				
Replace Ammonia Test Bottle	Vendor - Hawkins Chemical			
WIND SOCK				
Grease Swivel				
Check Sock Condition	9" Diameter			
MISC.				
Test Emergency Lights				
First Aid Kit Inventory				
Replace CL2 Resp. Cartridge	Cartridge # 815359			
Check Fire Extinguishers	WSI Regulation			
Check AED Charge				
Check AED Pad Expiration				
Fire Extinguisher service	Total Safety (483-1527)			

NAME OF EQUIPMENT	MANUFACTURE	MODEL NUMBER	SERIAL NUMBER	SIZE	TYPE	VOLTS	MISC.
Eyewash (Chemical Room)	ENCON	Z358.1					PRODUCT# 1368
Eyewash/Shower (CL2 area)	Guardian	G1902					
Eyewash/Shower (Lab)	Encon	Z358.1					
Tankless Heater	Tankless Inc	C108KW	14051		3Phase	480	Purchased 1/13
CHLORINE GAS DETECTOR	ATI	A14/11-11-0010-1-1-CL2		10 PPM		110	KA141
FIRST AID KIT	ZEE						
CHLORINE REPAIR KIT	CL2 INSTITUTE	KIT B		1 TON			
SECURITY SYSTEM	Hamilton Safe					Installed 11/22/10	
4-GAS HAND MONITOR	MSA ~~SOLARIS~~ ALTAIR4X		~~A4-31488~~ 00368025		4 GAS ~~3 GAS~~		P/N ~~10047227~~ 10100621
CL2 GAS HAND MONITOR	MSA Altair	CL2 PRO 10076716	8101593		Lithium Battery		Purchased 9/21/11
Confined Space Entry							
Tripod	Sala	8000000	MF Lot# 10/APR	350#	7 foot		Purchased 4/15/10
Winch	Sala	Salalift 2 - 8102001	17275	350#	60ft. Wire		Purchased 4/15/10
AED	Cardiac Science	Powerheart AEDG3			BATTERY NEW 9/4/16		

EQUIPMENT	MISC.	OIL	FILTER	LUBRICATION
HAND-HELD DETECTORS				
Altair Pro CL2				
Bump Test	HTH			
Calibration / Cal Check	Cal-gas Pt# 711066 MSA			
Battery Replacement	Lithium Battery			
Sensor Replacement				
ALTAIR 4X				
~~**Solaris 3-Gas Detector**~~				
Calibration				
Calibration Check	Cal-gas Pt# 10048790 MSA Econo-Cal			
Bump Test	Use Cal Gas			
Sensor Replacement				
CONFINED SPACE ENTRY				
Sala Tripod				
Check fastners, legs, ~~pully's~~ PULLEYS				
Sala Winch				
Ck fastners, guards, damage				
Ck handle, connection hook				
Check wire condition				
Check free-wheel brake				
Check shear pin				
Lube wire rope		light machine oil		
lube winch drum gear	light coat of grease			
Landyard/Harness condition				
VEHICLE INSPECTIONS				
2007 Chevy 1/2 ton 4X4	License # G83753			
2011 Ford 1/2 ton 4X4	License # G83758			
2013 Dodge Journey	License # G83766			
1987 IHC Truck	License # G83751			

EQUIPMENT	MISC.	OIL	FILTER	LUBRICATION
PRESSURE WASHER				
Check Coil Back Pressure				
Check Belt Tension				
Check Spray Tip Plugging				
Replace Spay Tip				
Check Fuel Filter / Screen				
Burner Gun Maintenance				
Check Buss Bar Alignment				
Electrode Adjustment				
ELECTRIC GATE				
Check Clutch System	Pg. 24 Of Manual			
Check Slack & Lubrication-	Pg. 24 Of Manual			
Sprocket & Chain	Chain Lubrication			
Check Fasteners etc.				
Check Manual Operator Disconnect				
Check Stop Button				
Check Entrapment System	Gate To Reverse When Hitting A Solid Object			
MISC.				
Clean SW Sewer Sump	In Late Fall			
Lube Pad[redacted] locks				
AIRLESS PAINT SPRAYER				
Long Term Storage Procedure	End of painting job	Wagner Pt# 0516913		Or substitute light household oil
ULTIMATE PRESSURE WASHER				
Check oil / overall condition				
Change oil first 50 hours	SAE 30w Non-detergent.			
Grease Motor				
GENERAL SEWER MACHINE				Purchased 10/20/14
Oil Cable	Pour into cable drum	motor oil		
Lube Bearings				
Clean and Inspect				

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
EYE WASH STATIONS (3)																										
Flush Operate	1		1-17	KK	2-10	KK	3/25	KK	4/18	MK	5/17	KK	6/27	KK	7/14	KK	8/24	KK	9/22	KK	10/7	KK	11/30	KK	12/19	KK
Clean Station	A																									
Check High Temp Limit.																										
SECURITY SYS.																										
Service Contract/Test Sensors		1																								
Test Phone Communication		1																								
Siren Test	1		1-17	KK	2-10	KK	3/25	KK	4/18	KK	5/17	KK	6/27	KK	7/14	KK	8/24	KK	9/22	KK	10/7	KK	11/30	KK	12/19	KK
Battery Replacement	A																									
CHLORINE GAS MONITOR																										
Receiver Test	1		1-17	KK	2-10	KK	3/25	KK	4/11	KK	5/23	KK	6/15	KK	7/14	KK	8/24	KK	9/22	KK	10/7	KK	11/30	KK	12/19	KK
Sensor Response Test	1		1-17	KK	2-10	KK	3/25	KK	4/11	KK	5/23	KK	6/15	KK	7/14	KK	8/24	KK	9/22	KK	10/7	KK	11/30	KK	12/19	KK
Calibration		1																								
Replace Sensor	A																								12/19	KK
Alarm Telemetry Test	1		1-17	KK	2-10	KK	3/25	KK	4/11	KK	5/23	KK	6/15	KK	7/14	KK	8/24	KK	9/22	KK	10/7	KK	11/30	KK	12/19	KK
Test Cl2 Exhaust Fan	1		1-17	KK	2-10	KK	3/25	KK	4/11	KK	5/23	KK	6/15	KK	7/14	KK	8/24	KK	9/22	KK	10/7	KK	11/30	KK	12/19	KK
Check Exterior Strobelight	1		1-17	KK	2-10	KK	3/25	KK	4/11	KK	5/23	KK	6/15	KK	7/14	KK	8/24	KK	9/22	KK	10/7	KK	11/30	KK	12/19	KK
Replace Ammonia Test Bottle		2																								
WIND SOCK																										
Grease Swivel		1													7/14	KK										
Check Sock Condition	4						3/25	KK							7/14	KK							11/30	KK		
MISC.																										
Test Emergency Lights	6														7/14	KK										
First Aid Kit Inventory		1																	9/28	JF						
Replace CL2 Resp. Cartridges 5/18		3																								
Check Fire Extinguishers	1												6/27	KK	7/26	KK										
Check AED Charge	1		1-17	KK	2-10	KK	3/25	KK	4/11	KK	5/3	KK	6/27	KK	7/14	KK	—	KK	9/4	KK	10/7	KK	11/30	KK	12/19	KK
Check AED Pad Expiration		1																	9/4	KK						
Fire Extinguisher Service		1																			10/31	KK				

COMMENTS

4/4 INSTALLED NEW BATTERY IN AED

2016

SAFETY EQUIPMENT

PREVENTIVE MAINTENANCE

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
HAND-HELD DETECTORS																										
Altair Pro CL2																										
Bump Test	1		1-12	KK	2-10	KK	3/25	KK	4/11	KK	5/17	KK	6/21	KK	7/14	KK	8/23	KK	9/22	KK	10/19	KK	11/30	KK	12/19	KK
Calibration / Cal Check		1																							12/19	KK
Battery Replacement																										
Sensor Replacement																										
ALTAIR 4X																										
~~Solaris 4~~ Gas Detector																										
Calibration	6																				10/19	KK				
Calibration Check	3				2-10	KK					5/11	KK									10/19	KK				
Bump Test	1		1-12	KK	2-10	KK	3/25	KK	4/11	KK	5/11	KK	6/21	KK	7/24	KK	8/23	KK	9/22	KK	10/19	KK	11/30	KK	12/19	KK
Sensor Replacement																										
CONFINED SPACE ENTRY																										
Sala Tripod																										
CK for worn or damaged parts	B.U.																									
Check fastners, legs, ~~pullys~~ PULLEY	B.U.																									
Sala Winch																										
Ck fastners, guards, damage	A																									
Ck handle, connection hook	A																									
Check wire condition	A																									
Check free-wheel brake	A																									
Check shear pin	A																									
Lube wire rope		A																								
lube winch drum gear	A																									
Landyard/Harness condition	A																									
VEHICLE INSPECTIONS																										
2007 Chevy 1/2 ton 4X4	1		1/12	TR	2/8	TR	3/11	TR	4/4	TR	5/6	TR	6/20	TR	7/11	TR	8/4	TR	9/6	TR	10/5	TR	11/7	TR	12/8	TR
2011 Ford 1/2 ton 4X4	1				2/8	TR	3/11	TR	4/4	TR	5/6	TR	6/16	TR	7/11	TR	8/5	TR	9/7	TR	10/10	TR	11/9	TR	12/8	TR
2013 Dodge Journey	1		1/12	TR	2/8	TR	3/11	TR	4/4	TR	5/6	TR	6/16	TR	7/11	TR	8/4	TR	9/6	TR	10/10	TR	11/9	TR	12/8	TR
1987 IHC Truck	1				2/9	TR	3/11	TR	4/4	TR									9/9	TR			11/8	TR		

EQUIPMENT	HR	Date	By	Date	By	Date	By	Date	By	Date	By	Date	By
ALKOTA PRESSURE WASHER													
Check Coil Back Pressure	1/YR							8/23	KK				
Check Belt Tension	6 Mon.							8/23	KK				
Check Spray Tip Plugging	1/YR							8/23	KK				
Replace Spay Tip	A/N												
Check Fuel Filter / Screen	6 Mon.							8/23	KK				
Burner Gun Maintenance	1/YR												
Check Buss Bar Alignment	1/YR												
Electrode Adjustment	1/YR												
ELECTRIC GATE													
Check Clutch System	6 Mon.							8/23	KK				
Check Brake System	1/YR							8/23	KK				
Check Slack & Lubrication-	6 Mon.							8/23	KK				
Sprocket & Chain													
Check Fasteners etc.	1/YR							8/23	KK				
Check Manual Operator Disconnect	1/YR							8/23	KK				
Check Stop Button	6 Mon.							8/23	KK				
Check Entrapment System	3 Mon.							8/23	KK			12/22	KK
MISC.													
Lube Paddle locks	1/YR							8/23	KK				
Clean SW Sewer Sump	1/YR							8/23	KK				
AIRLESS PAINT SPRAYER													
Long Term Storage Procedure	A/N												
ULTIMATE PRESSURE WASHER													
Check oil / overall condition	with use												
Change oil first 50 hours	300 hrs												
Grease Motor	A/N												
GENERAL SEWER MACHINE													
Oil Cable	AN												
Lube Bearings	AN												
Clean and Inspect	AN												

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
FLUORIDE																										
Check for Heat / Vibration	1		1-7	LR	2-23	JF	3-7	JF	4-11	LR	5-9	LR	6-6	SR	7-12	SR	8-2	SR	9-12	SR	10-4	SR	11-22	SR	12-6	SR
Replace Loadsure	A		"	"					4-6	GM/LR																
Clean Daytank / Equipment	A		"	"					4-11	LR	5-9	LR							"	"	"	"			"	"
BASIN 105 COAGULANT																										
Check for Heat / Vibration	1		1-19	LR							5-9	LR	6-6	SR	7-12	SR	8-2	SR			10-4	SR				
Replace Loadsure	A																									
Clean Daytank / Equipment	A						3-7	JF	4-11	LR	5-9	LR	"	"	"	"	"	"			"	"				
BASIN 106 COAGULANT																										
Check for Heat / Vibration	1		1-7	LR	2-23	JF	3-7	JF	4-11	LR	5-4	LR	6-6	SR	7-12	SR	8-2	SR	9-12	SR	10-4	SR	11-22	SR	12-6	SR
Replace Loadsure	A																						11/11	GM		
Clean Daytank / Equipment	A		"	"			3-7	JF	4-11	LR	5-9	LR	"	"	"	"	"	"			"	"			"	"
AMMONIUM SULFATE S.CL.																										
Check for Heat / Vibration	1		1-7	LR	2-23	JF	3-7	JF	4-11	LR	5-9	LR	6-6	SR	7-12	SR	8-2	SR	9-12	SR	10-3	SR	11-22	SR	12-6	SR
Replace Loadsure	A																									
Clean Daytank / Equipment	A		"	"			3-7	JF	4-11	LR	5-9	LR	"	"	"	"	"	"	"	"	"	"	"	"	"	"
Clean Suction Strainer	1		"	"			3-7	JF	4-12	LR	5-10	SR	"	"	"	"	"	"	"	"	"	"	"	"	"	"
AMMONIUM SULFATE N.CL.											5-10	SR														
Check for Heat / Vibration	1		1-7	LR	2-23	JF	3-7	JF	4-11	LR	5-9	LR	6-6	SR	7-12	SR	8-2	SR	9-12	SR	10-3	SR	11-22	SR	12-6	SR
Replace Loadsure	A		1/12	GM																						
Clean Daytank / Equipment	A		"	"			3-7	JF	4-11	LR	5-9	LR	"	"	"	"	"	"	"	"	"	"	"	"	"	"
Clean Suction Strainer	1		"	"			3-7	JF	4-12	LR	5-10	SR	"	"	"	"	"	"	"	"	"	"	"	"	"	"
PHOSPHATE																										
Check for Heat / Vibration	1		1-7	LR	2-23	JF	3-7	JF	4-11	LR	5-9	LR	6-6	SR	7-12	SR	8-2	SR	9-12	SR	10-3	SR	11-22	SR	12-6	SR
Replace Loadsure	A												6-6	DL												
Clean Daytank / Equipment	A		"	"			3-7	JF	4-11	LR	5-9	LR	"	"	"	"	"	"	"	"	"	"	"	"	"	"
BASIN 105 POLYMER																										
Check for Heat / Vibration	1		1-19	LR									6-6	SR	7-12	SR	8-2	SR	9-12	SR	10 M	SR				
Replace Loadsure	A																									
Clean Daytank / Equipment	A						3-7	JF	4-11	LR	5-9	LR	"	"	"	"	"	"	"	"	"	"				
BASIN 106 POLYMER																										
Check for Heat / Vibration	1		1-7	LR	2-23	SF	3-7	JF	4-11	LR	5-9	LR	6-6	SR	7-12	SR	8-2	SR	9-12	SR	10-3	SR	11-22	SR	12-6	SR
Replace Loadsure	A										5-17	SR														
Clean Daytank / Equipment *	A		"	"			3-7	JF	4-11	LR	5-9	LR	"	"	"	"	"	"	"	"	"	"	"	"	"	"

COMMENTS

4-18-16 - Power Washed Polymer Barrel *
New Diaphragms for Basin 106 (5-17-16)
" " " " (11-11-16) COAG. Pump

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
NCW CL17 Feed Pump																										
Clean / Inspect Equipment	A						3-7	JFSR																		
Check Stroke Knob Length	6																		9-12	SR						
Check 5-way Valve	4		1-19	SR															9-12	SR						
SCW CL17 Feed Pump																										
Check Motor Oil Level	6						3-7	JFSR																		
Clean / Inspect Check Valves	A																		9-12	SR						
Check Diaphragms / Washer	A																									
Clean / Inspect Equipment	A																									
Check Stroke Knob Length	6						3-7	JFSR																		
Check 4-Way Valve	4		1-19	SR															11	11						
																			9-12	SR						

COMMENTS

S. March 40°

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
BRY-AIR NORTH																										
Check Process Vacuum	1		1-7	SR	2-16	JR	3-1	JF	4-4	SR	5-10	JR	6-22	JF	7-21	JF	8-18	JF	9-12	JF	10-23	JF	11-10	JF	12-15	JF
Check React Vacuum	1		"	"	"	"	3-1	JF	"	"	"	"	6-22	JF	7-21	JF	8-18	JF	9-12	JF	10-23	JF	11-10	JF	12-15	JF
Change React Filter	A										"	"									10-18	JF				
Clean React Filter	1		"	"	"	"	3-1	JF	"	"			6-22	JF	7-21	JF	8-18	JF	9-12	JF			11-10	JF	12-15	JF
Change Process Filter	A										"	"			7-21	JF			9-12	JF			11-10	JF		
Clean Process Filter	1		"	"	"	"	3-1	JF	"	"			6-22	JF			8-18	JF			10-18	JF			12-15	JF
Grease Motor Bearings 2-11	6				✓		3-1	JF									8-18	JF	Squeak							
Inspect Seal / Belt	1		"	"	"	"	3-1	JF	"	"	"	"	6-22	JF	7-21	JF	8-18	JF	9-12	JF	10-24	JF	11-10	JF	12-15	JF
Photocell / flame Rod	A																									
Check Blower Belts 8-11	6				✓		3-1	JF									8-18	JF								
Clean Dehumidifier	A						3-15		"	"	"	"	6-22	JF	7-21	JF			9-12	JF			11-10	JF	12-15	JF
Ck. Actuator Louver Operation	1		"	"	"	"	3-15	JF	"	"	"	"	6-22	JF	7-21	JF	8-18	JF	9-12	JF	10-24	JF	11-10	JF	12-15	JF
Check Burner Temp.	1		"	"	"	"	271	3-7	"	"	"	"	282	6-22	282	7-21	283	8-24	283	JF	281	JF	278	JF	272	JF
CK. Drum Shaft Clamps	1														7-21	JF	8-18	JF	9-12	JF	10-24	JF	11-10	JF	12-15	JF
BRY-AIR SOUTH																										
Check Process Vacuum	1		1-7	SR	2-16	JR	3-7	JF	0				6-22	JF	7-6	JF	8-24	JF	9-13	JF	10-17	JF	11-7	JF	12-15	JF
Check React Vacuum	1		"	"	"	"	3-7	JF	U				6-22	JF	7-6	JF	8-24	JF	9-13	JF	10-17	JF	11-7	JF	12-15	JF
Change React Filter	A								T																	
Clean React Filter	1		"	"	"	"	3-1	JF							7-13	JF	8-23	JF	9-13	JF	10-17	JF	11-7	JF	12-14	JF
Change Process Filter	A																									
Clean Process Filter	1		"	"	"	"	3-1	JF							7-13	JF	8-23	JF	9-13	JF	10-17	JF	11-7	JF	12-14	JF
Grease Motor Bearings 11-10		1																					11-7	JF		
Inspect Seal / Belt	1		"	"	"	"	3-16	XXX					6-22		7-6	JF	8-26	JF	9-13	JF	10-17	JF	11-7	JF	12-15	JF
Photocell / flame Rod	A																									
Check Blower Belts 11-10		1																					11-7	JF		
Clean Dehumidifier	A						3-15	JF							7-13	JF	8-26	JF	9-13	JF	10-17	JF			12-15	JF
Ck. Actuator Louver Operation	1		"	"	"	"	3-1	JF					6-22	JF	7-6	JF	8-26	JF	9-13	JF	10-17	JF	11-7	JF	12-15	JF
Check Burner Temp.	1		"	"	"	"	238	3-7					242	6-22	244	7-6	240	8-24	241	9-13	242	10-17	242	JF	245	JF
CK. Drum Shaft Clamps	1																8-26	JF	9-13	JF	10-17	JF	11-7	JF	12-15	JF

COMMENTS

3-16 - Noticed Process gauge @ zero. One 12 amp Fuze was blown → Relay will not reset. Moved wires, it reset. (North)
3-16 - Belt on Desicant Drum was swapped (South) (South one needs a new Rotor)
Flame Failure - 6-19 - North; 6-22 - South back in service
Flame Failure - 7-26 - South

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Break Room AC																										
Clean Air Filter	2						3-3	JF									8-31	JF								
Clean Triple Deoderizer Filter	2						3-3	JF									8-31	JF								
Clean Neo Plazma Filter		1					3-3	JF									8-31	JF								
Lab AC																										
Clean Air Filter	2						3-3	JF									9-12	JF								
Clean Triple Deoderizer Filter	2						3-3	JF									9-12	JF								
Clean Neo Plazma Filter		1					3-3	JF									9-12	JF								
Control Room AC																										
Clean Air Filter	2						3-3	JF									8-31	JF								
Clean Triple Deoderizer Filter	2						3-3	JF									8-31	JF								
Clean Neo Plazma Filter		1					3-3	JF									8-31	JF								
Clean exterior of units.		1					3-3	JF									9-12	JF								

COMMENTS

2016

EQUIPMENT	M	A	Jan	Feb	Mar	April	May	Jun	July	Aug	Sept	Oct	Nov	Dec
SERVICE CONTRACT			1/5											
LUBRICATION														
Check For Leaks	1			2/9		4-11	5/21	6/13	7/26	8/8	9/7	10/12	11/8	12/14
Check Engine Oil Level	1					4-12	5/21	6/13	7/26	8/8	9/7	10/12	11/8	12/14
Check Oil Pressure	W			55 PSI	55 psi	60	62	62	60	55	62	55	55	55
Oil Change			1/5											
COOLING														
Check for Leaks	1			2/9	3-1	4-11	5/21	6/13	7/26	8/8	9/7	10/12	11/8	XXX 12/14
Check Coolant Heater Temp Case	1					136°	131°	135°	132°	133°	141°	119°	128°	122°
Check Belt Condition	1					4-11	5/21	6/13	7/26	8/8	9/25	10/12	11/8	12/14
Check Antifreeze Level	1					4-12	5/19	6/13	7/26	8/8	9/7	10/12	11/8	12/14
Check Louver Operation	W			2/9	3-1	4-11	5/21	6/13	7/26	8/8	X	10/12	11/8	12/14
Check Water Temperature	W			180	176	170	170	170	170	170	170	170	170	176
Check Air Intake Condition	W					4-11								
Antifreeze Conditioner	A													
FUEL														
Check For Leaks	1			2/9	3-1	4-11	5/21	6/13	7/26	8/8	9/7	10/12	11/8	12/14
Check Tank Level	1				14.5"	20"	19.75"	19.5"	19"	18.75"	18.25"	17.75"	20.75"	18"
Add Fuel Stabilizer		1												
ELECTRICAL						while running	3/28	3/28	3/28		3/28	3/27		
Battery Charging System A/V	1				3/27	3/27	6/29*	6/29*	6/29*	6/29*	3/28	5/29*	6/29*	1/28*
Check Battery Fluid Level	1					4-12	5/25	6/20	7/27	8/23	9/25	10/13	11/17	12/15
Battery Posts	1					4-12	5/25	6/20	7/27	8/23	9/25	10/13	11/17	12/15
Fill Out Voltage / Amp Readings	W			235/140		4-11	5/21	6/13	7/26	8/8	—	10/12	11/8	12/14
Generator Amps AC (peak)	W													280/300 cm
MISC.							20 min	25 min	25 min	25 min	10 min	30 min	25 min	
Engine Vibration	W			2/9	3-1	4-11	5/21	6/13	7/26	8/8	—	10/12	11/8	12/14
Clean Building					3-4	4-12								
Date of Test/ Run Generator 12/9	W			2/9	3-1	4-11	5/21	6/13	7/26	8/8	9/7	10/12	11/8	12/14
Date of Monthly PM Checks	1			2/9		4-12	5/21	6/13	7/26	8/8	9/7	10/12	11/8	12/14
Total Hours After Run			319.4		321.4	321.8	322.2	322.6	323.1	323.5	323.8	324.7	325.7	327.1
Run Under Load					Pump b	NO	NO 20 min	NO 11pm	NO 12AM	NO 5AM	YES/No	NO	NO	YES
Fuel Delivery / Fuel Added					3-3							10/13-21.5"		
Operator			GS		JF	JF	JF	JF	JF	JF	JF	JF	JF	JF
Water Heater Temp at block	1			107		180°	174°	172°	171°	171°	182°	172°	168°	200°

COMMENTS

3-1 Leaking Antifreeze - Leaking From main Radiator hose connection. Tightened - Stopped Leak
5-19. Checked Coolant before start-up. It just boiled from the cap. shot Coolant heater temp: 162-170°
-Wall Exhaust fan started making noise when starting up. Yet runs freely with no power. Not even a year old. From Marathon)

2016 West Battery - Brown muck Floating on top of 3 terminals [:8:] - 6/20

9/7 - Tried to Run Gen Set - Auto Mode - Failed to Start

EMERGENCY GENERATOR

PREVENTIVE MAINTENANCE

Oil Temp
180-225

Water Temp
160-200

EQUIPMENT	HRS	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By
John Deere Z-Trak 4/20/15																
Clean Air Cleaner Precleaner Ele.	25	4-4	145	JF												
Ck/Change Air Cleaner Elements	50	11/21/16 - check		JF												
Grease Mower Deck Spindles	50	5/24/16	145.6	JF												
Check Traction Drive Belt	100	11/21/16	147	JF												
Change Engine Oil and Filter	100	11/21/16	147	JF												
Clean / Gap Spark Plug	100															
Ck / Clean Engine Cooling Fins	100	5/24/16	145.6	JF												
Change Transmission Oil + Filter	300															
Ck and Adjust Valve Clearance	300															
Grease RTN Bearing Block	EOS															
Ck and Adjust Park Brake	EOS															
Change Spark Plug	750	3-11	145	JF												
Change Fuel Filter	750															
Clean Battery	EOS															
Add Fuel Sablizer at Storage	EOS	11-28	147	JF												
Ck Tire PSI																
Clean Deck / Sharpen Blades	AN	5/24/16	145.6	JF												
Z-Trak Blower / Bagger																
Grease Control Shaft Bushings	EOS															
Grease Handle Pivot Bushings	EOS															
Ck Belt Tensions / Idler Bearings	EOS															
Z-Trak																
CK Hydrostatic Trans. level		5/24/16	145.6	JF												
Start Engine		10/3/16	146	MK	11-28	147	JF	12-20	147	JF						

3-11 Z-Trak would not start, changed spark plugs. Fuel pump was bad - changed - 145 hrs - Did not run for months

EQUIPMENT	MON	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By
CUB CADET SNOWBLOWER																
Ck shave plate and skid shoes	2				10/6/16	-	JF									
Ck tire pressure	1				10/6/16	-	JF									
Lube xles / wheel contact area	12															
Lube auger shaft and spacers	12				10/6/16	-	JF									
Lube hex shaft	12															
Check belt condition	12															
Check oil level (before each use)																
Change oil	50hrs	10/26/16	-	JF												
Check/replace spark plug	25hrs															
Add fuel stablizer 4-9-15	EOS															
Run 4-9-15		4-12-16		JF	10/6/16	-	JF									
540 **STIHL GRASS TRIMMER**	HRS															
Clean Air Filter		11-22-16		JF												
Change Fuel Filter																
Clean Fuel Tank																
Clean / Gap Spark Plug	50	11-22-16	+clean	JF												
Change Spark Plug	100															
Clean Engine Fins																
AGRI-FAB SPIKER/SPREADER																
Oil Drive Chain	EOS	9/28/16		RS	11-16-16		JF									
Oil Plastic Bushings	EOS															
Apply light coat of oil to metal pts.	EOS															

COMMENTS

EQUIPMENT	HRS	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By
Cub Cadet Lawn Tractor																
Service Percleaner Air Element	25															
Replace Air Cleaner Element	100	5-20-16	187	MK												
Change Oil and Filter	100	5-20-16	187	MK												
Check Spark Plug Gap 4/9/15	200															
Service Bendix Starter Drive	200															
Check Vavle Lash	200							ADD Fuel Stabilizer	—		11/28	207	JF			
Clean Combustion Chanber	400							START Engine	11-28	207	JF	12/20	207.2	JF		
Replace Spark Plug	500															
Clean Engine Cooling Fans	25															
Lube Front Deck Wheels	25	4-5	181	JF												
Lube Deck Spindels	25	4-5	181	JF	8-17-16	195	JF									
Lube Pedal Pivot Points	10	4-6	181	JF												
Replace Fuel Filter	100															
Clean Deck + Sharpen Blades		4-4-16	181	JF	7-7-16	190	MK	8-17-16	195	JF						
STIHL KM 90 R																
Clean Air Filter 4/17/15	AN	5-9-16	-	JF												
Fuel Pick-up body in fuel tank	1/YR															
Clean spark arresting screen	AN															
Decarbonize	150															
Replace spark plug	100															
Check faseners / visual inspect	1/YR	5-9-16	-	JF												
STIHL LAWN EDGER																
Check gearbox lubrication 4-17-15	25	5-9-16	-	JF												
Check/replace wear guard	AN	5-9-16	-	"												
STIHL WEED WACKER																
Check gearbox Lubrication	25	5-9-16	-	JF												
Check condition fasteners	AN	5-9-16	-	JF												

9-22 · Replaced Cub mower deck belt - 203 hrs
10-3 Replace Cub mower deck belt - 205 hrs - "TuFF Belts" A-754040 60-1/2" x 96.5"

EQUIPMENT	MON	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By
2014 Husquvarna Self-Propelled																
Clean Drive Wheels		10/4/16		JF												
Lube Door Hinges / Wheel Adj.		10/4/16		JF												
Sharpen / Replace Cutter Blades		3-11 Sharp		JF	10/4/16 Sharp		JF									
Service / Change Air Filter	25/200				10/4/16-Service		JF									
Clean Engine		3-11-16		JF	10/4/16		JF									
Check Drive Belt	25				10/4/16		JF									
Ck Blade Brake Clutch	EOS															
Change Oil	50	11-7		JF												
Gas Stablizer at Storage	EOS	11-7		JF												
Spark Plug Gap/Clean Change	50/200	11-7 Clean		JF												
2009 Husquvarna Self-Propelled																
Clean Drive Wheels		10/3/16		JF												
Lube Door Hinges / Wheel Adj.		10/4/16		JF												
Sharpen / Replace Cutter Blades		3/10 Sharpen		JF	10/3/16 Sharp		JF									
Service / Change Air Filter	25/200	3/10/16	changed	JF												
Clean Engine		3/10/16		JF	10/4/16		JF	11-10		JF						
Check Drive Belt	25	10/4/16		JF												
Ck Blade Brake Clutch	EOS															
Change Oil	50	11-7		JF												
Gas Stablizer at Storage	EOS	11-7		JF												
Spark Plug Gap/Clean Change	50/200	11-10 Clean		JF												

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
NORTH CONTROLLER																										
Performance Check	3										5-25	AS					8-24	AS							12-21	AS
Ck rotometer for cleaning	3										5-25	AS					8-24	AS							12-21	AS
Ck V-notch plug / Grease Rod	1		1-26	DL	2-26	DL									7-19	AS			9-30	AS	10-29	AS			12-21	AS
Ck injector nozzle and tailway	6																									
SOUTH CONTROLLER																										
Clean Components/ CL2 leaks	A																									
Check Calibration	A																									
GAS FEEDERS																										
West - Clean / Inspect	6														7-20	AS										
East - Clean / Inspect	6														7-20	AS										
Operate Switchover	W																									
SOUTH ANALYZER																										
Replace Pump Tubing		1			2-23	DL																				
Replace Analyzer Tubing		2																								
Clean Colorimeter	1		1-25	DL	-	-			4-12	DL	5-25	AS	6-28	AS	7-20	AS	8-26	AS	9-30	AS	10-29	AS			12-21	AS
Check Water Flow	1		1-25	DL	2-26	DL					5-25	AS	6-27	AS	7-19	AS	8-24	AS	9-30	AS	10-29	AS	11-28	AS	12-21	AS
Check Calibration	1		1-26	DL	2-26	DL	3-31	DL	4-17	DL	5-25	AS	6-27	AS	7-19	AS	8-24	AS	9-30	AS	10-29	AS	11-28	AS	12-21	AS
NORTH ANALYZER																										
Replace Pump Tubing	6	1									5-2	DL														
Replace Analyzer Tubing		1									5-2	DL														
Clean Colorimeter	1		1-25	DL	2-26	DL			4-12	DL	5-25	AS	6-28	AS	7-20	AS	8-26	AS	9-30	AS	10-29	AS			12-22	AS
Check Water Flow	1		1-25	DL	2-26	DL					5-25	AS	6-27	AS	7-19	AS	8-24	AS	9-30	AS	10-29	AS	11-28	AS	12-21	AS
Check Calibration	1		1-26	DL	2-26	DL	3-31	DL	4-13	DL	5-25	AS	6-27	AS	7-19	AS	8-24	AS	9-30	AS	10-29	AS	11-28	AS	12-21	AS
INFLUENT ANALYZER																										
Replace Pump Tubing	6	1									5-2	DL														
Replace Analyzer Tubing		1									5-2	DL														
Clean Colorimeter	1		1-25	DL	2-26	DL					5-25	AS	6-28	AS	7-20	AS	8-26	AS	9-30	AS					12-21	AS
Check Water Flow	1		1-25	DL	2-26	DL					5/25	AS	6-27	AS	7-19	AS	8-24	AS	9-30	AS	10-29	AS	11-28	AS	12-21	AS
Check Calibration	1		1-26	DL	2-26	DL	3-14	DL			5/25	AS	6-27	AS	7-19	AS	8-24	AS	9-30	AS	10-29	AS	11-28	AS	12-21	AS
MISC.																										
Check Equipment Corrosion	6																									
Replace Ammonia Leak Bottle		1																								
Check vacuum tubing		1																								

COMMENTS

1-27-16 Replaced West Regulator w/ New
3-4-16 Replaced SCW Analyzer SN 1411200517497
5-24-16 Replaced SCW Ejector w/ 50016.
10-29- replace NCW colorimeter

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
APA 6000																										
Auto Burette Module																										
Inspect for leaks / Particulate	1										5-25	AS	6-27	AS	7-19	AS	8-24	AS	9-30	AS	10-27	AS	11-28	AS	12-21	AS
Lube Lead Screw	3																									
Replace o-rings / piston seals	3																									
Valve Module																										
Inspect for leaks	1																									
Replace rotor	3																									
Inspect stator	3																									
Sample Conditioning Filter																										
Clean or replace filter	3																									
Mixer Module																										
Inspect for particulate build-up	1																									
Tubing and Fittings																										
Inspect for leaks and damage	6																									
Signal Output Modules (SOM)																										
Clean enclosures	A																									
Power Supply Module (PS201)																										
Clean enclosure	A																									
Hach Service Contract	3				2-14	AS					5-22	AS					8-10	AS					11-12	AS		
Clean Sample Line Strainer	6																									

COMMENTS

2016

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
#3 TRANSFER PUMP																										
Ck Mechanical Seal	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/1	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-21	AS
Check Oil Level	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/1	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-21	AS
Change Oil																										
Ck Pump Start Flood	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/1	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-21	AS
Check Heat / Noise / Vibration	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/1	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-21	AS
Clean Equipment																										
Oil Analysis																										
Vibration Analysis		1							4/12	AS																
#4 TRANSFER PUMP																										
Ck Mechanical Seal	1				2/16	AS	3/15	AS	4/12	AS	5/10	AS	6/2	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-7	AS
Check Oil Level	1				2/16	AS	3/15	AS	4/12	AS	5/10	AS	6/2	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-7	AS
Change Oil																										
Ck Pump Start Flood	1				2/16	AS	3/15	AS	4/12	AS	5/10	AS	6/2	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-7	AS
Check Heat / Noise / Vibration	1				2/16	AS	3/15	AS	4/12	AS	5/10	AS	6/2	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-7	AS
Clean Equipment																										
Oil Analysis																										
Vibration Analysis		1							4/12	AS																
#5 TRANSFER PUMP																										
Ck Mechanical Seal	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/11	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-10	AS	12-7	AS
Check Oil Level	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/11	AS	7/6	AS	8-1	AS	9-6	AS	10-3	AS	11-10	AS	12-7	AS
Change Oil																										
Ck Pump Start Flood	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/11	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-10	AS	12-7	AS
Check Heat / Noise / Vibration	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/11	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-10	AS	12-7	AS
Clean Equipment																										
Oil Analysis																										
Vibration Analysis		1							4/12	AS																
MISC.																										
Work Valves in Area		1																								

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
#2HIGH SERVICE PUMP																										
Grease Stuffing Box	1						3/15	AS	4/6	AS			6/1	AS	7/21	AS			9-20	AS	10-17	AS			12-5	AS
Check Oil Level	1				2/16	AS	3/15	AS	4/6	AS			6/1	AS	7-21	AS			9-20	AS	10-17	AS			12-5	AS
Change Oil																										
Check Packing	1						3/15	AS	4/6	AS			6/1	AS	7-21	AS			9-20	AS	10-17	AS			12-5	AS
Check Heat / Noise / Vibration	1						3/15	AS	4/6	AS			6/1	AS	7-21	AS			9-20	AS	10-17	AS			12-5	AS
Check Valve Operation	6						3/13	AS													10-17	AS				
Clean Equipment																										
Oil Analysis																										
Vibration Analysis		1											6/1	AS												
Exercise	1				2/8	AS	3/15	AS	4/6	AS			6/1	AS	7-21	AS			9-20	AS	10-17	AS				
#6 HIGH SERVICE PUMP																										
Grease Stuffing Box	1						3/15	AS	4/6	AS			6/1	AS	7-21	AS					10-17	AS			12/5	AS
Check Oil Level	1				2/16	AS	3/15	AS	4/6	AS			6/1	AS	7-21	AS					10-17	AS			12-5	AS
Change Oil																										
Check Packing	1						3/15	AS	4/6	AS			6/1	AS	7-21	AS					10-17	AS			12-5	AS
Check Heat / Noise / Vibration	1						3/15	AS	4/6	AS			6/1	AS	7-21	AS					10-17	AS			12-5	AS
Check Valve Operation	6						3/15	AS																		
Clean Equipment																										
Oil Analysis																										
Vibration Analysis		1											6/1	AS												
Exercise	1				2/8	AS	3/15	AS	4/6	AS			6/1	AS	7-21	AS					10-17	AS				
FILL PUMP																										
Check Mechanical Seal							3/15	AS	4/12	AS	5/17	AS	6/2	AS	7-21	AS	8-1	AS	9-6	AS	10-3	AS				
Check Oil Level	1				2/11	AS	3/15	AS	4/12	AS	5/17	AS	6/2	AS	7-21	AS	8-1	AS	9-6	AS	10-3	AS				
Change Oil																										
Grease Bottom Bearing		1																								
Check Heat / Noise / Vibration	1				2/11	AS	3/15	AS	4/12	AS	5/17	AS	6/2	AS	7-21	AS	8-1	AS	9-6	AS	10-3	AS				
Check Valve Operation	6												6/2	AS												
Clean Equipment																										
Oil Analysis																										
Vibration Analysis		1							4/12	AS																
Exercise	1				2/11	AS	3/15	AS	4/12	AS	5-17	AS	6/2	AS	7-21	AS	8-1	AS	9-6	AS	10-3	AS			12-5	AS
MISC.																										
Work Valves in Area		1																								
Work Float Valve	1								4/6	MK			6/2	AS	7-19	AS										

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
#1 LOW SERVICE PUMP																										
Grease Stuffing Box	1		1-11	LR	2-16	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	AS			12-5	AS
Check Oil Level	1		1-11	LR	2/16	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	AS			12-5	AS
Change Oil		1																								
Check Packing	1		1-11	AS	2-16	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	AS			12-5	AS
Check Heat / Noise / Vibration	1		1-11	AS	2-16	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	AS			12-5	AS
Clean Equipment																										
Oil Analysis																										
Grease Bottom Bearing		3					3-12	AS													10-17	AS				
Vibration Analysis		1											6/2	AS												
Exercise	1		1-11	LR	2-8	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	AS			12-5	AS
#2 LOW SERVICE PUMP																										
Grease Stuffing Box	1		1-11	LR	2-8	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	AS			12-5	AS
Check Oil Level	1		1-11	LR	2-8	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	AS			12-5	AS
Change Oil		1																								
Check Packing	1		1-11	LR	2-8	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	AS			12-5	AS
Check Heat / Noise / Vibration	1		1-11	AS	2-8	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	AS			12-5	AS
Clean Equipment																										
Oil Analysis																										
Grease Bottom Bearing		3					3-12	AS													10-17	AS				
Vibration Analysis		1											6/2	AS												
Exercise	1		1-11	LR	2/8	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	AS			12-5	AS
ELECTRICAL PANELS																										
Clean Filter #2 Panel		1																								
LIFT STATION																										
Check Pump Opertion	6																									
Station Condition		1																								

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
BOILER																										
Drain and Flush		1													7-6	AS										
Remove Soot Build-up		1													7-6	AS										
Rod Equilizer Lines		1													7-6	AS										
Check Level Sensor		1													7-6	AS										
Check Ignition Electrode		1													7-6	AS										
Check Float Chamber		1													7-6	AS										
Check Flame Detection Lens		1													7-6	AS										
Check Limit Controls		3																								
Check 19 Point Cam		1																								
Check Combustion Efficiency		3																								
Lube Damper.Dr.Arm.Bearing	3										5/12	AS														
Check Refractory Condition	1		1-7	KK	2-11	JF	3-4	JF	4/7	AS	5/12	AS									10-6	AS	11-2	AS	12-7	AS
Test Relief Valve	1		1-7	KK	2-11	JF	3-4	JF	4/7	AS	5/12	AS									10-6	AS	11-2	AS	12-7	AS
Test Low Water Cut-Off Circ.	1		1-7	KK	2-11	JF	3-4	JF	4/7	AS	5/12	AS									10-6	AS	11-2	AS	12-7	AS
Check Softner / Phosphate	1		1-7	KK	2-11	JF	3-4	JF	4/7	AS	5/4	KK									10-27	TM	11-2	AS	12-7	AS
Check Stack Temperature	1		1-7	KK	2-11	JF	3-4	JF	4/7	AS	2?9	KK									285	AS	285	AS	12-7	AS
Check Boiler Chemistry	W		IIII		IIII		III		IIII		III								I		IIII		III		III	
FEED WATER PUMPS																										
Drain and Flush Tank		1													7-6	AS										
Check/Replace Flt. Assy.Gasket		1													7-6	AS										
Grease Pumps		1																								
Lube Motors		2																								
RO Prefilter change		A																			10-20	AS				
CONDENSATE PUMPS																										
Drain and Flush Tanks		1																								
Lube Motor (south)		3																								
ROOM HEATERS																										
Clean Heater Cores / Motors		3							4/7	AS																
Lube Motors		3							4/7	AS																
Gas Meter Reading	1		11-30	KK	2-29	KK	3/31	KK	4/30	AS	5-31	AS	6-30	AS	7-31	AS	8-31	AS	9/30	AS	10/31	AS				
Temp: Compensated			43298		45253		47289		35474		45942		25415		51678		52067		43828		53785					
Temp Non Compensated			44011		45995		48042		36012		46630		25786		52432		52822		44464		54571					

JAN - REPLACED IGNITION TRANSFORMER

COMMENTS 51678
52432

2016

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
SLAKER																										
Grease flange brgs-motor end	1		1-27	MK									6/24	TR							10/26	TR				
Feed end brgs.-ch. for leaks	1		1-27	MK																						
Dust & vapor paste build-up	1		1-29	MK																						
Clean & check spray nozzles	1		1-29	MK									6/24	TR							10/26	TR				
Check wear on paddles / nuts	1																									
Ck Gearbox Oil Level	3		1-27	MK																						
Ck / Clean Water PSI Switch		1	1-27	MK																						
Grease Bull Gears	2		1-29	MK									6/24	TR							10/26	TR				
Clean out tray under bull gears	1																									
BELT FEEDER																										
Clean out feeder compartment	1																									
Check feeder belt for wear	1																									
Check feeder belt tracking	1		1-28	MK/LR																						
Grease the (4)--(2) bolt-flange			1-27	MK									6/24	TR							10/26	TR				
bearings on head & tail pulley	2		1-27	MK																						
Feeder gear box (change oil)		2																								
Ck Feeder Belt Scraper	3																									
Belt Calibration		1	2/25	LR																						
GRIT SCREW CONVEYOR																										
Check the screw-turning free	1												6/24	TR							10/26	TR				
Ck gearbox oil level	3		1-27	MK																						
Change gearbox oil		1																								
Misc.																										
Clean Lime Trough	1		1-29	MK																						
Replace UPS battery		3																								

COMMENTS

Slaker Cal. 2-25-16 LR
Belt 5645
speed 5155
zero 7.196 - diff. 6.664
7.173 dif - .408
chain 37.989 dif - 4.653
39.807 dif 4.787

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
SCRAPER																										
Lube Reducer Bearings	6		1-26	MK																						
Check Reducer Oil Level	3		1-26	MK																						
Change Reducer Oil	A																									
Check Reducer Oil	3		1-26	MK																						
Check Reducer Coupling	3																									
Grease Drive Gear		1	1-26	MK																						
Check Motor Heat / Vibration	1																									
Oil Analysis	A																									
ACCELATOR																										
Check Motor Heat / Vibration	1																									
Check Reducer Upper Oil Level	3																									
Check Reducer Lower Oil Level	3		1-27	MK																						
Check Reducer Heat / Vibration	1		1-27	MK																						
Change Reducer Oil Upper		2																								
Change Reducer Oil Lower		2																								
Oil Analysis	A																									
MISC.																										
Check Scraper Arms	1		1-26	MK																						
Grease Roller Bearings	6		1-26	MK																						
Drain and Clean Basin		1			2-22	JF																				
Lube Rail	6		1-26	MK																						
Check Euro Drive Filters	6		1-26	MK/DF																						

Basin 105 Out of Service 2-22-16
Basin 105 Filled 5/6/16

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
SLAKER																										
Motor gears-ch. wear & grease	1		1/7	AS			3-9	MK	4-14	MK	5-13	MK	6-16				8-3	MK	9-18	MK	10-21	MK	11-16	MK		
Grease flange brgs-motor end	1		1/7	AS			3-9	MK	4-27	MK	5-13	MK	6-16				8-3	MK	9-18	MK	10-21	MK	11-16	MK		
Feed end brgs.-ch. for leaks	1		1/7	AS			3-9	MK	4-14	MK	5-13	MK	6-16				8-3	MK	9-18	MK	10-21	MK	11-16	MK		
Dust & vapor paste build-up	1		1/7	AS			3-9	MK	4-10	MK	5-13	MK	6-16				8-3	MK	9-18	MK	10-21	MK	11-16	MK		
Clean & check spray nozzles	1		1/7	AS			3-9	MK	4-10	MK	5-13	MK	6-16				8-3	MK	9-18	MK	10-21	MK	11-16	MK		
Check wear on paddles / nuts	1		1/7	AS			3-9	MK	4-10	MK	5-13	MK	6-16				8-3	MK	9-18	MK	10-21	MK	11-16	MK		
Check chain tension & adjust	1		1/7	AS			3-9	MK	4-10	MK	5-13	MK	6-16				8-3	MK	9-18	MK	10-21	MK	11-16	MK		
Ck Gearbox Oil Level	3		1/4	AS			3-9	MK			5-13	MK					8-12	MK	9-18	MK	10-21	MK	11-16	MK	12-29	MK
Ck / Clean Water PSI Switch		1					3-9	MK	4-10	MK	5-13	MK	6-16				8-3	MK			10-21	MK				
																	8-3	MK			10-21	MK			12-29	MK
BELT FEEDER																										
Clean out feeder compartment	1						3-9	MK					6-16				8-3	MK	9-18	MK	9-25	MK	11-16	MK		
Check feeder belt for wear	1						3-9	MK	4-10	MK			6-16				8-3	MK	9-17	MK	9-25	MK	11-16	MK		
Check feeder belt tracking	1				2-16	MK							6-16													
Grease the (4)–(2) bolt-flange							3-9	MK	4-27	MK			6-16				8-3	MK	9-18	MK			11-16	MK	12-29	MK
bearings on head & tail pulley	2						3-9	MK	4-27	MK			6-16				8-3	MK	9-18	MK	10-27	MK	11-16	MK	12-29	MK
Feeder gear box (change oil)		2																			10-21	MK				
Ck Feeder Belt Scraper	3						3-9	MK					6-16				8-3	MK			10-4	MK	11-16	MK		
Belt Calibration		1			2-16	MK											8-25	AS								
GRIT SCREW CONVEYOR																										
Check the screw-turning free	1		1/7	AS					4-10	MK			6-16				8-3	MK	9-18	MK			11-16	MK		
Clean Lime Trough/ disc. pipe	2		1/5	SR					4-27	MK									9-18	MK	10-5	MK				
Replace UPS Battery		3		MK																						

COMMENTS

2-16=16 Calibration Belt 68.5 Speed - Old 5150.5 New 5152.5
Change (New UPS) 2-17-16 Zero - Old 3.060 New 3.079 Diff → .415
Chain Old 29580.9 New 30,464.8 Diff → 2.988
Old 30464.8 New 30.294.3 Diff → -.56

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
SCRAPER																										
Lube Reducer Bearings	6						3-3	MK					6-30	MK												
Check Reducer Oil Level	3						3-4	MK					6-30	MK							10-4	MK				
Change Reducer Oil	A																				10-27	MK			12-29	MK
Check Reducer Oil	3						3-4	MK																		
Check Reducer Coupling	3						3-3	MK					6-30	MK							10-27	MK			12-29	MK
Grease Drive Gear	2						3-3	MK					6-30	MK							10-27	MK			12-29	MK
Check Motor Heat / Vibration	1		1/7	AS			3-3	MK	4-11	MK	5-15	MK	6-30	MK					9-18	MK	10-27	MK			12-29	MK
Oil Analysis	A						3-15	JF							7-20	MK	8-3	MK			10-4	MK	11-16	MK	12-20	MK
ACCELATOR																										
Check Motor Heat / Vibration	1		1/7	AS			3-3	MK	4-12	MK	5-13	MK			7-7	MK	8-3	MK			10-4	MK	11-16	MK	12-20	MK
Check Reducer Upper Oil Level	3						3-4	MK							7-7	MK					10-27	MK			12-20	MK
Check Reducer Lower Oil Level	3						3-4	MK							7-7	MK					10-27	MK			12-20	MK
Check Reducer Heat / Vibration	1		1/7	AS			3-3	MK	4-12	MK	5-13	MK			7-7	MK	8-3	MK			10-4	MK	11-16	MK	12-20	MK
Change Reducer Oil Upper	A						3-15	JF																		
Change Reducer Oil Lower	A																									
Oil Analysis	X	1																								
MISC.																										
Check Scraper Arms	1		1/7	AS			3-3	MK	4-13	MK	5-13	MK			7-7	MK	8-3	MK	9-17	MK	10-27	MK	11-16	MK	12-20	MK
Grease Roller Bearings	6						3-3	MK							7-7	MK			9-18	MK					12-29	MK
Drain and Clean Basin		1													7-20				9-18	MK	10-27	MK			12-29	MK
Lube Rail	6						3-3	MK							7-7	MK					10-27	MK			12-29	MK
Check Euro Drive Filters	6						3-3	MK																		
2016 rail height																										
& clean out:	N	6"																								
	S	6"																								
	E	5"																								
	W	5"																								

Changed UPS-2110

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
#1 RECYCLE PUMP																										
Grease Motor Bearings		1	1/12	AS					4-11	MK																
Grease Stuffing Box	4		1/12	AS					4-11	MK																
Check Heat / Vibration	1										5-12	MK									10-4	MK				
Check Packing	1										5-12	MK									10-6	MK				
Vibration Analysis		1																			10-4	MK				
																					10-4	MK				
#2 RECYCLE PUMP																										
Grease Motor Bearings		1	1/12	AS					4-11	MK																
Grease Stuffing Box	4		1/10	AS							5-11	MK														
Check Heat / Vibration	1								4-11	MK	5-11	MK			7-11	MK	8-11	MK			10-4	MK				
Check Packing	1								4-11	MK	5-11	MK			7-11	MK	8-11	MK			10-4	MK				
Vibration Analysis		1																			10-4	MK				
Clean Euipment									4-12	MK	5-11															
Work Valves in Area		1							4-11	MK			6-30	MK												
Clean Inspect Vault																										
#1 SLUDGE PUMP																										
CK. Operation/Discharge to Pits	1		1/8	AS																						
Check discharge Line Seal	6								4-11	MK			6-30	MK			8-11	MK			10-4	MK				
#2 SLUDGE PUMP																										
CK. Operation/Discharge to Pits	1		1/8	AS			3-17	MK																		
Check discharge Line Seal	6												6-30	MK			8-11	MK								
Clean / Inspect Vault									4-12	MK																
Work Valves in Area		1							4-12	MK			6-30	MK												
MISC.																										
Work Pond Valves		1																								
Check/Lube Res. Sludge Valve	6														7-8	MK KK										
Check/Lube Recycle Valve		1																								
Check/Lube Sludge Valve		1																								
Lagoon Valve Summer/Winter	6																									
Record pump hours, end of year		1													7-8	MK KK										
Dump Reservoir Sludge/Drain	1		1/8	AS																						
Ck BW Reservoir Sludge level	1		1/11	AS					4-12	MK			6-29	MK												

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
#1 BACKWASH PUMP																										
Check Oil Levels		1	1/8	AS					4-19	MK	5-13	MK	6-30	MK	7-30	MK	8-3	MK			10-27	MK			12-6	MK
Change Oil																										
Check Packing		1	1/8	AS							5-13	MK	6-30	MK	7-31	MK										
Check Heat / vibration		1	1/8	AS							5-13	MK	6-30	MK	7-31	MK									12-6	MK
Grease Stuffing Box		4							4-11	MK	5-13	MK														
Grease Motor Bearings			1						4-11	MK	5-13	MK									10-27	MK				
Clean Equipment									4-12	MK																
Vibration Analysis			1																							
#2 BACKWASH PUMP																										
Check Oil Levels		1	1/8	AS																						
Change Oil									4-19	MK			6-30	MK	7-30	MK	8-3	MK			10-4	MK			12-6	MK
Check Packing		1	1/8	AS							5-11	MK	6-30	MK	7-11	MK	8-3	MK			10-4	MK			12-6	MK
Check Heat / vibration		1	1/8	AS							5-13	MK	6-30	MK	7-11	MK	8-3	MK				MK				
Grease Stuffing Box		4							4-11	MK	5-13	MK									10-27	MK				
Grease Motor Bearings			1						4-11	MK	5-13	MK														
Clean Equipment									4-12	MK																
Vibration Analysis			1																							
#3 BACKWASH PUMP			OUT OF SERVICE 7/14/00																							
Check Oil Levels		1																								
Change Oil																										
Check Packing		1																								
Check Heat / vibration		1																								
Grease Stuffing Box		4																								
Grease Motor Bearings			1						05	MK																
Clean Equipment									05	MK																
Vibration Analysis									4-12	MK																
Rotate Pump Shaft		1	1/7	AS																						
MISC.									4-11	MK	5-11	MK	6-7	MK	7-11	MK	8-3	MK	9-	MK	10-	MK	11-16	MK	12-7	MK
Clean / Inspect BW Vault		1																								
Clean / Inspect Reservoir	6								4-14	MK																
Work Valves in Area		1							4-14	MK			6-36	MK												
Clean 6 Million Reservoir		A							4-13	MK			6-30	MK												

COMMENTS

2016

BACKWASH PUMP STATION

PREVENTIVE MAINTENANCE

Chlorine Maintenance

Year: 2016

Equipment	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Chlorine Analyzer Contact Basin																										
Check Water flow	1		11	KR	9	JV	1	SA	7	JV	19	JV	14	JV	20	KV	16	KV	6	JV	11	JV	9	JV		
Clean Colorimeter	1		5	JV	8	KR	1	SA	11	KR	19	JV	21	JV	20	KV	16	KV	6	KV	6	JV	9	JV		
replace pump tubing		A					1	SA																		
Replace Analyzer tubing		2					1	SA															8	JV		
Check Calibration		A																								
Chlorine Analyzer Finished Water																										
Check Water flow	1		11	KR	9	JV	1	JV	7	JV	19	JV	14	JV	20	JV	16	KV	6	JV	11	JV	9	JV		
Clean Colorimeter	1		5	JV	8	KR	1	JV	11	KR	19	JV	21	JV	20	JV	16	KV	6	KV	6	JV	9	JV		
replace pump tubing		A																								
Replace Analyzer tubing		2																					8	JV		
Check Calibration		A																								
Misc. Chlorine																										
Clean/ inspect Vacuum Regulators	6																									
Replace CL2 lines		A																								
Clean Ejector		A																								
Clean Switchover	6																									
Operate switchover	1						24	JV			17	HW					22	HW								
Clean Rotometers	6																									
Ventilation system	1		4	KR	4	JV	1	KR	11	KR	2	JV	14	JV	7	JV	17	JV	15	JV	4	KV	9	JV	2	JV
Check for leaks on fittings	1		4	KR	4	JV	1	KR	11	KR	2	JV	3	JV	7	JV	17	JV	1	JV/KV	4	JV	9	JV	2	JV
Check Battery warning Light	1		4	KR	4	JV	1	KR	11	KR	2	JV	3	JV	5	JV	17	JV	1	JV/KV	4	JV	9	JV	2	JV
Chlorine Gas Monitors																										
Receiver Response Test	1						24	JV																		
Replace Sensor		2																								
Test Alarm Telemetry	1														16	HW/JV					20	HW				
Test Robo Control Shutoff	1														21	HW/JV					20	HW				
Test Emergency Shutoff	1																									
Chlorine Controller																										
Clean/inspect controller		A																								

* 7-21-16 ROBO CONTROL SHUT OFF PUT BACK IN SERVICE AFTER REBUILT

* 7-21-16 #1 REGULATOR PUT BACK IN SERVICE AFTER BEING REBUILT

Chlorine Maintenance

Year 2016

Equipment	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Change Battery out		5																								
Actuator/Positioner		A																								
Chlorine Hoist																										
Check Oil	6														28	JV										
Lube Chain	6																									
Check motor		A																								
Wind Sock																										
Check Sock Condition	1		4	WR	4	JV	1	WR	6	KR	2	JV	14	JV	21	JV	12	JV	1	JV	5	KV	8	JV	20	JV

2016

Equipment	Misc.	Oil	Filter	Lubrication
Vsa #1				
Cooling fan & Louvers	Clean every 250 HRS	4058, 4479,		
Blower Lubricant (BL-100)	Change every 2000 HRS			8-18-16 4058 HRS
Vsa Bed Lid Bolts	Check Torque every 2000 HRS (Torque to 20 ft-lb)			8-18-16 4058 HRS
Product Particulate Filter (F1)	Check / Replace every 2000 HRS			8-18-16 4058 HRS
Inlet Fiter (F-4)	Check / Replace every 2000 HRS			8-18-16 4058 HRS
Air Supply Filter (F-3)	Check / Replace every 2000 HRS			8-18-16 4058 HRS
Blower Coupling Screws	Check Torque every 2000 HRS (Torque to 17 ft-lb)			8-18-16 4058 HRS
Output Heat Exchanger	Clean / Inspect every 2000 HRS			8-18-16 4058 HRS
Product Intake Heat Exchanger	Clean / Inspect every 6000 HRS			
Booster Compressor Tip Seal Replacement	Replace every 8000 HRS			
Product Blower Motor	Replace every 20000 HRS			
Booster Compressor	Replace every 20000 HRS			
Primary Heat Exchanger Fan Motor	Replace every 20000 HRS			
Vsa #2				
Cooling fan & Louvers	Clean every 250 HRS	4144, 4502		
Blower Lubricant (BL-100)	Change every 2000 HRS			8-23-16 4144 HRS
Vsa Bed Lid Bolts	Check Torque every 2000 HRS (Torque to 20 ft-lb)			8-23-16 4144 HRS
Product Particulate Filter (F1)	Check / Replace every 2000 HRS			8-23-16 4144 HRS
Inlet Fiter (F-4)	Check / Replace every 2000 HRS			8-23-16 4144 HRS
Air Supply Filter (F-3)	Check / Replace every 2000 HRS			8-23-16 4144 HRS
Blower Coupling Screws	Check Torque every 2000 HRS (Torque to 17 ft-lb)			8-23-16 4144 HRS
Output Heat Exchanger	Clean / Inspect every 2000 HRS			8-23-16 4144 HRS
Product Intake Heat Exchanger	Clean / Inspect every 6000 HRS			
Booster Compressor Tip Seal Replacement	Replace every 8000 HRS			
Product Blower Motor	Replace every 20000 HRS			
Booster Compressor	Replace every 20000 HRS			
Primary Heat Exchanger Fan Motor	Replace every 20000 HRS			

2016

Equipment	Misc.	Oil	Filter	Lubrication
Compressor #1		1-15-16	1-15-16	
Coolant Filter	Change every 150 hrs.	3197	3197	
Separator Cartridge	Change every 2000 hrs.			
Air Filter	Change every 2000 hrs.	3197	3197	
Ultra Coolant	Change every 8000 hrs.	5 L coolant	3197	
Pre-filter Pad	Change every 2000 hrs.			
Safety Valve	Check every 2000 hrs.		3197	
Cooler Core	Check every 2000 hrs.		3197	
Fluid Analysis	Check every 2000 hrs.			
Compressor #2		1-14-16	1-14-16	
Coolant Filter	Change every 150 hrs.	2530	2530	
Separator Cartridge	Change every 2000 hrs.			
Air Filter	Change every 2000 hrs.	2530	2530	
Ultra Coolant	Change every 8000 hrs.	5 L coolant	2530	
Pre-filter Pad	Change every 2000 hrs.			
Safety Valve	Check every 2000 hrs.		2530	
Cooler Core	Check every 2000 hrs.		2530	
Fluid Analysis	Check every 2000 hrs.			
Blower #1				
Belt				
Air Filter	check air filter monthly			
Motor	grease motor mounts annually			
Blower	Add oil as needed		grease BOTH fittings every 500 hrs.	
Blower #2				
Belt				
Air Filter	check air filter monthly			
Motor	grease motor mounts annually			
Blower	Add oil as needed		grease BOTH fittings every 500 hrs.	
Philadelphia Mixer				
Motor				Mobilith AW2 or SHC 220 or
Mixer		Mobilgear 632 or Mobilgear SHC320		approved Lithium Grease

2016

Equipment		Misc.	Oil	Date Greased	Lubrication
UF Backwash Pump #1	VTP-1260	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
UF Backwash Pump #2	VTP-1261	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
RO Feed Pump #1	VTP-5150	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
RO Feed Pump #2	VTP-5151	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
RO Feed Pump #3	VTP-5154	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
RO By-pass Pump #1	VTP-5152	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
RO By-pass Pump #2	VTP-5153	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
UF Feed Pump #1	VTCP-1281	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
UF Feed Pump #2	VTCP-1282	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
UF Feed Pump #3	VTCP-1283	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
UF Feed Pump #4	VTCP-1284	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
High Service Pump #1	VTCP-689	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
High Service Pump #2	VTCP-615	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
High Service Pump #3	VTCP-610	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
High Service Pump #4	VTCP-694	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
Sec. UF Feed Pump #1	CFP-4038	Grease Annually		3-2-16 JV	Lithium Grease
Sec. UF Feed Pump #2	CFP-4039	Grease Annually		3-2-16 JV	Lithium Grease
Sec. UF Backwash Pump #1	PMP-4011	Grease Annually		3-2-16 JV	Lithium Grease
Sec. UF Backwash Pump #2	PMP-4012	Grease Annually		3-2-16 JV	Lithium Grease
Sec. Sludge Pump	CFP-426	Grease Annually		3-2-16 JV	Lithium Grease
UF CIP Feed Pump		Grease Annually		3-2-16 JV	Lithium Grease
RO CIP Feed Pump	CIP-7009	Grease Annually		3-2-16 JV	Lithium Grease
RO Heating to RO CIP Pump		Grease Annually		3-2-16 JV	Lithium Grease
Concentrate Pump #1	CFP-635	Grease Annually		3-2-16 JV	Lithium Grease
Concentrate Pump #2	CFP-640	Grease Annually		3-2-16 JV	Lithium Grease
Sludge Pump	CFP-653	Grease Annually		3-2-16 JV	Lithium Grease
Permeate Flush Tank Pump	CFP-7003	Grease Annually		3-2-16 JV	Lithium Grease
Permeate Transfer Pump	CFP-585	Grease Annually		3-2-16 JV	Lithium Grease
Domestic Water	CFP-678	Grease Annually		3-2-16 JV	Lithium Grease
Sod. Hypo. Pump North		Grease every 250 hrs./ Oil after every use	Vanton pump oil or pure silicone		Lithium Grease
Sod. Hypo. Pump South		Grease every 250 hrs./ Oil weekly, a few drops	Vanton pump oil or pure silicone		Lithium Grease
Hydrochloric Acid Pump		Grease every 250 hrs./ Oil after every use	Vanton pump oil or pure silicone		Lithium Grease
Sod. Bisulfite Pump		Grease every 250 hrs./ Oil weekly,a few drops	Vanton pump oil or pure silicone		Lithium Grease
Ozone Skid #1 Pump		Grease Annually		3-2-16 JV	Lithium Grease
Ozone Skid #2 Pump		Grease Annually		3-2-16 JV	Lithium Grease
30% Caustic Transfer Pump	MP-672	Grease Annually		3-2-16 JV	Lithium Grease
50% Caustic Transfer Pump	MP-671	No Grease Zerks		N-A	

Equipment		Misc.	Oil	Date Greased	Lubrication
Dunn Center Pump #1	P-903	Grease Annually		3-2-16 JV	Lithium Grease
Dunn Center Pump #2	P-913	Grease Annually		3-2-16 JV	Lithium Grease
Dunn Center Pump #3	P-923	Grease Annually		3-2-16 JV	Lithium Grease
COMPRESSOR #1		OIL FILTER CHANGED EVERY 150 HRS	3723	7-13-16	
		NEXT	3880	9-2-16	
		~~4030~~	4057	11-1-16	
		~~4207~~	4206	12-20-16	
		4356			
COMPRESSOR #2		OIL FILTER CHANGED EVERY 150 HRS	2880	7-13-16	
		NEXT ~~3030~~	3039	9-30-16	
		~~3189~~	3197	12-20-16	
		3347			
EXERCIZE DUNN CENTER VALVE EVERY 3 MONTHS		NEXT			OCTOBER 11
		JANUARY			
		APRIL			
		JULY			
		OCTOBER			

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

Equipment	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Compressor Room																										
Drain compressor Air #1		1																								
Drain compressor Air #2		1																								
Drain secondary Air tank		1																								
Clean louvers & Lube	6								19	KR																
Exercise all Valves		1																								
Maintanance air dryer		1																								
Clean or replace Vent filter	6																									
Compressor #1																										
* Coolant Filter			15	JV											13	JV			2	JV			1	JV	20	JV
* Separator Cartridge																					12	JV				
* Air Filter			15	JV																						
* Ultra Coolant			15	JV																						
* Pre-filter Pad			√																							
* Safety Valve			√																							
* Cooler Core			√																							
* Fluid Analysis																										
Dust Compressor fins	3		14	KR																						
	M	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Compressor #2																										
* Coolant Filter			14	JV											13	JV			30	JV					20	JV
* Separator Cartridge																					5	JV				
* Air Filter			15	JV																						
* Ultra Coolant			14	JV																						
* Pre-filter Pad			√																							
* Safety Valve			√																							
* Cooler Core			√																							
* Fluid Analysis																										
Dust Compressor fins	3		14	KR																						
	M	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Blower #1																										
Check Belt	1		5	MR	9	JV	1	KR	7	JV	18	KR	21	JV	14	JV	24	JV	1	KV	11	JV	1	JV	20	JV
Air Filter	1		5	MR	9	JV	1	KR	7	JV	18	KR	21	JV	14	JV	24	JV	1	KV	11	JV	1	JV	20	JV
Motor(grease motor mounts)		1																								
Check Blower oil	1		5	MR	9	JV	1	KR	7	JV	18	KR	21	JV	14	JV	24	JV	1	KV	11	JV	1	JV	20	JV

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Blower #2																										
Check Belt	1		5	KR	9	JV	1	KR	7	JV	12	KR	21	JV	14	JV	24	JV	1	KL	11	JV	1	JV	20	JV
Air Filter	1		5	KR	9	JV	1	KR	7	JV	12	KR	21	JV	14	JV	24	JV	1	KL	11	JV	1	JV	20	JV
Motor(grease motor mounts)		1																								
Check Blower oil	1		5	KR	9	JV	1	KR	7	JV	12	KR	21	JV	14	JV	24	JV	1	KL	11	JV	1	JV	20	JV
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Raw water Analyzer Panel																										
Calibrate RW Turbidity Meter	6																		16	JV/JV						
RW Turbidity Verification	1																									
Calibrate UF Turbidity Meter	6																									
UF Turbidity Verification	1																									
Clean/Inspect Turbidity Meters	1		11	KR	9	JV	17	KR	7	JV	7	JV	21	JV	20	JV	2	JV/KV	6	JV/KV	5	KV	8	JV	13	KV
Clean/Inspect RW PH Probe	1		11	KR	9	JV	17	KR	7	JV	7	JV	14	JV	20	JV/KV	2	JV/KV	6	JV/KV	5	KV	9	KV	13	KV
Calibrate RW PH Probe	1		49.7	KR	63.0	JV	58.8	KR	58.6	JV	52.6	JV	58.2	JV	56.3	JV/KV	58.1	JV/KV	55.8	JV/KV	55.4	KV	47.0	KV	51.7	KV
Replace salt Bridge		1																								
	M	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Finished Water Analyzer																										
Clean/Inspect the Sensor	1		11	KR	9	JV	7	KR	7	JV	6	JV	14	JV	20	JV/KV	2	JV/KV	6	JV/KV	5	KV	9	KV	2	JV
Calibrate PH Probe	1		53.7	KR	56.4	JV	53.6	KR	56.4	JV	56.4	JV	54.5	JV	53.9	JV/KV	54.9	JV/KV	54.6	JV/KV	54.3	KV	53.2	KV	54.9	JV/JV
Replace salt Bridge		1																								
Clean/Inspect Turbidity Meter	1														20	JV	2	JV/KV	6	JV/KV	5	KV	9	JV	20	JV
Calibrate Turbidity Meter	6																									
Turbidity Meter Verfication	1																									
Inspect APA 6000	1		11	KR	9	JV	1	SA	7	JV	6	JV	14	JV	20	JV	2	JV/KV	6	JV	5	KV	2	JV	20	JV
APA 6000 Maintenance	3		26	SA			1	SA			24	JV					10	JV					2	KV	20	JV
	M	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Contact Basin Panel																										
Clean/Inspect the Sensor	1		11	JV	9	JV	7	KR	7	JV	6	JV	14	JV	20	JV/KV	2	JV/KV	6	JV/KV	5	KV	9	KV	2	JV/JV
Calibrate CB PH Probe	1		51.0	JV	54.4	JV	57.4	KR	55.0	JV	56.9	JV	55.6	JV	56.3	JV/KV	55.4	JV/KV	54.1	JV/KV	54.8	KV	50.5	KV	54.1	JV/SA
Replace CB Salt Bridge		1																								
Clean/Inspect the Sensor	1		11	JV	9	JV	7	KR	7	JV	6	JV	14	JV	20	JV/KV	2	JV/KV	6	JV/KV	5	KV	9	KV	2	JV/JV
Calibrate Clearwell PH probe	1		55.5	JV	54.9	JV	50.4	KR	54.3	JV	56.6	JV	48.8	JV	54.1	JV/KV	54.4	JV/KV	53.4	JV/KV	52.0	KV	45.7	KV	54.5	JV/JV
Replace Clearwell salt Bridge		1																								

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Inspect Chlorine Enjector	1		4	KR	8	KR	24	JU	11	KR	12	KR	16	JU	20	JU	16	JU	6	JU	5	KV	9	JU	20	JU
	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Concentrate Area																										
Clean/Inspect the Sensor	1																									
Calibrate PH Probe	1																									
Replace PH Salt Bridge		1																								
Clean/Inspect the Probe	1																									
Calibrate Conductivity Probe	1																									
Grease Concentrate Pump 1		1					2	JU																		
Grease Concentrate Pump 2		1					2	JU																		
	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Neutralization Area																										
Clean/Inspect the Sensor	1						2	JA																		
Calibrate PH Probe	1						5/8/3	JA																		
Replace PH Salt Bridge		1					KA	JA																		
Check/Inspect valves	1		2	KR	5	KR	2	JA			19	JU	16	JU	20	JU	16	JU	6	JU	11	JU	9	JU	20	JU
Check for Leaks	1		2	KR	5	KR	2	JA			19	JU	16	JU	20	JU	16	JU	6	JU	11	JU	9	JU	20	JU
	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Backup Generator																										
Run 30 Min.	1		4	JU	10	JU			28	JU	19	JU	8	JA	16	JA	26	JU	1	JU	27	JU			20	JU
Inspect/Check for leaks	1		4	JU	10	JU			24	JU	19	JU	14	JU	20	JU	26	JU	1	JU	28	JU			20	JU
Check Fuel Levels	1		66%	JU	66%	JU			62%	JU	61%	JU	51%	JU	45%	JU	33%	JU	33%	JU	28%	JU			25%	JU
Hours meter	1		45:30	JU	46:15	JU			47:09	JU	48:57	JU	50.51	JU	55:27	JU	60.50	JU	61.21	JU	61.57	JU			62.48	JU
Batt. Volts	1		27.4	JU	27.4	JU			27.0	JU	26.5	JU	25.9	JU	25.6	JU	26.2	JU	26.6	JU	26.3	JU			27.5	JU
Maintenance Contract	6								13	EO											27	EP				
	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Handheld Gas Detector/Cl2																										
Bump test Gas Detector	1								11	JU					15	JA										
Calibrate gas Detector		1													15	JA										
Bump test Cl2 Detector	1								7	JU																
Calibrate CL2 Detector		1	12	JA																						

GENERATOR 3HRS = 10% FUEL

30 HRS = 100% FUEL

170 GAL FULL

JULY IS NEW 4-GAS DETECTOR

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

Basin Maintance	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
North BW Basin	3														19	ALL							7	ALL		
South BW Basin	3																						3	ALL		
Concentrate Basin	6														13	ALL										
Sludge Basin	3														20	ALL										
Secondary Sludge Tank	3						3	ALL							27	JV/KL					14	JV				
Buffer Basin		5																								
Contact Basin		5	27	All																						
Clearwell Basin		5																								
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF Skid #1																										
Calibrate Turbidity Meter	6																									
Turbidity meter Verification	1																									
Clean Skid	6		1	KR																						
Check Condition of valves	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	10	KL	17	JV	20	JV
Visual on DIT	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	10	KL	17	JV	20	JV
*Clean in Place							9	ALL																		
Exercise Valves		1					9	JV																		
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF Skid #2																										
Calibrate Turbidity Meter	6																									
Turbidity meter Verification	1																									
Clean Skid	6		13	KR																						
Check Condition of Valves	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	20	JV	17	JV	20	JV
Visual on DIT	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	20	JV	17	JV	20	JV
*Clean in Place							9	ALL																		
Exercise Valves		1					9	JV																		
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF Skid #3																										
Calibrate Turbidity Meter	6																									
Turbidity meter Verification	1																									
Clean Skid	6		21	KR																						
Check Condition of Valves	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	5	JV	17	JV	20	JV
Visual on DIT	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	5	JV	17	JV	20	JV
*Clean in Place							15	ALL																		
Exercise Valves		1					15																			

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

Equipment	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
UF Skid #4																										
Calibrate Turbidity Meter	6																									
Turbidity meter Verification	1																									
Clean Skid	6		7	JU																						
Check Condition of Valves	1		4	KR	8	KR	1	KR	7	JU	11	KR	14	JU	15	JU	17	JU	15	JU	20	JU	17	JU	20	JU
*Clean in Place					24	All																				
Visual on DIT	1		4	KR	8	KR	1	KR	7	JU	11	KR	14	JU	15	JU	17	JU	15	JU	20	JU	17	JU	20	JU
Grease Sec. Uf feed pump #1		1					2	JU																		
Grease Sec. Uf feed pump #2		1					2	JU																		
Grease Sec. UF BW pump #1		1					2	JU																		
Grease Sec. UF BW pump #2		1					2	JU																		
Grease Trans.Sludge pump		1					2	JU																		
Exercise Valves		1			24	All																				
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF Skid # 5																										
Calibrate Turbidity Meter	6																									
Turbidity meter Verification	1																									
Clean Skid	6						24	KR																		
Check Condition of Valves	1		4	KR	5	KR	1	KR	7	JU	11	KR	14	JU	15	JU	17	JU	15	JU	5	JU	12	JU	20	JU
Visual on DIT	1		4	KR	5	KR	1	KR	7	JU	11	KR	14	JU	15	JU	17	JU	15	JU	5	JU	17	JU	20	JU
*Clean in Place							15	All																		
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF Skid # 6																										
Calibrate Turbidity Meter	6																									
Turbidity meter Verification	1																									
Clean Skid	6								26	KR																
Check Condition of Valves	1		4	KR	5	KR	1	KR	7	JU	11	KR	14	JU	15	JU	17	JU	15	JU	5	JU	17	JU	20	JU
Visual on DIT	1		4	KR	5	KR	1	KR	7	JU	11	KR	14	JU	15	JU	17	JU	15	JU	5	JU	17	JU	20	JU
*Clean in Place							22	All																		
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF Skid # 7																										
Calibrate Turbidity Meter	6																									
Turbidity meter Verification	1																									
Clean Skid	6								19	KR																

10-4 CHANGED MECHANICAL SEAL, SLEEVE AND O-RING ON #7 FEEDPUMP

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

Check Condition of Valves	1		4	KR	8	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	27	JV	17	JV	20	JV
Future	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Visual on DIT	1		4	KR	8	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	27	JV	17	JV	20	JV
*Clean in Place					24	All																				
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
RO #1																										
*Coductivity Probing																										
Calibrate Conductivity Probe	1																									
*Clean in Place																										
Inspect Gauges	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Check Back Pressures	1								7	JV	17	JV	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Check Condition of Valves	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
RO #2																										
*Conductivity Probing																										
Calibrate Conductivity Probe	1																									
*Clean in Place									20	All																
Inspect Gauges	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Check Back Pressures	1								7	JV	17	JV	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Check Condition of Valves	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Future RO #3																										
*Conductivity Probing																										
Calibrate Conductivity Probe	1																									
*Clean in Place																										
Inspect Gauges	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Check Back Pressures	1								7	JV	17	JV	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Check Condition of Valves	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Philadelphia Mixer																										
Check oil	1		5	KR	1	JV	1	KR	7	KR	18	JV	14	JV	15	JV	17	JV	15	JV	13	JV	17	JV	20	JV
Check Heat and Vibration	1		5	KR	1	JV	1	KR	7	KR	18	JV	14	JV	15	JV	17	JV	15	JV	13	JV	17	JV	20	JV
Check run lights	1		5	KR	1	JV	1	KR	7	KR	18	JV	14	JV	15	JV	17	JV	15	JV	13	JV	17	JV	20	JV

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

Equipment	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Concentrate Vault																										
Pull Strainer and clean	1						3	HW																		
Check for leaks	1		11	JU	17	JU	3	HW	21	HW	24	JU	16	JU	2	JU	1	JU/KR	15	JU/KR	19	JU/KR	17	JU/KR	2	JU
Inspect Equipment	1		11	JU	17	JU	3	JU	21	HW	24	JU	16	JU	2	JU	1	JU/KR	15	JU/KR	19	JU/KR	17	JU/KR	2	JU
Ensure sump is working	1		11	KR	17	KR	3	JU	21	KR	24	JU	16	JU	2	JU	1	JU/KR	15	JU/KR	19	JU/KR	17	JU/KR	2	JU
Clean Vault	3		11	KR	17	KR	3	JU	21	KR	24	JU	16	JU	2	JU	1	JU/KR	15	JU/KR	19	JU/KR	17	JU/KR	2	JU
*Grounds Maintenance																										
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Filters																										
UF Backwash Bag Filters	6													ALL	7											
RO #1 Cartridge Filters	3								6	ALL																
RO #2 Cartridge Filters	3								6	ALL																
RO CIP Cartridge Filters	6								6	ALL																
Air Handler Filters(Contract)	6																									
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Pump Gallery																										
Exercise BW valve #1		1																	16	JU						
Exercise BW valve #2		1																	16	JU						
Exercise Feed valve #1		1																	16	JU						
Exercise Feed valve #2		1																	16	JU						
Exercise Feed bypass Valve		1																	16	JU						
Exercise Bypass valve #1		1																	16	JU						
Exercise Bypass valve #2		1																	16	JU						
Clean Harmonic filters	6																									
Clean or replace all VFD Filters	3																									
Clean all pump vent Screens	6																									
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Chemical Room																										
Change out Bisulfite lines		2																								
Change out vitec 3000 lines		2																								
maintenance Bisulfite pump 1		1																								
maintenance Bisulfite pump 2		1																								
maintenance Vitec pump 1		1																								
maintenance Vitec pump 2		1																								

8-11 CHANGED PRE-FILTERS ON RO#3

(*) Symbols By Hours ETC.

OMND Maintenance

Year_____

clean & lube exhaust louvers	6								6	KR															
clean exhaust fan	6								6	JV															
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Caustic Soda Room																									
Exercise all valves		1							6	SJ HW															
Change out Caustic lines		2																							
clean & lube exhaust louvers	6								6	KR															
Calibrate watson marlo pump	3																								
replace watson pump tube	~~1~~	1							6	SJ HW															
Flush eye wash station	1		2	KR	1	JV	1	KR	11	KR	12	KR	14	JV	14	JV	17	KV	14	KV	11	HW	15	KV	14	KV
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Ammonium Sulfate Room																									
Exercise all valves		1							6	HW SJ															
Change out Sulfate lines		2							14	SA KR															
clean exhaust fan & lube	6								6	KR															
Calibrate watson marlo pump	3																								
replace watson pump tube	~~1~~	1							6	SJ HW															
Clean Tank		1																							
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Flouride Room																									
Exercise all valves		1							6	SJ HW															
Change out Flouride lines		2																	16	SJ SA					
clean exhaust fan & lube	6								6	KR															
Calibrate watson marlo pump	3																								
replace watson pump tube	~~1~~	1							6	HW SJ															
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Finished water Room																									
Clean vent filter	6																								
Grease FW pump #1		1					2	JV																	
Grease FW pump #2		1					2	JV																	
Grease FW pump #3		1					2	JV																	
Exercise all valves		1																	20	JV					
Clean all pump vent Screens	6																								
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
CIP Area																									
Exercise all valves		1			24	All																			
*Clean UF CIP Strainer (after Use)							9	JV																	

(*) Symbols By Hours ETC.

OMND Maintenance

Year_____

*Clean UFCIP Tanks (after use)					24	All																				
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Grease UFCIP Motors		1					2	JU																		
Replace UFCIP Chem Lines		2																								
Grease RO CIP Motors		1					2	JU																		
Grease Permeate flush motor		1					2	JU																		
Exercise permeate flush Valves		1																								
Replace ROCIP Chem lines		2																								
Exercise Neutro valves		1																								
*Clean RO Heating Tanks																										
Flush eye wash station	1		2	KR	1	JU	1	KR	11	KR	12	KR	14	JU	20	JU	17	KR	14	KR	11	KR	15	KR	14	KR
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF RW Feed																										
Clean UF feed Pump Screens	6																									
Exercise RW Valves		1																	20	JU						
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF Pre-Filters																										
Cover seal		1												All	7											
Course Screen		1												All	7											
Fine Screen		1												All	7											
Lube O-rings		1												All	7											
Piston		1												All	7											
Electric motor packing		1												All	7											
Dirt Collector		1												All	7											
Upper Bearing		1												All	7											
Lower Bearing		1												All	7											
Air/water connections		1												All	7											
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Valve Exercise Tank Field																										
3 Supply valves 18 inch		1									12	AL														
3 Outlet valves from tank		1									12	AL														
3 Dunn Center Valves 12 inch		1											8	DIST												
1 RW Valve coming to plant		1																								

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

Equipment	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Ozone Generators																										
Inspect Equipment	1																		2	JV	16	JV	18	JV	20	JV
Check for leaks	1																		2	JV	16	JV	18	JV	20	JV
Clean fan screens	6																									
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Ozone Destruct																										
Inspect Equipment	1																		2	JV	16	JV	18	JV	20	JV
Clean Fan Filters on Cabinet		1																								
Change Catalyst		5																								
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Ozone VSA'S																										
Inspect Equipment	1																		2	JV	16	JV	18	JV	20	JV
Clean Louvers	6																									
Check Oil Level	1																		2	JV	16	JV	18	JV	20	JV
CALIBRATE	1																									
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Ozone Generator Cooling Water System																										
Inspect Equipment	1																		2	JV	16	JV	18	JV	20	JV
Check for Leaks on Piping	1																		2	JV	19	JV	16	JV	20	JV
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Ozone Contacting Skid #1																										
Inspect Equipment	1																		2	JV	16	JV	18	JV	20	JV
Check for Leaks	1																		2	JV	16	JV	16	JV	20	JV
Grease Injector Pump		1																								
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Ozone Contacting Skid #2																										
Inspect Equipment	1																		2	JV	16	JV	16	JV	20	JV
Check for Leaks	1																		2	JV	16	JV	16	JV	20	JV
Grease Injector Pump		1																								

WATER TREATMENT PLANTS

PREVENTATIVE MAINTENANCE REPORTS

Southwest Water Authority

Memo

To: Andy Erickson, Grace Rixen-Handford

From: Andrew Sokolofsky

Date: 3/16/2017

Re: Year-end Maintenance Report (2016)

Andy, Grace

Find attached, copies of the Preventive Maintenance Program and a maintenance Work Order List for the Dickinson Water Treatment Facilities.

Work orders are used in conjunction with more in-depth maintenance projects or if a history of the work preformed may be useful for future reference. Inconsequential items are not recorded.

The list below shows a lower than normal maintenance demand for the past year. This is due in-part to less required maintenance, more time devoted to water treatment because of treating water on demand along with new learning curves needed in operations due to construction, and also time spent in training new employees.

Thanks, AJ

DATE	Work Orders			ALL MAINTENANCE ITEMS INCLUDING WORK ORDERS		
	Completed	Started Uncompleted	Not Yet Addressed	Completed	Started Uncompleted	Not Yet Addressed
2008	24	5	5	106	7	16
2009	28	7	4	89	7	24
2010	35	12	2	105	19	31
2011	54	37	20	125	37	20
2012	53	12	11	138	18	15
2013	46	12	9	129	15	18
2014	29	11	9	107	14	16
2015	23	9	9	64	13	13
2016	25	7	6	110	10	3

Water Treatment Plant
811 West Broadway
Dickinson, ND. 58601

Phone: 701-225-9149
asokolofsky@swwater.com

Mailing Address:
4665 2nd ST SW
Dickinson, ND. 58601

Date of Origin	By	Work Order#	Priority Level 1	2	3	TEC	Equipment	Job Description	Date Started and Technician	Date Com-plete
01/21/11	KK	1103	X			E	Fill Pump	Soft-start going into a fault / replace breaker	1/21/11,CM	2/23/16
06/24/15	AS	1519	X				Building and Grounds	Alarms not working	6/24/15.KK,CM	2/10/16
06/25/15	AS	1520			X	E	Building and Grounds	Exterior Garage , breaker relocation.	6/25/15,KK	3/17/16
01/01/16	GM	1601		X			Basin 106	Yearly routine maintenance		2/4/16
01/01/16	GM	1602		X			Basin 105	Yearly routine maintenance		3/1/16
01/01/16	GM	1603		X			Slaker 106	Yearly routine maintenance		2/10/16
01/01/16	GM	1604		X			Slaker 105	Yearly routine maintenance		2/25/16
01/05/16	AJ	1605	X			C	Gravity filter #5	Repair surface rake	1/5/16,AS,LR,SR,TR	1/7/16
01/08/16	Gm	1606		X			DPS CL2 regulator	5 years required maintenance by Hawkins Chemical	1/8 SR,LF	1/8/16
01/13/16	AS	1607			X		Heating System	Replace broken heaters and steam traps	01/13/16, KK,CM,JF,SR,TR	10/12/16
01/27/15	GM	1609		X			APA 6000	Check sample 1 or fluid alarm	1/15/16,GM	6/14/16
03/16/16	AS	1610	X				South Dehumidifier	Belt Broke	3/16/16, SR, JF, TR	6/20/16
04/04/16	AS	1611	X			E	Compressor #1	Motor died	4/4/16, LR, SR, CM	4/5/16
06/03/16	AS	1613	X				Meter 5	Meter 5 not reading on SCADA	6/3 AS	6/3/16
06/14/16	AS	1614	X			E	Greenleaf Vac Pumps	Replace vacuum pumps	6/14 AS, GM, TR, CM	6/30/16
08/15/16	AS	1617		X			#3 compressor	oil leak	8/15 JF	8/19/16
08/12/16	AS	1618	X				#1 compressor	Motor burnt up	8/12 JF,AS,SR,CM,TR	8/16/16
08/23/16	AS	1620	X				105 Slaker	Belt not moving	8/23 AS,SR,JF,CM	8/23/16
08/23/16	AS	1621	X				South Lime Silo	Not auto filling 105	8/23 AS,SR,CM	10/19/16
08/25/16	AS	1622		X			Backwash Pump Air vac	Leaking	8/23 AS,SR,JF,TR	8/29/16
10/18/16	AS	1624	X				Lime System	106 north rotory feeder bearing replacement	10/18 TR,SR	10/24/16
01/12/15	GM	1503		X		E	BW Reservoir	Sludge valve stopped working	1/12/15,AS,JF,TR,SR	8/25/16
11/26/16	GM	1627	X				106 Slaker	Paddle shaft gearbox/motor hot, making noise	11/26 GM	12/5/16
12/12/16	SR	1629	X				Slaker 106	Valbia water valve not working	12/12 SR, TR	12/13/16
12/21/16	AS	1630	X				Slaker 105	Valbia water valve not working	12/21 AS,TR	12/29/16
11/01/12	GM	1202			X	I	Backwash Pump Station	BW and Recycle pump fail, PLC reboot after running/hand		
11/19/11	GM	1140		X		I	Chem Pumps feed rate	PH4 and F chem pump feed rate low running Basin 105	12/1/11	
11/06/08	GM	822			X	E	Elevator	Replace terminal block and ele. Box under elevator (ele)		
08/07/09	GM	2009-5			X		Welding Maintenance	MFG. tool to rotate paddle shaft on slakers		

te: TEC. Outside Assistance

= Distribution

IT / Microcomm

: Electrician

: Contractor

Date of Origin	By	Work Order#	Priority Level 1	2	3	T E C	Equipment	Job Description	Date Started and Technician	Date Com-plete
01/25/11	CM	2011-2			X	E	Milliamp System	Repair bad connection on isolator transformer		
01/25/11	DL	2011-3		X			G.L. Filter	#4 north effluent valve sticking	2/15/11,SR	
05/12/11	GM	2011-5		X			Gravity filters	Replace positioner coupling on #7 filter		
08/27/11	GM	1125		X		E	#6 High Service Pump	Keystone valve buzzing after power outage	8/16/11,	
04/20/12	JL	1219			X		Building and Grounds	Xypex crack in Basin 106 wall, basement west.		
05/20/13	GM	1225			X		105 Daybin Vibrator	Leaking air.	5/20/13,SR	
04/11/14	GM	1411			X	I	Nusance Alarms	Audio alarm for Jung Lake, pinch valve - remove.		
05/18/14	GM	1417		X		E	New Pump Station	Maintenance due to new pump station construction	5/18/14,All	
01/07/15	GM	1502			X	E	CO2 Compressor	Move disconnect and starter from can 3 to can 4.		
04/30/15	CM	1513		X		E	PLC	Repair cable end on west PLC DH-485 card.		
01/27/16	GM	1608		X			GL. Filters	#2 Vac pump making noise.	1/27/16,GM	
06/01/16	AS	1612			X		Meter 6	Red lion not totalizing when pump 6 runs	6/1 AS	
06/27/16	AS	1615	X				CL2 Line	CL2 dropping off when using east tank	6/27 AS	
08/01/16	AS	1616		X			Filter #5 Effluent valve	Effluent valve leaking.	8/1 AS	
08/17/16	AS	1619		X			106 Slaker	Replace multiple worn parts		
10/03/16	AS	1623			X	E	Electrical System	Complete Amp draw test on all loads.	10/3 CM	
10/20/16	AS	1625	X			E	Generator	Transfer switch not activating	10/20 CM	
10/21/16	GM	1626			X		CO2 Tanks	Maintenance due to Bi-annual inspection	10/21 GM	
12/05/16	AS	1628	X			E	North Silo Filter Fan	Doesn't run in hand	12/5 AS,CM	

Note: TEC. Outside Assistance

D = Distribution

I = IT / Microcomm

E = Electrician

C = Contractor

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
COMPRESSOR #1																	X									
In Service									4-4	LR							8-1	DL								
Out of Service																										
Check Coolant Lines	1		1-7	JF	2-10	LR	3-15	LR	4-4	LR	5-10	SR	6-16	DL	7-11	DL	8-1	DL	9-9	DL			11-23	DL	12-19	DL
Tank cut-in/out	1	1	1-7	JF	2-10	LR	3-15	LR	4-4	LR	"	"	"	"	"		81	DL	"		10-19	DL	"	"	"	
Check Oil Level	1		1-7	JF	2-10	LR	3-15	LR	4-4	LR	"	"	"	"	"		8-18	JF	"		10-19	DL	"		"	
Ck Relief Valves	6						3-15	LR						✓			8-1	DL	"				"		"	
Check Belt Tension/Cond/Align.	6													✓			8-18	JF			10-19	DL				
Change Oil	A								4-4	LR							8-1	DL	—				11-23	DL		
Replace Air Filter	A																8-18	JF	—						12-5	JF
Check Heat and vibration	1		1-7	JF	2-10	LR	3-15	LR	4-4	LR	"	"	6-16	DL	7-11	DL	8-1	DL	11		10-19		11-23			
Drain tank moisture	1		1-7	JF	2-10	LR	3-15	LR	4-4	LR	"	"	"	"	"		"				"		"			
COMPRESSOR #2																										
In Service					2-16	LR											O		X							
Out of Service									4-4	LR	5-23	LR					8-1	DL	9-9	DL						
Check Oil Level	1				2-22	LR	3-15	LR	4-4	LR	5-23	LR	6-16	DL	7-11	DL					10-19	DL	11-23	DL	12-19	DL
Ck Relief Valves 12-16	6													✓	7-11	"					"		"			
Check Belt Tension/Cond/Align. 3	6													✓	"	"										
Change Oil	A								4-4	LR							8H	DL					11-23	DL		
Check tank moisture blow-off	W				2-29	LR	3-15	LR	4-4	LR																
Change Air Filter	A								(47oz)																	
Check cut-in / out Pressure	1				2-29	LR	70/105	LR	4-4	LR	5-23	LR	6-16	DL	7-11	DL	8-1	DL			10-19	DL	11-23	DL	12-19	DL
Check Heat and vibration	1				2-22	LR	3-15	LR	4-4	LR	5-23	LR	"	"	"		"									
COMPRESSOR #3																	X		O		X					
In Service									4-4	LR							8-1	DL	9-9	DL	10-19	DL				
Out of Service					2-16	LR					5-23	LR														
Check Oil Level	1		1-7	JF	2-10	LR			4-4	LR	5-10	SR	6-16	DL	7-11	DL	—	—	9-9	DL	10-19	DL	11-23	DL	12-19	DL
Ck Relief Valves 9-27	6				2-10	LR			4-6	LR									9-9	DL						
Check Belt Tension/Cond/Align.	6				2-10	LR													11							
Change Oil 12-31	A								4-4	LR							8-1	DL	—				11-29	JF		
Check tank moisture blow-off	W		1-7	JF	2-10	LR			4-6	LR													xxx plugged			
Change Air Filter	A																		—							
Check cut-in / out Pressure	1		62/98	JF	62/98	LR			4-4	LR	"	"	6-16	DL	7-11	DL	8-1	DL	"							
Check Heat and vibration	1		1-7	JF	2-10	LR			4-4	LR	"	"	"	"	"		"		9-9	DL	10-19	DL	11-23	DL	12-19	DL
																					"		"		"	

COMMENTS

Compressor #1 motor burned up, replaced w/ used motor from inventory

Compressor #1 motor burned up - bought new motor from General Steel & Supply. #1 back in service 8-16 - AMP Draw: A-6.7 B-6.7 C-6.5 High is 8

8-18 Comp. #1 oil leaking from heads of low & high pressure stages - Head Bolts are tight

2016

Blow off plugged on Comp #1 - 12-5 - cleaned

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
DRYER #1																										
In Service									4-4	LR									OS		IN					
Check Dryer Fan Operation	1		1-7	JF	2-10	LR			4-4	LR	5-10	SR	6-16	DL	7-11	DL	8-1	DL	9-9	DL	10-18	DL	11-16	DL	12-19	DL
Blow out Dryer with air 12/10		1							4-12	LR																
Change Particulate Filter 5/18		1									5-18	LR														
Change Dryer Particulate Filter 5/18		1									5-18	"														
Check Freon PSI 12-22		1																								
																										✓
DRYER #2																										
In Service					2-16	LR					5-23	LR									OS					
Check Dryer Fan Operation	1				2-29	LR	3-15	LR	4-4	LR	5-23	LR	6-16	DL	7-11	DL	8-1	DL	9-9	DL	10-18	DL				
Blow out Dryer with air 12-10		1							4-12	LR									11				11-16	DL	12-19	DL
Change Particulate Filter 3-5		1					3-15	LR																		
Check Freon PSI 12-22		1																								
																										✓
Misc.																										
Change Coalescing Filter MTP	A																									
Drain Coalescing Filter MTP	2		1-7	JF	2-10	LR			4-4	LR																
Change Coalescing Filter MXP	A																									
Filter Replacement.		5																								

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
LAB TURBIDIMETER																										
Primary Calibration	~~4~~	4	1-26	DL					4-10	DL									9-6	DAL			11-1	DL		
Secondary Calibration	4		IIII	AH	~~HH~~	AH	IIII	AH	III	AH	TTH	AH	~~HH~~	AH	IIII	AH	IIII	AH			IIII	DL	III	AH	IIII	AH
Clean / Adjust Bulb	4								4-10	DL					7-18	DL							11-1	DL		
Replace Bulb																										
MISC. LAB																										
Replace PH Meter Electrode	A																									
~~Clean Water Distiller~~	A																									
Check TDS Meter Calibration	3		1-26	DL					4-10	DL					7-25	DL										
Replace Sink Carbon Filter	A																								12-12	DL
Clean PH Meter Electrode	A		1-11	DL			3-28	DL	4-18	DL			6-27	JF	7-18	DL	8-8	JF			10-10	DL	11-28	DL	12-19	JF
SPECTRO DR/2700																										
Replace Lamp Assembly	A																									
Adjust Lamp Calibration		1																								
Spec Check		1	1-26	DL					4-10	DL					7-25	DL							11-1	DL		
RUN UPS - POWER LOSS		1			2/23	CM																				
R.O. UNIT																										
Change filters		A																								

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
BASIN 106 INJECTION UNIT																										
Check Water/ CO2 Pressure	1		01/04	AS			3-11	DL	4-25	DL	5-26	DL	6-24	DL	7-11	DL	8-1	DL	9-9	DL	10-20	DL	11-23	DL	12-15	DL
Check For Leaks	1		1/7	AS			3-11	DL	4-25	DL	"		6-24	DL	"	"	"	"	"		"		"		"	
Calibrate / Clean Sensor / Acid	A	B							4-25	DL																
Replace Salt Bridge	A								4-25	DL																
Replace Cell Buffer	A								4-25	DL																
Replace Probe	A																									
Calibrate Control Valve		1																								
Lube Actuator Shaft		1																								
																			9-9	DL						
																			9-9	DL						
BASIN 105 INJECTION UNIT																										
Check Water/ CO2 Pressure	1		01/99	AS							5-26	DL	6-24	DL	7-11	DL	8-1	DL	9-9	DL	10-20	DL	11-23	DL	12-15	DL
Check For Leaks	1		1/7	AS							"		6-24	DL	"	"	"	"	"		"		"		"	
Calibrate / Clean Sensor / /Acid	A	B									5-18	DL														
Replace Salt Bridge	A																									
Replace Cell Buffer	A										5-18	DL														
Replace Probe	A																									
Calibrate Control Valve		1	1/7	AS																						
Lube Actuator Shaft		1	1/7	AS																						
MISC.																										
Check Primary PSI Regulator	1		1/4	AS			3-11	DL	4-26	DL	5-26	DL	6-24	DL	7-11	DL	8-1	DL	9-9	DL	10-20	DL	11-23	DL	12-15	DL
Check Auto CO2 Valve																										
Check Auto H20 Valve																										
Exercise 24" Bypass Valve	3		1/8	AS							5-26	DL							9-9	DL						

COMMENTS

System Inspection 10-3-16 (ED)

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
13 TON C02 STORAGE TANK																										
Check for leaks	A																23000		28000							
Tank Pressure Level	1		254	AS			255	DAL	255	DL	260	DL	255	DL	256	DL	258	DL	255	DL	258	DL	255	DL	257	DL
Clean Unit	A																									
Check PSI Relief Valve		2																								
Alternate Relief Valves	6												6-24	DL							10-3	ED				
26 TON C02 STORAGE TANK																										
Blow Down Vaporizer	6												6-24	DL							10-3	ED				
Check Vaporizer Amperage	6												6-24	DL							10-3	ED				
Check for leaks	A																		9-9	DL						
Check Sight Glass	6												6-24	DL							10-3	ED				
Tank Pressure Level	1		252	AS			265	DAL	260	DL	265	DL	260	DL	260	DL	262	DL	258	DL	252	DL	254	DL	256	DL
Check Compressor Oil Level	6												6-24	DL					9-9	DL						
Clean Condensing Coil		1																								
Clean Unit	A																									
Check PSI Relief Valve		2																	9-9	DL	10-3	ED				
Alternate Relief Valves	6												6-24	DL							10-3	ED				
Bi-annual Contract Inspection 1/14		2																			10-3	DL				

COMMENTS

Contract Inspection 10-3-16 (ED)

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
ELEVATOR																										
Check Pipestand Oil Level	6				✓								6-28	DL												
Grease All Zerks and Gears		1											6-28	DL												
Lube Door and Brake Linkage		1											6-28	DL												
Check Cable Condition	6				✓								6-28	DL												
Check Operation	6				✓								6-28	DL												
Lube Switch Linkage		1																								
Inspection		3											6-28	DL												
CRANE PUMPING STATION																										
Clean and Lube Load Chain		1																								
Grease Trolly Gear / Pin Rail		1																								
Check Brake Mechanism	6																									
Check Brake Parts / Gears		1																								
Check Load Chain / Hook	6				NOT IN USE																					
Check Hook Latch / collars	6																									
Check Pins / Bolts / Sheaves	6																									
Check Hand Wheel / Yoke	6																									
Check Loadblock Housing	6																									
Check Structure / Trolly	6																									
CRANE CHLORINE ROOM																										
Clean and Lube Load Chain/Rail																										
Grease Bottom Hook		1																					11-21	DL		
Lube trolley wheel gears		1																					11-21	DL		
Check for loose/broken parts																							11-21	DL		
Inspection		1																					—	—		
Check oil		A																					—			
																							11-21	DL		

COMMENTS

EQUIPMENT	HRS	DATE	HRS	BY	DATE	HRS	BY	DATE	HRS	BY	DATE	HRS	BY	DATE	HRS	BY
Ck Engine Oil Level	8 to 10		957		3-15-16	111.5	SR/DL				10-24	140	DL			
Ck Engine Air Filter Air System	8 to 10				X						X					
Ck Engine Cooling System	8 to 10				X											
Fuel Filter Trapped Water	8 to 10				X											
Lube Required Pointls	8 to 10				X											
Ck Tires	8 to 10				X											
Ck Seat Belt and Items	8 to 10				X											
Ck Interlock Control Sys.	8 to 10				X											
Ck Horn / Backup Alarm	8 to 10				X											
Ck Safety Signs/Treads	8 to 10				X											
Ck Operators Cab	8 to 10				X											
Ck Indicator/lights	8 to 10				X											
Ck Heater Filter	8 to 10				X											
Ck Hydraulic Fluid	8 to 10				X											
Ck Hydraulic Hoses/Tubes	50				X											
Ck Final Drive Fluid Level	50				X											
Ck Operator Manual Control	50				X											
Ck Wheel Nuts	50				X											
Clean Spark Arrester	100				X											
Ck/Service Battery	100				X											
Replace Fuel Filter	200															
Ck Engine/Hydro Belt Drive	200															
Ck Engine Belts	250															
Ck Interlock Bypass	250															
Change oil and Filter	100-200															
Replace Charge Filter and Reservoir breather	500															
Replace hydraulic / Hydrostatic Filter	1000															
Replace Final Drive Fluid	1000															
Adjust Engine Valves	1000															
Replace Coolant	2 years															

COMMENTS

~~2016~~

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Snow Blower																										
Grease Auger Shaft		1																								
Check Cutting Edge Condition	2																									
Check Skid Shoe Condition	2																				10-4	DL				
Check Bob-Tach Wedge Mounts		1																			S					
Lube Auger Chain		1																								
Check Fasteners and Hoses		1																								
Clean at Storage		1																			S					
Hydraulic Forks																										
Check Fork Condition		1																			10-4	DL				
Lube Attachment		1																								
Check Overall Condition		1																			S					
Check Fastners and Hoses		1																								
Snow Bucket																										
Check Cutting Edge	2																									
Check Overall Condition		1																			10-4	DL				
																					S					
Lopro Bucket																										
Check Cutting Edge	2																									
Check Overall Condition		1																			10-4	DL				
																					S					
Manual Forks																										
Check Fork Condition	2																									
Check Overall Condition		1																			10-4	DL				
																					S					

COMMENTS

2016

BOBCAT ATTACHMENTS **MATERIAL HANDLING EQUIPMENT**

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
2014 FORKLIFT																										
Check Brake/General Operation	1		1-15	LR			3-17	DL	4-27	DL	5-23	DL	6-27	DL	7-20	DL	8-12	DL	9-12	DL	10-24	DL	11-21	DL	12-19	DL
Check for Loose Connections	1		1-15	LR															X							
Lubricate Drive Unit	1		1-15	LR															X							
Check Battery Water Level	1		1-15	LR															X							
Check Hydraulic Oil	3																		X				11-21	DL		
Check Belt Condition	6																		X				11-21	DL		
Grease Real Wheel and Swivel	6																		X							
Check Gear / Lube Rear Wheel	6																		X							
Change Hydraulic Oil		1																								
Remove Chain and Clean	A																									
1971 FORKLIFT	1																									
Check Brake/General Operation	1		1-15	LR			3-17	DL	4-27	DL	5-23	DL	6-27	DL	7-25	DL	8-12	DL	9-12	DL	10-25	DL	11-21	DL	12-19	DL
Check for Loose Connections	1		1-15	LR			S		S		/		6-27	DL					X							
Check Battery Water Level	6								✓				6-27	DL					X							
Check Hydraulic Oil	6								✓				/						X							
Check Belt Condition	6								✓										X							
Lube Fork Rollers and Pivots	6								✓										X							
Lube Chain	6								✓										X							
Grease Real Wheel and Swivel	6								✓										X							
Check Gear / Lube Rear Wheel																			X							

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
DUST COLLECTOR																										
Grease Motor		1					3-17	DL																		
Lube Shaker Mechanism	8																		9-20	DL/MK						
Lube Vent Door	8																									
Check Filter Bags	6																									
Check V-Belt	6																									
Clean return line	1														7-8	6M	8-16	SR								
BASIN 106 ROTORY FEEDER																										
Grease Chain / Check Tension		1					3-17	DL																		
Check Gear Reduction Oil	6						3-17	DL																		
Change Reduction Oil																										
Check Air Vent	3						3-17	DL					6-28	DL					9-14	DL						
Check Packing Air / Heat	6						3-17	DL																		
BASIN 106 SCREW CONVEY.																										
Change Reduction Oil																										
Grease Bearings		1					3-17	DL																		
Check V-Belt		1					3-17	DL																		
Grease Plug Valve		1																								
Check Reduction Oil	6						3-17	DL																		
BASIN 105 ROTORY FEEDER																										
Grease Chain / Check Tension		1					3-17	DL																		
Check Gear Reduction Oil	6						3-17	DL																		
Change Reduction Oil																										
Check Air Vent	3						3-17	DL					6-28	DL					9-14	DL						
Check Packing Air / Heat	6																									
BASIN 105 SCREW CONVEY.																										
Change Reduction Oil																										
Grease Bearings		1					3-17	DL																		
Check V-Belt		1					3-17	DL																		
Grease Plug Valve		1																								
Check Reduction Oil	6						3-17	DL																		

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
DUST COLLECTOR																										
Grease Motor		1					3-17	DL											9-20	DL						
Lube Shaker Mechanism	8						3-17	DL											9-20	DL						
Lube Vent Door	8						3-17	DL											9-20	DL						
Check Filter Bags	6						3-17	DL											9-20	DL						
Check V-Belt	6						3-17	DL											9-20	DL						
Clean Return Line															7-8	6m	8-16	SR	9-20	DL						
BASIN 106 ROTORY FEEDER							3-17	DL																		
Grease Chain / Check Tension		1					3-17	DL																		
Check Gear Reduction Oil	6						3-17	DL																		
Change Reduction Oil																										
Check Air Vent	3						3-17	DL					6-28	DL					9-14	DL						
Check Packing Air / Heat	6																									
BASIN 106 SCREW CONVEY.																										
Change Reduction Oil																										
Grease Bearings		1					3-17	DL																		
Check V-Belt		1					3-17	DL																		
Grease Plug Valve		1																								
Check Reduction Oil	6						3-17	DL																		
BASIN 105 ROTORY FEEDER																										
Grease Chain / Check Tension		1					3-17	DL																		
Check Gear Reduction Oil	6						3-17	DL																		
Change Reduction Oil																										
Check Air Vent	3						3-17	DL					6-28	DL					9-14	DL						
Check Packing Air / Heat	6																									
BASIN 105 SCREW CONVEY.																										
Change Reduction Oil																										
Grease Bearings		1					3-17	DL																		
Check V-Belt		1					3-17	DL																		
Grease Plug Valve		1																								
Check Reduction Oil	6						3-17	DL																		

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
AIR BLOWER																										
Grease Bearings		1																								
Grease Motor Bearings		1																								
Check V-Belt	6						3-17	DL					6-28	DL												
Check Oil Level	3						3-17	DL																		
Change Oil																										
Check Air Intake Filter		1					3-17	DL																		
Check Heat / Vibration	2						3-17	DL					6-28	DL					9-28	DL						
MISC.																										
Check Silencer Moisture	6						3-17	DL																		
Lube Relief Valve		1					3-17	DL																		
Blow Dust From Motors	6						3-17	DL					6-28	DL					9-14	DL						

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
AIR BLOWER																										
Grease Bearings		1					3-17	DL																		
Grease Motor Bearings		1					3-17	DL																		
Check V-Belt	6						3-17	DL					6-28	DL												
Check Oil Level	3						3-17	DL																		
Change Oil																										
Check Air Intake Filter		1					3-17	DL																		
Check Heat / Vibration	2						3-17	DL					6-28	DL					9-20	DL						
MISC.																										
Check Silencer Moisture	6						3-17	DL																		
Lube Relief Valve		1																								
Blow Dust From Motors	6						3-17	DL					6-28	DL					9-14	DL						

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
CHLORINE ANALYZER																										
Check Water Flow Volume 9/15	3																									
Clean Colorimeter 9/15	3																									
Replace Pump Tubing 10/15		1																								
Replace Analyzer Tubing 10/15		2																								
Check Calibration 7/15		1																								
Clean Water Strainer (Banjo)	W		1-12	SR/LR			3/17	GM	4/25	GM	5/12	GM	6/1	GM	7/13	GM	8/20	GM	9/1	GM	1	GM	11	GM	12/1	GM
Clean Water Strainer (Below) 9/14	A								4/28	JF																
Change out Reagents	A						3/8		4/13	GM	5/12	JF	6/15	GM	7/21	GM	8/24	GM								
NORTH CL2 CONTROLLER																										
Check for Chlorine leaks	A						3/17	GM																		
Clean Components	A																									
Check Calibration	A														7/25	GM										
IN SERVICE																			9/14	JF GM						
SOUTH CL2 CONTROLLER																										
Check for Chlorine leaks	A						3/17	GM																		
Clean Components	A																									
Check Calibration	A																									
IN SERVICE									4/18	GM					7/25	GM									12/2	GM
MISC. CHLORINE																										
Clean / Inspect Gas Feeders	6																									
Replace CL2 Vacuum Line 10/13	A																									
Clean Ejector	A																									
Clean Switchover	A																									
Operate Switchover	1		1-12	SR/LR																						
Check Flow Transducer Blow-off	1		1-12	SR/LR	2/23	GM	3/17	GM	4/20	GM	5/4	GM	6-1	MIKE GM	7/13	GM	8/4	GM	9/1	GM	10/19	GM	11/3	GM	12/8	GM
BOOSTER PUMPS																										
Check Heat / Vibration #1 Pump	1		1-12	SR/LR	2/23	GM	3/17	GM	4/13	GM	5/4	GM	6-1	GM	7/28	GM	8/4	GM	9/15	GM			11/3	GM	12/8	GM
Check Heat / Vibrfation #2 Pump	1				2/10	GM			4/20	GM			6-15	GM	7/13	GM		9/1	GM							
Clean Suction Strainer	A						IIII		II		III		IIII		IIII		III	GM	II		I	GM	II	GM	III	
Grease Motor Bearings 11/15		1																								
CHLORINE GAS MONITORS																										
Receiver Response Test	1				2/10	GM	3/17	GM	4/20	GM	5/4	GM	6-1	GM	7/13	GM	8/4	GM	9/1	GM	10/19	GM	11/9	GM	12/2	GM
Replace Sensors		A																								
Calibration		1																								
Test Alarm Telemetry 5/15		1																			10/19	GM				

COMMENTS

12-29-15 Calibrate and spec monitors by Kent

4-8-16 SWITCH TO S1 CONTROLLER

CLEANED BLOW-OFF STRAINER 4-8-16 - 9-1-16

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
AMMONIUM SULFATE PUMP																										
Clean / Check Operation	1				3/16	GM	3/17	GM	4/20				6/29	GM			8/24	GM	9/15	GM	10/28	GM/DM	11/23	GM	12/2	GM
Install Pump Kit 4/15		A													7/23	GM					10/28	GM/DM				
EYEWASH STATION																										
Dodge - Clean and Flush	1				2/16	GM	3/17	GM	4/28	GM	5/4	GM	6/1	GM	7/18	GM	8/4	GM	9/1	GM	10/19	GM	11/9	GM	12/2	GM
RPS - Change Solution 8/15	6		1-26	SR/LR													?									
RPS - Clean Station	6		"	"																						
EXHAUST FANS																										
Chlorine Fan Grease / Inspect		1																								
Lubricate Louvers		1									5/4	GM														
Check / Operate	1		1-12	SR/LR	2/10	GM	3/23	GM	4/20	GM	5/4	GM	6/1	MK	7/13	GM			9/1	MK	10/19	GM			12/2	GM
CHLORINE HOIST																										
Check Oil / Lube and Ck Chain	6												6/1	MK GM												
Check Limit Switch 3/15		1																								
Check Motor / Load Brake 3/15		1											6/1	MK GM												
Lube Sheave / Bearings 10/15		1											6/1	MK GM												
Contract Inspection. 3/15		1																								
OVERHEAD DOORS																										
Lube Chain / Gears / Sprocket		1	1-26	SR/LR									6/1	MK GM												
Check Oil Level		1											6/1	MK GM												
WIND SOCK																										
Check Sock Condition	1		1-12	SR/LR	2/10	GM	3/17	GM	4/20	GM	5/4	GM	6/23	GM	7/13	GM	8/4	GM	9/1	GM	10/19	GM	11/9	GM	12/2	GM
PERMAG PUMP																										
Check Leaks / Temp / Flow	1																									
Install Pump Kit		A																								

COMMENTS INSTALL KIT - PUMP # .4 32745 7/23/16 - IN SERVICE 7-25-16
" SPARE PUMP 10/28/16 # .5184498

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
#1 TURBIDIMETER																										
Primary Calibration	6										5/23	JF	6/27	JF	7/11	TR	8/8	JF			10/24	NK				
Secondary Calibration	W																									
Check Water Flow to Meter	1		696	AS			740	TR	700	TR	730	TR	710	TR	690	TR	700	TR	680	TR	680	TR	410	TR	510	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack																										
#2 TURBIDIMETER																										
Primary Calibration	6																									
Secondary Calibration	W														7/11	TR										
Check Water Flow to Meter	1		635	AS			700	TR	680	TR	720	TR	700	TR	660	TR	670	TR	660	TR	670	TR	615	TR	610	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack																										
#3 TURBIDIMETER																										
Primary Calibration	6				2-2	LR			4/11	TR			6/27	JF	7/11	TR										
Secondary Calibration	W																									
Check Water Flow to Meter	1		340	AS			290	TR	420	TR	460	TR	430	TR	400	TR	460	TR	440	TR	430	TR	410	TR	400	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack																										
#4 TURBIDIMETER																										
Primary Calibration	6														7/11	TR	8/8	JF								
Secondary Calibration	W																									
Check Water Flow to Meter	1		310	AS			210	TR	340	TR	630	TR	790	TR	670	TR	680	TR	680	TR	680	TR	655	TR	660	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack																										
SCW TURBIDIMETER																										
Primary Calibration	4																									
Secondary Calibration	W								4/11	TR							8/8	JF			10/31	JF			1	
Check Water Flow to Meter	1		110	AS			100	TR	140	TR	165	TR	175	TR	170	TR	190	TR	180	TR	300	TR	310	TR	320	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack			1/22	KA																						

COMMENTS: 4/19/16 Replace Mod Bus in #3 turbidimeter, did preventative on #3. #3 was dead after a Power loss on UPS
New calibration standards 8/1/16 10/24 Replace head on #1 turbidimeter

2016

G.L. TURBIDIMETERS

PREVENTIVE MAINTENANCE

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
#5 TURBIDIMETER																										
Primary Calibration	6										5/19	SF			7/11	TR										
Secondary Calibration	W																									
Check Water Flow to Meter	1		490	AS			278	TR	280	TR	105	TR	240	TR	220	TR	250	TR	240	TR	280	TR	320	TR	290	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack																										
#6 TURBIDIMETER																										
Primary Calibration	6																									
Secondary Calibration	W														7/11	TR	8/31	CL								
Check Water Flow to Meter	1		260	AS			295	TR	270	TR	270	TR	320	TR	350	TR	230	TR	220	TR	140	TR	160	TR	170	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack							3/18	SF																		
#7 TURBIDIMETER																										
Primary Calibration	6																									
Secondary Calibration	W														7/11	TR										
Check Water Flow to Meter	1		465	AS			190	SF	240	TR	200	TR	240	TR	140	TR	220	TR	160	TR	250	TR	185	TR	210	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack									4/1	SF																
NCW TRUBIDIMETER																										
Primary Calibration	4								4/11	TR																
Secondary Calibration	W																8/29	TR							12/27	MK
Check Water Flow to Meter	1		85	AS			120	TR	110	TR	190	TR	210	TR	210	TR	230	TR	150	TR	140	TR	125	TR	150	TR
Clean Cuvette																										
Clean Unit / Check Seals																										
Replace Desiccant Pack																										
Misc.																										
Flush All Meter Supply Lines		1																								

Replaced Cuvette on #5 5/19/16

New Calibration standards 8/1/16

COMMENTS

8/23/16 #5 turbidimeter died Mod Bus died - waiting on replacement
8/26/16 Switched Hach Mod bus to #5
8/29/16 replaced lamp in Gravity Effluent turbidimeter, replaced dessicant pack in #5

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
AIR BLOWER																										
Check Oil Level	4						3-7	SR LR							7/14	KK							11/17	KK		
Change Oil		2																								
Check Belt Condition	6						"	"											9/22	KK						
Lube Relief Valve	6																		9/22	KK						
Grease Motor Bearings		2					"	"																		
Grease Blower Bearings		2					"	"																		
Check Air Filter Inlet		1					"	"																		
VACUUM PUMPS																										
Clean Line Strainer		1					3-7	SR LR																		
Check Water Solenoid Valve	4						"	"							7/14	KK										
Check Vacuum Cut-in / Cut-out	4		*Still having issues																							
PIPE GALLERY																										
Check Water / Air Leaks	3						3-7	SR LR					6/21	KK					9/22	KK					12/22	KK
Check Valve Operation	3												6/21	KK					9/22	KK					12/22	KK
Lube Valve Cylinders																										
Work Valves in Area	A																									
MISC.																										
Check Sight Glass	3						3-7	SR LR					6/21	KK					9/22	KK					12/22	KK
Measure Media Depth	6		1-12	All																						
HTH Filters																										
#1			1-22	22"																						
#2			1-12	24.5"																						
#3			1-20	23"																						
#4			1-14	21.9"																						
2016 - budget anthracite																										

3-3-16 - Put new Y Discs in both Vac. Check Valves

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
BACKWASH PUMP																										
Grease Stuffing Box	6						3-7	SR LR											9/22	KK						
Check Oil Level	1						"	"	4-27	LR	5-10	SR	6/23	KK	7/14	KK	8/23	KK	9/22	KK	10/17	KK	11/22	KK	12/22	KK
Change Oil																										
Check Packing	1						3-22	LR	4-27	LR			6/23	KK	7/14	KK	8/23	KK	9/22	KK	10/17	KK	11/22	KK	12/22	KK
Check Heat / Vibration	1						3-22	LR	4-27	LR			6/23	KK	7/14	KK	8/23	KK	9/22	KK	10/17	KK	11/22	KK	12/22	KK
Clean Equipment																										
Oil Analysis																										
Lube Valve Cylinders																										
MISC.																										
Bleed Drip Legs	6						3-7	SR LR											9/22	KK						
Lube Valves	A																									
Check Valve Operation		1					"	"																		
Work Valves in Area																										
Media Depth	6		1-5	OL																						
Calibration		2																								
HTH Filters																										
#5			1-4	25"																						
#6			1-5	27.3"																						
#7			1-6	26"																						

COMMENTS

EQUIPMENT	MISC.	OIL	FILTER	LUBRICATION
EYE WASH STATIONS (3)	Lab / Chlorine North / Chem. Feed Room			
Flush Operate				
Clean Station				
Check High Temp Limit.	CL2 North			
SECURITY SYS.				
Service Contract/Test Sensors	PCS / Password = Pipeline		Enercell Batteries	
Test Phone Communication	PCS to put system in stand-by		All sensor batteries are CR123A -3V	
Siren Test	Phone connection 225-9147		Flood = 9 volt and CR123A	
Battery Replacement	Fill out check sheet		Panic button = CR2	
CHLORINE GAS MONITOR				
Receiver Test				
Sensor Response Test	.05 ppm Warning / 3.0 ppm Alarm			
Calibration	Calcium Hypochlorite Bottle			
Replace Sensor				
Alarm Telemetry Test				
Test Cl2 Exhaust Fan ~~Strob~~ STROBE light	Ackowledge #4 on on-call cell phone			
Check Exterior ~~Strob~~ light				
Replace Ammonia Test Bottle	Vendor - Hawkins Chemical			
WIND SOCK				
Grease Swivel				
Check Sock Condition	9" Diameter			
MISC.				
Test Emergency Lights				
First Aid Kit Inventory				
Replace CL2 Resp. Cartridge	Cartridge # 815359			
Check Fire Extinguishers	WSI Regulation			
Check AED Charge				
Check AED Pad Expiration				
Fire Extinguisher service	Total Safety (483-1527)			

NAME OF EQUIPMENT	MANUFACTURE	MODEL NUMBER	SERIAL NUMBER	SIZE	TYPE	VOLTS	MISC.
Eyewash (Chemical Room)	ENCON	Z358.1					PRODUCT# 1368
Eyewash/Shower (CL2 area)	Guardian	G1902					
Eyewash/Shower (Lab)	Encon	Z358.1					
Tankless Heater	Tankless Inc	C108KW	14051		3Phase	480	Purchased 1/13
CHLORINE GAS DETECTOR	ATI	A14/11-11-0010-1-1-CL2		10 PPM		110	KA141
FIRST AID KIT	ZEE						
CHLORINE REPAIR KIT	CL2 INSTITUTE	KIT B		1 TON			
SECURITY SYSTEM	Hamilton Safe					Installed 11/22/10	
					4 GAS		
4-GAS HAND MONITOR	MSA ~~SOLARIS~~ ALTAIR 4X		~~A4-31488~~ 00368025		~~3 GAS~~		P/N ~~10047227~~ 10100662
CL2 GAS HAND MONITOR	MSA Altair	CL2 PRO 10076716	8101593		Lithium Battery		Purchased 9/21/11
Confined Space Entry							
Tripod	Sala	8000000	MF Lot# 10/APR	350#	7 foot		Purchased 4/15/10
Winch	Sala	Salalift 2 - 8102001	17275	350#	60ft. Wire		Purchased 4/15/10
AED	Cardiac Science	Powerheart AEDG3			BATTERY NEW 9/4/16		

EQUIPMENT	MISC.	OIL	FILTER	LUBRICATION
HAND-HELD DETECTORS				
Altair Pro CL2				
Bump Test	HTH			
Calibration / Cal Check	Cal-gas Pt# 711066 MSA			
Battery Replacement	Lithium Battery			
Sensor Replacement				
ALTAIR 4X				
~~**Solaris 3-Gas Detector**~~				
Calibration				
Calibration Check	Cal-gas Pt# 10048790 MSA Econo-Cal			
Bump Test	Use Cal Gas			
Sensor Replacement				
CONFINED SPACE ENTRY				
Sala Tripod				
Check fastners, legs, ~~pullys~~ PULLEYS				
Sala Winch				
Ck fastners, guards, damage				
Ck handle, connection hook				
Check wire condition				
Check free-wheel brake				
Check shear pin				
Lube wire rope		light machine oil		
lube winch drum gear	light coat of grease			
Landyard/Harness condition				
VEHICLE INSPECTIONS				
2007 Chevy 1/2 ton 4X4	License # G83753			
2011 Ford 1/2 ton 4X4	License # G83758			
2013 Dodge Journey	License # G83766			
1987 IHC Truck	License # G83751			

EQUIPMENT	MISC.	OIL	FILTER	LUBRICATION
PRESSURE WASHER				
Check Coil Back Pressure				
Check Belt Tension				
Check Spray Tip Plugging				
Replace Spay Tip				
Check Fuel Filter / Screen				
Burner Gun Maintenance				
Check Buss Bar Alignment				
Electrode Adjustment				
ELECTRIC GATE				
Check Clutch System	Pg. 24 Of Manual			
Check Slack & Lubrication-	Pg. 24 Of Manual			
Sprocket & Chain	Chain Lubrication			
Check Fasteners etc.				
Check Manual Operator Disconnect				
Check Stop Button				
Check Entrapment System	Gate To Reverse When Hitting A Solid Object			
MISC.				
Clean SW Sewer Sump	In Late Fall			
Lube Pad[redacted] locks				
AIRLESS PAINT SPRAYER				
Long Term Storage Procedure	End of painting job	Wagner Pt# 0516913		Or substitute light household oil
ULTIMATE PRESSURE WASHER				
Check oil / overall condition				
Change oil first 50 hours	SAE 30w Non-detergent.			
Grease Motor				
GENERAL SEWER MACHINE				Purchased 10/20/14
Oil Cable	Pour into cable drum	motor oil		
Lube Bearings				
Clean and Inspect				

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
EYE WASH STATIONS (3)																										
Flush Operate	1		1-17	KK	2-10	KK	3/25	KK	4/18	MK	5/17	KK	6/27	KK	7/14	KK	8/24	KK	9/22	KK	10/7	KK	11/30	KK	12/19	KK
Clean Station	A																									
Check High Temp Limit.																										
SECURITY SYS.																										
Service Contract/Test Sensors		1																								
Test Phone Communication		1																								
Siren Test	1		1-17	KK	2-10	KK	3/25	KK	4/18	KK	5/17	KK	6/27	KK	7/14	KK	8/24	KK	9/22	KK	10/7	KK	11/30	KK	12/19	KK
Battery Replacement	A																									
CHLORINE GAS MONITOR																										
Receiver Test	1		1-17	KK	2-10	KK	3/25	KK	4/11	KK	5/23	KK	6/15	KK	7/14	KK	8/24	KK	9/22	KK	10/7	KK	11/30	KK	12/19	KK
Sensor Response Test	1		1-17	KK	2-10	KK	3/25	KK	4/11	KK	5/23	KK	6/15	KK	7/14	KK	8/24	KK	9/22	KK	10/7	KK	11/30	KK	12/19	KK
Calibration		1																							12/19	KK
Replace Sensor	A																									
Alarm Telemetry Test	1		1-17	KK	2-10	KK	3/25	KK	4/11	KK	5/23	KK	6/15	KK	7/14	KK	8/24	KK	9/22	KK	10/7	KK	11/30	KK	12/19	KK
Test Cl2 Exhaust Fan	1		1-17	KK	2-10	KK	3/25	KK	4/11	KK	5/23	KK	6/15	KK	7/14	KK	8/24	KK	9/22	KK	10/7	KK	11/30	KK	12/19	KK
Check Exterior Strobe/light	1		1-17	KK	2-10	KK	3/25	KK	4/11	KK	5/23	KK	6/15	KK	7/14	KK	8/24	KK	9/22	KK	10/7	KK	11/30	KK	12/19	KK
Replace Ammonia Test Bottle		2																								
WIND SOCK																										
Grease Swivel		1													7/14	KK										
Check Sock Condition	4						3/25	KK							7/14	KK							11/30	KK		
MISC.																										
Test Emergency Lights	6														7/14	KK										
First Aid Kit Inventory		1																	9/28	JF						
Replace CL2 Resp. Cartridges 5/18		3																								
Check Fire Extinguishers	1																									
Check AED Charge	1		1-17	KK	2-10	KK	3/25	KK	4/11	KK	5/3	KK	6/27	KK	7/14	KK	—	KK	9/4	KK	10/7	KK	11/30	KK	12/19	KK
Check AED Pad Expiration		1											6/27	KK	7/14	KK			9/4	KK						
Fire Extinguisher Service		1																			10/31	KK				

COMMENTS

9/4 INSTALLED NEW BATTERY IN AED

2016

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
HAND-HELD DETECTORS																										
Altair Pro CL2																										
Bump Test	1		1-7	KK	2-10	KK	3/25	KK	4/11	KK	5/17	KK	6/21	KK	7/14	KK	8/23	KK	9/22	KK	10/19	KK	11/30	KK	12/19	KK
Calibration / Cal Check		1																							12/19	KK
Battery Replacement																										
Sensor Replacement																										
ALTAIR 4X																										
~~Solaris 4~~-Gas Detector																										
Calibration	6																				10/19	KK				
Calibration Check	3				2-10	KK					5/11	KK									10/19	KK				
Bump Test	1		1-7	KK	2-10	KK	3/25	KK	4/11	KK	5/11	KK	6/21	KK	7/14	KK	8/23	KK	9/22	KK	10/19	KK	11/30	KK	12/19	KK
Sensor Replacement																										
CONFINED SPACE ENTRY																										
Sala Tripod																										
CK for worn or damaged parts	B.U.																									
Check fastners, legs, ~~pullys~~ PULLEY	B.U.																									
Sala Winch																										
Ck fastners, guards, damage	A																									
Ck handle, connection hook	A																									
Check wire condition	A																									
Check free-wheel brake	A																									
Check shear pin	A																									
Lube wire rope		A																								
lube winch drum gear	A																									
Landyard/Harness condition	A																									
VEHICLE INSPECTIONS																										
2007 Chevy 1/2 ton 4X4	1		1/12	TR	2/8	TR	3/11	TR	4/4	TR	5/16	TR	6/20	TR	7/11	TR	8/4	TR	9/6	TR	10/13	TR	11/17	TR	12/8	TR
2011 Ford 1/2 ton 4X4	1				2/8	TR	3/11	TR	4/4	TR	5/16	TR	6/16	TR	7/11	TR	8/5	TR	9/7	TR	10/10	TR	11/9	TR	12/8	TR
2013 Dodge Journey	1		1/12	TR	2/8	TR	3/11	TR	4/4	TR	5/16	TR	6/16	TR	7/11	TR	8/4	TR	9/6	TR	10/10	TR	11/9	TR	12/8	TR
1987 IHC Truck	1				2/9	TR	3/11	TR	4/4	TR									9/9	TR			11/8	TR		

EQUIPMENT	HR	Date	By	Date	By	Date	By	Date	By	Date	By	Date	By	Date	By
ALKOTA PRESSURE WASHER															
Check Coil Back Pressure	1/YR							8/23	KK						
Check Belt Tension	6 Mon.							8/23	KK						
Check Spray Tip Plugging	1/YR							8/23	KK						
Replace Spay Tip	A/N														
Check Fuel Filter / Screen	6 Mon.							8/23	KK						
Burner Gun Maintenance	1/YR														
Check Buss Bar Alignment	1/YR														
Electrode Adjustment	1/YR														
ELECTRIC GATE															
Check Clutch System	6 Mon.							8/23	KK						
Check Brake System	1/YR							8/23	KK						
Check Slack & Lubrication-	6 Mon.							8/23	KK						
Sprocket & Chain															
Check Fasteners etc.	1/YR							8/23	KK						
Check Manual Operator Disconnect	1/YR							8/23	KK						
Check Stop Button	6 Mon.							8/23	KK						
Check Entrapment System	3 Mon.							8/23	KK					12/22	KK
MISC.															
Lube Paddle locks	1/YR							8/23	KK						
Clean SW Sewer Sump	1/YR							8/23	KK						
AIRLESS PAINT SPRAYER															
Long Term Storage Procedure	A/N														
ULTIMATE PRESSURE WASHER															
Check oil / overall condition	with use														
Change oil first 50 hours	300 hrs														
Grease Motor	A/N														
GENERAL SEWER MACHINE															
Oil Cable	AN														
Lube Bearings	AN														
Clean and Inspect	AN														

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
FLUORIDE																										
Check for Heat / Vibration	1		1-7	LR	2-23	JF	3-7	JF	4-11	LR	5-9	LR	6-6	SR	7-12	SR	8-2	SR	9-12	SR	10-4	SR	11-22	SR	12-6	SR
Replace Loadsure	A		"	"					4-6	EM/R																
Clean Daytank / Equipment	A		"	"					4-11	LR	5-9	LR							"	"	"	"			"	"
BASIN 105 COAGULANT																										
Check for Heat / Vibration	1		1-19	LR							5-9	LR	6-6	SR	7-12	SR	8-2	SR			10-4	SR				
Replace Loadsure	A																									
Clean Daytank / Equipment	A						3-7	JF	4-11	LR	5-9	LR	"	"	"	"	"	"			"	"				
BASIN 106 COAGULANT																										
Check for Heat / Vibration	1		1-7	LR	2-23	JF	3-7	JF	4-11	LR	5-4	LR	6-6	SR	7-12	SR	8-2	SR	9-12	SR	10-4	SR	11-22	SR	12-6	SR
Replace Loadsure	A																						11/11	GM		
Clean Daytank / Equipment	A		"	"			3-7	JF	4-11	LR	5-9	LR	"	"	"	"	"	"			"	"			"	"
AMMONIUM SULFATE S.CL.																										
Check for Heat / Vibration	1		1-7	LR	2-23	JF	3-7	JF	4-11	LR	5-9	LR	6-6	SR	7-12	SR	8-2	SR	9-12	SR	10-3	SR	11-22	SR	12-6	SR
Replace Loadsure	A																									
Clean Daytank / Equipment	A		"	"			3-7	JF	4-11	LR	5-9	LR	"	"	"	"	"	"	"	"	"	"	"	"	"	"
Clean Suction Strainer	1		"	"			3-7	JF	4-12	LR	5-10	SR	"	"	"	"	"	"	"	"	"	"	"	"	"	"
AMMONIUM SULFATE N.CL.											5-10	SR														
Check for Heat / Vibration	1		1-7	LR	2-23	JF	3-7	JF	4-11	LR	5-9	LR	6-6	SR	7-12	SR	8-2	SR	9-12	SR	10-3	SR	11-22	SR	12-6	SR
Replace Loadsure	A		1/12	GM																						
Clean Daytank / Equipment	A		"	"			3-7	JF	4-11	LR	5-9	LR	"	"	"	"	"	"	"	"	"	"	"	"	"	"
Clean Suction Strainer	1		"	"			3-7	JF	4-12	LR	5-10	SR	"	"	"	"	"	"	"	"	"	"	"	"	"	"
PHOSPHATE																										
Check for Heat / Vibration	1		1-7	LR	2-23	JF	3-7	JF	4-11	LR	5-9	LR	6-6	SR	7-12	SR	8-2	SR	9-12	SR	10-3	SR	11-22	SR	12-6	SR
Replace Loadsure	A												6-6	DL												
Clean Daytank / Equipment	A		"	"			3-7	JF	4-11	LR	5-9	LR	"	"	"	"	"	"	"	"	"	"	"	"	"	"
BASIN 105 POLYMER																										
Check for Heat / Vibration	1		1-19	LR									6-6	SR	7-12	SR	8-2	SR	9-12	SR	10 M	SR				
Replace Loadsure	A																									
Clean Daytank / Equipment	A						3-7	JF	4-11	LR	5-9	LR	"	"	"	"	"	"	"	"	"	"				
BASIN 106 POLYMER																										
Check for Heat / Vibration	1		1-7	LR	2-23	SF	3-7	JF	4-11	LR	5-9	LR	6-6	SR	7-12	SR	8-2	SR	9-12	SR	10-3	SR	11-22	SR	12-6	SR
Replace Loadsure	A										5-17	SR														
Clean Daytank / Equipment *	A		"	"			3-7	JF	4-11	LR	5-9	LR	"	"	"	"	"	"	"	"	"	"	"	"	"	"

COMMENTS

4-18-16 - Power Washed Polymer Barrel *

New Transducer for Basin 106 (5-17-16)

" " " " (11-11-16) COAG. PUMP

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
NCW CL17 Feed Pump																										
Clean / Inspect Equipment	A						3-7	JFSR																		
Check Stroke Knob Length	6																		9-12	SR						
Check 5-way Valve	4		1-19	SR															9-12	SR						
SCW CL17 Feed Pump																										
Check Motor Oil Level	6						3-7	JFSR																		
Clean / Inspect Check Valves	A																		9-12	SR						
Check Diaphragms / Washer	A																									
Clean / Inspect Equipment	A																									
Check Stroke Knob Length	6						3-7	JFSR											11	11						
Check 4-Way Valve	4		1-19	SR															9-12	SR						

COMMENTS

S.
March 40°

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
BRY-AIR NORTH																										
Check Process Vacuum	1		1-7	SR	2-16	JR	3-1	JF	4-4	SR	5-10	JR	6-22	JF	7-21	JF	8-18	JF	9-12	JF	10-23	JF	11-10	JF	12-15	JF
Check React Vacuum	1		"	"	"	"	3-1	JF	"	"	"	"	6-22	JF	7-21	JF	8-18	JF	9-12	JF	10-23	JF	11-10	JF	12-15	JF
Change React Filter	A										"	"									10-18	JF				
Clean React Filter	1		"	"	"	"	3-1	JF	"	"			6-22	JF	7-21	JF	8-18	JF	9-12	JF			11-10	JF	12-15	JF
Change Process Filter	A										"	"			7-21	JF			9-12	JF			11-10	JF		
Clean Process Filter	1		"	"	"	"	3-1	JF	"	"			6-22	JF			8-18	JF			10-18	JF			12-15	JF
Grease Motor Bearings 7-21	6				✓		3-1	JF									8-18	JF	-Squeak							
Inspect Seal / Belt	1		"	"	"	"	3-1	JF	"	"	"	"	6-22	JF	7-21	JF	8-18	JF	9-12	JF	10-24	JF	11-10	JF	12-15	JF
Photocell / flame Rod	A																									
Check Blower Belts 8-11	6				✓		3-1	JF									8-18	JF								
Clean Dehumidifier	A						3-15		"	"	"	"	6-22	JF	7-21	JF			9-12	JF			11-10	JF	12-15	JF
Ck. Actuator Louver Operation	1		"	"	"	"	3-15	JF	"	"	"	"	6-22	JF	7-21	JF	8-18	JF	9-12	JF	10-24	JF	11-10	JF	12-15	JF
Check Burner Temp.	1		"	"	"	"	271	3-7	"	"	"	"	282	6-22	282	7-21	283	8-24	283	JF	281	JF	278	JF	272	JF
CK. Drum Shaft Clamps	1														7-21	JF	8-18	JF	9-12	JF	10-24	JF	11-10	JF	12-15	JF
BRY-AIR SOUTH																										
Check Process Vacuum	1		1-7	SR	2-16	SR	3-7	JF	0				6-22	JF	7-6	JF	8-24	JF	9-13	JF	10-17	JF	11-7	JF	12-15	JF
Check React Vacuum	1		"	"	"	"	3-7	JF	0				6-22	JF	7-6	JF	8-24	JF	9-13	JF	10-17	JF	11-7	JF	12-15	JF
Change React Filter	A								T																	
Clean React Filter	1		"	"	"	"	3-1	JF							7-13	JF	8-23	JF	9-13	JF	10-17	JF	11-7	JF	12-14	JF
Change Process Filter	A																									
Clean Process Filter	1		"	"	"	"	3-1	JF							7-13	JF	8-23	JF	9-13	JF	10-17	JF	11-7	JF	12-14	JF
Grease Motor Bearings 11-10		1																					11-7	JF		
Inspect Seal / Belt	1		"	"	"	"	3-16	XXX					6-22		7-6	JF	8-26	JF	9-13	JF	10-17	JF	11-7	JF	12-15	JF
Photocell / flame Rod	A																									
Check Blower Belts 11-10		1																					11-7	JF		
Clean Dehumidifier	A						3-15	JF							7-13	JF	8-26	JF	9-13	JF	10-17	JF			12-15	JF
Ck. Actuator Louver Operation	1		"	"	"	"	3-1	JF					6-22	JF	7-6	JF	8-26	JF	9-13	JF	10-17	JF	11-7	JF	12-15	JF
Check Burner Temp.	1		"	"	"	"	238	3-7					242	6-22	244	7-6	240	8-24	241	9-13	242	10-17	242	JF	245	JF
CK. Drum Shaft Clamps	1																8-26	JF	9-13	JF	10-17	JF	11-7	JF	12-15	JF

Motor Changed to #2

COMMENTS

3-16 - Noticed Process gauge @ zero. One 12 amp Fuze was Blown. Relay will not reset. Moved wires, it reset. (North)
3-16 - Belt on Desicant Drum was swapped (South) (South one needs a new Rotor)
Flame Failure - 6-19 - North; 6-22 - South back in service
Flame Failure - 7-26 - South

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Break Room AC																										
Clean Air Filter	2						3-3	JF									8-31	JF								
Clean Triple Deoderizer Filter	2						3-3	JF									8-31	JF								
Clean Neo Plazma Filter		1					3-3	JF									8-31	JF								
Lab AC																										
Clean Air Filter	2						3-3	JF									9-12	JF								
Clean Triple Deoderizer Filter	2						3-3	JF									9-12	JF								
Clean Neo Plazma Filter		1					3-3	JF									9-12	JF								
Control Room AC																										
Clean Air Filter	2						3-3	JF									8-31	JF								
Clean Triple Deoderizer Filter	2						3-3	JF									8-31	JF								
Clean Neo Plazma Filter		1					3-3	JF									8-31	JF								
Clean exterior of units.		1					3-3	JF									9-12	JF								

COMMENTS

EQUIPMENT	M	A	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
SERVICE CONTRACT			4/5											
LUBRICATION														
Check For Leaks	1			2/9		4-11	5/21	6/13	7/26	8/8	9/7	10/12	11/8	12/14
Check Engine Oil Level	1					4-12	5/21	6/13	7/26	8/8	9/7	10/12	11/8	12/14
Check Oil Pressure	W			55 PSI	55 psi	60	62	62	60	55	62	55	55	55
Oil Change			4/5											
COOLING														
Check for Leaks	1			2/9	3-1	4-11	5/21	6/13	7/26	8/8	9/7	10/12	11/8	XXX 12/14
Check Coolant Heater Temp Case	1					136°	131°	135°	132°	133°	141°	119°	128°	122°
Check Belt Condition	1					4-11	5/21	6/13	7/26	8/8	9/25	10/12	11/8	12/14
Check Antifreeze Level	1					4-12	5/19	6/13	7/26	8/8	9/7	10/12	11/8	12/14
Check Louver Operation	W			2/9	3-1	4-11	5/21	6/13	7/26	8/8	X	10/12	11/8	12/14
Check Water Temperature	W			180	170	170	170	170	170	170	170	170	170	170
Check Air Intake Condition	W					4-11								
Antifreeze Conditioner	A													
FUEL														
Check For Leaks	1			2/9	3-1	4-11	5/21	6/13	7/26	8/8	9/7	10/12	11/8	12/14
Check Tank Level	1				14.5"	20"	19.75"	19.5"	19"	18.75"	18.25"	17.75"	20.75"	18"
Add Fuel Stabilizer		1												
ELECTRICAL						while running	.3/28	.3/28	.3/28		.3/28	.3/27	.	
Battery Charging System A/V	1				.3/27	.3/27	6/29*	6/29*	6/29*	6/29*	.3/28	5/29*	6/29*	.1/28*
Check Battery Fluid Level	1					4-12	5/25	6/20	7/27	8/23	9/25	10/13	11/17	12/15
Battery Posts	1					4-12	5/25	6/26	7/27	8/23	9/25	10/13	11/17	12/15
Fill Out Voltage / Amp Readings	W			235/140		4-11	5/21	6/13	7/26	8/8	—	10/12	11/8	12/14
Generator Amps AC (peak)	W													280/360 cm
MISC.							20 min	25 min	25 min	25 min	10 min	30 min	25 min	
Engine Vibration	W			2/9	3-1	4-11	5/21	6/13	7/26	8/8	—	10/12	11/8	12/14
Clean Building					3-4	4-12								
Date of Test/ Run Generator 12/9	W			2/9	3-1	4-11	5/21	6/13	7/26	8/8	9/7	10/12	11/8	12/14
Date of Monthly PM Checks	1			2/9		4-12	5/21	6/13	7/26	8/8	9/7	10/12	11/8	12/14
Total Hours After Run			319.4		321.4	321.8	322.2	322.6	323.1	323.5	323.8	324.7	325.7	327.1
Run Under Load					Pump 6	NO	NO 20 min	NO 11pm	NO 12AM	NO 5AM	YES/No	NO	NO	YES
Fuel Delivery / Fuel Added					3-3							10/13 - 21.5"		
Operator			65		JF	JF	JF	JF	JF	JF	JF	JF	JF	JF
Water Heater Temp at block	1			107		180°	174°	172°	171°	171°	182°	172°	169°	200°

COMMENTS

3-1 Leaking Antifreeze - Leaking From main Radiator hose connection. Tightened - stopped Leak
5-19. Checked Coolant before start-up. It just boiled from the cap. shot Coolant heater temp: 162-170°
-Wall Exhaust fan started making noise. when starting up. Yet runs fine with no power. Not even a year old. From Marathon)

2016 West Battery - Brown muck Floating on top of 3 terminals [illegible] - 6/20
9/7 - Tried to Run [illegible]

Oil Te
180-22
Water Tem
160-20

EQUIPMENT	HRS	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By
John Deere Z-Trak 4/20/13																
Clean Air Cleaner Precleaner Ele.	25	4-4	145	JF												
Ck/Change Air Cleaner Elements	50	11/21/16 - check		JF												
Grease Mower Deck Spindles	50	5/24/16	145.6	JF												
Check Traction Drive Belt	100	11/21/16	147	JF												
Change Engine Oil and Filter	100	11/21/16	147	JF												
Clean / Gap Spark Plug	100															
Ck / Clean Engine Cooling Fins	100	5/24/16	145.6	JF												
Change Transmission Oil + Filter	300															
Ck and Adjust Valve Clearance	300															
Grease RTN Bearing Block	EOS															
Ck and Adjust Park Brake	EOS															
Change Spark Plug	750	3-11	145	JF												
Change Fuel Filter	750															
Clean Battery	EOS															
Add Fuel Sablizer at Storage	EOS	11-28	147	JF												
Ck Tire PSI																
Clean Deck / Sharpen Blades AN		5/24/16	145.6	JF												
Z-Trak Blower / Bagger																
Grease Control Shaft Bushings	EOS															
Grease Handle Pivot Bushings	EOS															
Ck Belt Tensions / Idler Bearings	EOS															
Z-Trak																
CK Hydrostatic Trans. level		5/24/16	145.6	JF												
Start Engine		10/3/16	146	MK	11-28	147	JF	12-20	147	JF						

3-11 Z-Trak would not start, changed spark plugs. Fuel pump was bad - changed - 145 hrs - Did not run for months

EQUIPMENT	MON	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By
CUB CADET SNOWBLOWER																
Ck shave plate and skid shoes	2				10/6/16	-	JF									
Ck tire pressure	1				10/6/16	-	JF									
Lube xles / wheel contact area	12															
Lube auger shaft and spacers	12				10/6/16	-	JF									
Lube hex shaft	12															
Check belt condition	12															
Check oil level (before each use)																
Change oil	50hrs	10/26/16	-	JF												
Check/replace spark plug	25hrs															
Add fuel stablizer 4-9-15	EOS															
Run 4-9-15		4-12-16		JF	10/6/16	-	JF									
540 **STIHL GRASS TRIMMER**	HRS															
Clean Air Filter		11-22-16		JF												
Change Fuel Filter																
Clean Fuel Tank																
Clean / Gap Spark Plug	50	11-22-16	+clean	JF												
Change Spark Plug	100															
Clean Engine Fins																
AGRI-FAB SPIKER/SPREADER																
Oil Drive Chain	EOS	9/28/16		RS	11-16-16		JF									
Oil Plastic Bushings	EOS															
Apply light coat of oil to metal pts.	EOS															

COMMENTS

EQUIPMENT	HRS	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By
Cub Cadet Lawn Tractor																
Service Percleaner Air Element	25															
Replace Air Cleaner Element	100	5-20-16	187	MK												
Change Oil and Filter	100	5-20-16	187	MK												
Check Spark Plug Gap 4/9/15	200															
Service Bendix Starter Drive	200							ADD Fuel Stabilizer			—	11/28	207	JF		
Check Vavle Lash	200															
Clean Combustion Chanber	400							START Engine	-11-28	207	JF	12/20	207.2	JF		
Replace Spark Plug	500															
Clean Engine Cooling Fans	25															
Lube Front Deck Wheels	25	4-5	181	JF												
Lube Deck Spindels	25	4-5	181	JF	8-17-16	195	JF									
Lube Pedal Pivot Points	10	4-6	181	JF												
Replace Fuel Filter	100															
Clean Deck + Sharpen Blades		4-4-16	181	JF	7-7-16	190	MK	8-17-16	195	JF						
STIHL KM 90 R																
Clean Air Filter 4/17/15	A N	5-9-16	-	JF												
Fuel Pick-up body in fuel tank	1/YR															
Clean spark arresting screen	A N															
Decarbonize	150															
Replace spark plug	100															
Check faseners / visual inspect	1/YR	5-9-16	-	JF												
STIHL LAWN EDGER																
Check gearbox lubrication 4-17-15	25	5-9-16	-	JF												
Check/replace wear guard	A N	5-9-16	-	"												
STIHL WEED WACKER																
Check gearbox Lubrication	25	5-9-16	-	JF												
Check condition fasteners	AN	5-9-16	-	JF												

9-22 · Replaced Cub mower deck belt - 203 hrs

10-3 Replace Cub mower deck belt - 205 hrs - "Tuff Belts" A-754040 60-½" x 96.5"

EQUIPMENT	MON	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By	Date	Hrs.	By
2014 Husquvarna Self-Propelled																
Clean Drive Wheels		10/4/16		JF												
Lube Door Hinges / Wheel Adj.		10/4/16		JF												
Sharpen / Replace Cutter Blades		3-11 Sharp		JF	10/4/16 Sharp		JF									
Service / Change Air Filter	25/200				10/4/16-Service		JF									
Clean Engine		3-11-16		JF	10/4/16		JF									
Check Drive Belt	25				10/4/16		JF									
Ck Blade Brake Clutch	EOS															
Change Oil	50	11-7		JF												
Gas Stablizer at Storage	EOS	11-7		JF												
Spark Plug Gap/Clean Change	50/200	11-7 Clean		JF												
2009 Husquvarna Self-Propelled																
Clean Drive Wheels		10/3/16		JF												
Lube Door Hinges / Wheel Adj.		10/4/16		JF												
Sharpen / Replace Cutter Blades		3/10 Sharpen		JF	10/3/16 Sharp		JF									
Service / Change Air Filter	25/200	3/10/16	changed	JF												
Clean Engine		3/10/16		JF	10/4/16		JF	11-10		JF						
Check Drive Belt	25	10/4/16		JF												
Ck Blade Brake Clutch	EOS															
Change Oil	50	11-7		JF												
Gas Stablizer at Storage	EOS	11-7		JF												
Spark Plug Gap/Clean Change	50/200	11-10 Clean		JF												

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
NORTH CONTROLLER																										
Performance Check	3										5-25	AS					8-24	AS							12-21	AS
Ck rotometer for cleaning	3										5-25	AS					8-24	AS							12-21	AS
Ck V-notch plug / Grease Rod	1		1-26	DL	2-26	DL									7-19	AS			9-30	AS	10-29	AS			12-21	AS
Ck injector nozzle and tailway	6																									
SOUTH CONTROLLER																										
Clean Components/ CL2 leaks	A																									
Check Calibration	A																									
GAS FEEDERS																										
West - Clean / Inspect	6														7-20	AS										
East - Clean / Inspect	6														7-20	AS										
Operate Switchover	W																									
SOUTH ANALYZER																										
Replace Pump Tubing		1			2-23	DL																				
Replace Analyzer Tubing		2																								
Clean Colorimeter	1		1-25	DL	-	-			4-12	DL	5-25	AS	6-28	AS	7-20	AS	8-26	AS	9-30	AS	10-29	AS			12-21	AS
Check Water Flow	1		1-25	DL	2-26	DL					5-25	AS	6-27	AS	7-19	AS	8-24	AS	9-30	AS	10-29	AS	11-28	AS	12-21	AS
Check Calibration	1		1-26	DL	2-26	DL	3-31	DL	4-13	DL	5-25	AS	6-27	AS	7-19	AS	8-24	AS	9-30	AS	10-29	AS	11-28	AS	12-21	AS
NORTH ANALYZER																										
Replace Pump Tubing	6	1									5-2	DL														
Replace Analyzer Tubing		1									5-2	DL														
Clean Colorimeter	1		1-25	DL	2-26	DL			4-12	DL	5-25	AS	6-28	AS	7-20	AS	8-26	AS	9-30	AS	10-29	AS			12-22	AS
Check Water Flow	1		1-25	DL	2-26	DL					5-25	AS	6-27	AS	7-19	AS	8-24	AS	9-30	AS	10-29	AS	11-28	AS	12-21	AS
Check Calibration	1		1-26	DL	2-26	DL	3-31	DL	4-13	DL	5-25	AS	6-27	AS	7-19	AS	8-24	AS	9-30	AS	10-29	AS	11-28	AS	12-21	AS
INFLUENT ANALYZER																										
Replace Pump Tubing	6	1									5-2	DL														
Replace Analyzer Tubing		1									5-2	DL														
Clean Colorimeter	1		1-25	DL	2-26	DL					5-25	AS	6-28	AS	7-20	AS	8-26	AS	9-30	AS					12-21	AS
Check Water Flow	1		1-25	DL	2-26	DL					5/25	AS	6-27	AS	7-19	AS	8-24	AS	9-30	AS	10-29	AS	11-28	AS	12-21	AS
Check Calibration	1		1-26	DL	2-26	DL	3-14	DL			5/25	AS	6-27	AS	7-19	AS	8-24	AS	9-30	AS	10-29	AS	11-28	AS	12-21	AS
MISC.																										
Check Equipment Corrosion	6																									
Replace Ammonia Leak Bottle		1																								
Check vacuum tubing		1																								

COMMENTS

1-27-16 Replaced West Regulator w/ New
10-29- replace NCW colorimeter
3-4-16 Replaced SCW Analyzer SN 1411200517497
5-24-16 Replaced SCW Ejector w/ 500lb.

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
APA 6000																										
Auto Burette Module																										
Inspect for leaks / Particulate	1										5-25	AS	6-27	AS	7-19	AS	8-24	AS	9-30	AS	10-29	AS	11-28	AS	12-21	AS
Lube Lead Screw	3																									
Replace o-rings / piston seals	3																									
Valve Module																										
Inspect for leaks	1																									
Replace rotor	3																									
Inspect stator	3																									
Sample Conditioning Filter																										
Clean or replace filter	3																									
Mixer Module																										
Inspect for particulate build-up	1																									
Tubing and Fittings																										
Inspect for leaks and damage	6																									
Signal Output Modules (SOM)																										
Clean enclosures	A																									
Power Supply Module (PS201)																										
Clean enclosure	A																									
Hach Service Contract	3				2-14	AS					5-22	AS					8-10	AS					11-12	AS		
Clean Sample Line Strainer	6																									

COMMENTS

2016

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
#3 TRANSFER PUMP																										
Ck Mechanical Seal	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/1	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-21	AS
Check Oil Level	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/1	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-21	AS
Change Oil																										
Ck Pump Start Flood	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/1	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-21	AS
Check Heat / Noise / Vibration	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/1	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-21	AS
Clean Equipment																										
Oil Analysis																										
Vibration Analysis		1							4/12	AS																
#4 TRANSFER PUMP																										
Ck Mechanical Seal	1				2/16	AS	3/15	AS	4/12	AS	5/10	AS	6/2	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-7	AS
Check Oil Level	1				2/16	AS	3/15	AS	4/12	AS	5/10	AS	6/2	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-7	AS
Change Oil																										
Ck Pump Start Flood	1				2/16	AS	3/15	AS	4/12	AS	5/10	AS	6/2	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-7	AS
Check Heat / Noise / Vibration	1				2/16	AS	3/15	AS	4/12	AS	5/10	AS	6/2	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-9	AS	12-7	AS
Clean Equipment																										
Oil Analysis																										
Vibration Analysis		1							4/12	AS																
#5 TRANSFER PUMP																										
Ck Mechanical Seal	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/1	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-10	AS	12-7	AS
Check Oil Level	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/1	AS	7/6	AS	8-1	AS	9-6	AS	10-3	AS	11-10	AS	12-7	AS
Change Oil																										
Ck Pump Start Flood	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/1	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-10	AS	12-7	AS
Check Heat / Noise / Vibration	1				2/11	AS	3/15	AS	4/27	AS	5/10	AS	6/1	AS	7-6	AS	8-1	AS	9-6	AS	10-3	AS	11-10	AS	12-7	AS
Clean Equipment																										
Oil Analysis																										
Vibration Analysis		1							4/12	AS																
MISC.																										
Work Valves in Area		1																								
COMMENTS																										

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
#2HIGH SERVICE PUMP																										
Grease Stuffing Box	1						3/15	AS	4/6	AS			6/1	AS	7/21	AS			9-20	AS	10-17	AS			12-5	AS
Check Oil Level	1				2/16	AS	3/15	AS	4/6	AS			6/1	AS	7-21	AS			9-20	AS	10-17	AS			12-5	AS
Change Oil																										
Check Packing	1						3/15	AS	4/6	AS			6/1	AS	7-21	AS			9-20	AS	10-17	AS			12-5	AS
Check Heat / Noise / Vibration	1						3/15	AS	4/6	AS			6/1	AS	7-21	AS			9-20	AS	10-17	AS			12-5	AS
Check Valve Operation	6						3/15	AS													10-17	AS				
Clean Equipment																										
Oil Analysis																										
Vibration Analysis		1											6/1	AS												
Exercise	1				2/8	AS	3/15	AS	4/6	AS			6/1	AS	7-21	AS			9-20	AS	10-17	AS				
#6 HIGH SERVICE PUMP																										
Grease Stuffing Box	1						3/15	AS	4/6	AS			6/1	AS	7-21	AS					10-17	AS			12/5	AS
Check Oil Level	1				2/16	AS	3/15	AS	4/6	AS			6/1	AS	7-21	AS					10-17	AS			12-5	AS
Change Oil																										
Check Packing	1						3/15	AS	4/6	AS			6/1	AS	7-21	AS					10-17	AS			12-5	AS
Check Heat / Noise / Vibration	1						3/15	AS	4/6	AS			6/1	AS	7-21	AS					10-17	AS			12-5	AS
Check Valve Operation	6						3/15	AS													10-17	AS				
Clean Equipment																										
Oil Analysis																										
Vibration Analysis		1											6/1	AS												
Exercise	1				2/8	AS	3/15	AS	4/6	AS			6/1	AS	7-21	AS					10-17	AS				
FILL PUMP																										
Check Mechanical Seal							3/15	AS	4/12	AS	5/17	AS	6/2	AS	7-21	AS	8-1	AS	9-6	AS	10-3	AS				
Check Oil Level	1				2/11	AS	3/15	AS	4/12	AS	5/17	AS	6/2	AS	7-21	AS	8-1	AS	9-6	AS	10-3	AS				
Change Oil																										
Grease Bottom Bearing		1																								
Check Heat / Noise / Vibration	1				2/11	AS	3/15	AS	4/12	AS	5/17	AS	6/2	AS	7-21	AS	8-1	AS	9-6	AS	10-3	AS				
Check Valve Operation	6												6/2	AS												
Clean Equipment																										
Oil Analysis																										
Vibration Analysis		1							4/12	AS																
Exercise	1				2/11	AS	3/15	AS	4/12	AS	5-17	AS	6/2	AS	7-21	AS	8-1	AS	9-6	AS	10-3	AS			12-5	AS
MISC.																										
Work Valves in Area		1																								
Work Float Valve	1								4/6	MK			6/2	AS	7-19	AS										

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
#1 LOW SERVICE PUMP																										
Grease Stuffing Box	1		1-11	LR	2-16	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	as			12-5	AS
Check Oil Level	1		1-11	LR	2/16	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	as			12-5	AS
Change Oil		1																								
Check Packing	1		1-11	AS	2-16	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	as			12-5	AS
Check Heat / Noise / Vibration	1		1-11	AS	2-16	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	as			12-5	AS
Clean Equipment																										
Oil Analysis																										
Grease Bottom Bearing		3					3-12	AS													10-17	AS				
Vibration Analysis		1											6/2	AS												
Exercise	1		1-11	LR	2-8	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	AS			12-5	AS
#2 LOW SERVICE PUMP																										
Grease Stuffing Box	1		1-11	LR	2-8	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	as			12-5	AS
Check Oil Level	1		1-11	LR	2-8	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	as			12-5	AS
Change Oil		1																								
Check Packing	1		1-11	LR	2-8	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	as			12-5	AS
Check Heat / Noise / Vibration	1		1-11	AS	2-8	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	AS			12-5	AS
Clean Equipment																										
Oil Analysis																										
Grease Bottom Bearing		3					3-12	AS													10-17	as				
Vibration Analysis		1											6/2	AS												
Exercise	1		1-11	LR	2/8	AS	3-12	AS			5-4	AS	6/2	AS	7-21	AS					10-17	as			12-5	AS
ELECTRICAL PANELS																										
Clean Filter #2 Panel		1																								
LIFT STATION																										
Check Pump Opertion	6																									
Station Condition		1																								

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
BOILER																										
Drain and Flush		1													7-6	AS										
Remove Soot Build-up		1													7-6	AS										
Rod Equilizer Lines		1													7-6	AS										
Check Level Sensor		1													7-6	AS										
Check Ignition Electrode		1													7-6	AS										
Check Float Chamber		1													7-6	AS										
Check Flame Detection Lens		1													7-6	AS										
Check Limit Controls		3																								
Check 19 Point Cam		1																								
Check Combustion Efficiency		3																								
Lube Damper.Dr.Arm.Bearing	3										5/12	AS														
Check Refractory Condition	1		1-7	KK	2-11	JF	3-4	JF	4/7	AS	5/12	AS									10-6	AS	11-2	AS	12-7	AS
Test Relief Valve	1		1-7	KK	2-11	JF	3-4	JF	4/7	AS	5/12	AS									10-6	AS	11-2	AS	12-7	AS
Test Low Water Cut-Off Circ.	1		1-7	KK	2-11	JF	3-4	JF	4/7	AS	5/12	AS									10-6	AS	11-2	AS	12-7	AS
Check Softner / Phosphate	1		1-7	KK	2-11	JF	3-4	JF	4/7	AS	5/4	KK									10-27	TM	11-2	AS	12-7	AS
Check Stack Temperature	1		1-7	KK	2-11	JF	3-4	JF	4/7	AS	279	KK									285	AS	285	AS	12-7	AS
Check Boiler Chemistry	W		IIII		IIII		III		IIII		III								1		IIII		III		III	
FEED WATER PUMPS																										
Drain and Flush Tank		1													7-6	AS										
Check/Replace Flt. Assy.Gasket		1													7-6	AS										
Grease Pumps		1																								
Lube Motors		2																								
RO Prefilter change		A																			10-20	AS				
CONDENSATE PUMPS																										
Drain and Flush Tanks		1																								
Lube Motor (south)		3																								
ROOM HEATERS																										
Clean Heater Cores / Motors		3							4/7	AS																
Lube Motors		3							4/7	AS																
Gas Meter Reading	1		1/30	KK	2/29	KK	3/31	KK	4/30	AS	5-31	AS	6-30	AS	7-31	AS	8-31	AS	9/30	AS	10/31	AS				
Temp: Compensated			43298		45253		47289		35474		45942		25415		51678		52067		43828		53785					
Temp Non Compensated			44011		45995		48012		36012		46630		25786		52432		52822		44464		54571					

JAN - REPLACED IGNITION TRANSFORMER

COMMENTS 51678 52432

2016

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
SLAKER																										
Grease flange brgs-motor end	1		1-27	MK									6/24	TR							10/26	TR				
Feed end brgs.-ch. for leaks	1		1-27	MK																						
Dust & vapor paste build-up	1		1-29	MK																						
Clean & check spray nozzles	1		1-29	MK									6/24	TR							10/26	TR				
Check wear on paddles / nuts	1																									
Ck Gearbox Oil Level	3		1-27	MK																						
Ck / Clean Water PSI Switch		1	1-27	MK																						
Grease Bull Gears	2		1-29	MK									6/24	TR							10/26	TR				
Clean out tray/water ball gears	1																									
BELT FEEDER																										
Clean out feeder compartment	1																									
Check feeder belt for wear	1																									
Check feeder belt tracking	1		1-28	MK																						
Grease the (4)--(2) bolt-flange			1-27	MK									6/24	TR							10/26	TR				
bearings on head & tail pulley	2		1-27	MK																						
Feeder gear box (change oil)		2																								
Ck Feeder Belt Scraper	3																									
Belt Calibration		1	2/25	LR																						
GRIT SCREW CONVEYOR																										
Check the screw-turning free	1												6/24	TR							10/26	TR				
Ck gearbox oil level	3		1-27	MK																						
Change gearbox oil		1																								
Misc.																										
Clean Lime Trough	1		1-29	MK																						
Replace UPS battery		3																								

COMMENTS

Slaker Cal. 2-25-16 LR
B.H 5.645
speed 5155
zero 7.196 - diff. 6.664
7.173 dif - .408
chain 37.989 dif - 4.653
39.807 dif 4.787

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
SCRAPER																										
Lube Reducer Bearings	6		1-26	MK																						
Check Reducer Oil Level	3		1-26	MK																						
Change Reducer Oil	A																									
Check Reducer Oil	3		1-26	MK																						
Check Reducer Coupling	3																									
Grease Drive Gear		1	1-26	MK																						
Check Motor Heat / Vibration	1																									
Oil Analysis	A																									
ACCELATOR																										
Check Motor Heat / Vibration	1																									
Check Reducer Upper Oil Level	3																									
Check Reducer Lower Oil Level	3		1-27	MK																						
Check Reducer Heat / Vibration	1		1-27	MK																						
Change Reducer Oil Upper		2																								
Change Reducer Oil Lower		2																								
Oil Analysis	A																									
MISC.																										
Check Scraper Arms	1		1-26	MK																						
Grease Roller Bearings	6		1-2	MK																						
Drain and Clean Basin		1			2-22	JF																				
Lube Rail	6		1-26	MK																						
Check Euro Drive Filters	6		1-26	MK																						

Basin 105 Out of Service 2-22-16
Basin 105 Filled 5/16/16

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
SLAKER																										
Motor gears-ch. wear & grease	1		1/7	AS			3-9	MK	4-14	MK	5-13	MK	MK	6-16			8-3	MK	9-18	MK	10-21	MK	11-16	MK		
Grease flange brgs-motor end	1		1/7	AS			3-9	MK	4-27	MK	5-13	MK	MK	6-16			8-3	MK	9-18	MK	10-21	MK	11-16	MK		
Feed end brgs.-ch. for leaks	1		1/7	AS			3-9	MK	4-14	MK	5-13	MK	MK	6-16			8-3	MK	9-18	MK	10-21	MK	11-16	MK		
Dust & vapor paste build-up	1		1/7	AS			3-9	MK	4-10	MK	5-13	MK	MK	6-16			8-3	MK	9-18	MK	10-21	MK	11-16	MK		
Clean & check spray nozzles	1		1/7	AS			3-9	MK	4-10	MK	5-13	MK	MK	6-16			8-3	MK	9-18	MK	10-21	MK	11-16	MK		
Check wear on paddles / nuts	1		1/7	AS			3-9	MK	4-10	MK	5-13	MK	MK	6-16			8-3	MK	9-18	MK	10-21	MK	11-16	MK		
Check chain tension & adjust	1		1/7	AS			3-9	MK	4-10	MK	5-13	MK	MK	6-16			8-3	MK	9-18	MK	10-21	MK	11-16	MK		
Ck Gearbox Oil Level	3		1/4	AS			3-9	MK			5-13	MK	MK	6-16			8-12	TK	9-18	MK	10-21	MK	11-16	MK	12-29	MK
Ck / Clean Water PSI Switch		1					3-9	MK	4-10	MK	5-13	MK	MK	6-16			8-3	MK			10-21	MK				
																	8-3	MK			10-21	MK			12-29	MK
BELT FEEDER																										
Clean out feeder compartment	1						3-9	MK					MK	6-16			8-3	MK	9-18	MK	9-25	MK	11-16	MK		
Check feeder belt for wear	1						3-9	MK	4-10	MK			MK	6-16			8-3	MK	9-17	MK	9-25	MK	11-16	MK		
Check feeder belt tracking	1				2-16	MK							MK	6-16												
Grease the (4)--(2) bolt-flange							3-9	MK	4-27	MK			MK	6-16			8-3	MK	9-18	MK			11-16	MK	12-29	MK
bearings on head & tail pulley	2						3-9	MK	4-27	MK			MK	6-16			8-3	MK	9-18	MK	10-27	MK	11-16	MK	12-29	MK
Feeder gear box (change oil)		2																			10-21	MK				
Ck Feeder Belt Scraper	3						3-9	MK					MK	6-16			8-3	MK			10-21	MK	11-16	MK		
Belt Calibration		1			2-16	MK											8-25	MK								
GRIT SCREW CONVEYOR																										
Check the screw-turning free	1		1/7	AS					4-10	MK			MK	6-16			8-3	MK	9-18	MK			11-16	MK		
Clean Lime Trough/ disc. pipe	2		1/5	SR					4-27	MK									9-18	MK	10-5	MK				
Replace UPS Battery		3		MK																						

COMMENTS

2-16-16 Calibration Belt 68.5
Change (New UPS) 2-17-16

Speed - Old 5150.5 New 5151.3
Zero - Old 3.060 New 3.079 Diff → .415
Chain Old 29580.9 New 30,464.8 Diff → 2.988
Old 30464.8 New 30.294.3 Diff → -.56

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
SCRAPER																										
Lube Reducer Bearings	6						3-3	MK					6-30	MK												
Check Reducer Oil Level	3						3-4	MK					6-30	MK							10-4	MK				
Change Reducer Oil	A																				10-27	MK			12-29	MK
Check Reducer Oil	3						3-4	MK																		
Check Reducer Coupling	3						3-3	MK					6-30	MK							10-27	MK			12-29	MK
Grease Drive Gear	2						3-3	MK					6-30	MK							10-27	MK			12-29	MK
Check Motor Heat / Vibration	1		1/7	AS			3-3	MK	4-11	MK	5-13	MK	6-30	MK					9-18	MK	10-27	MK			12-29	MK
Oil Analysis	A						3-15	JF							7-20	MK	8-3	MK			10-4	MK	11-16	MK	12-20	MK
ACCELATOR																										
Check Motor Heat / Vibration	1		1/7	AS			3-3	MK	4-12	MK	5-13	MK			7-7	MK	8-3	MK			10-4	MK	11-16	MK	12-20	MK
Check Reducer Upper Oil Level	3						3-4	MK							7-7	MK					10-27	MK			12-20	MK
Check Reducer Lower Oil Level	3						3-4	MK							7-7	MK					10-27	MK			12-20	MK
Check Reducer Heat / Vibration	1		1/7	AS			3-3	MK	4-12	MK	5-13	MK			7-7	MK	8-3	MK			10-4	MK	11-16	MK	12-20	MK
Change Reducer Oil Upper	A																									
Change Reducer Oil Lower	A																									
Oil Analysis	1						3-15	JF																		
MISC.																										
Check Scraper Arms	1		1/7	AS			3-3	MK	4-13	MK	5-13	MK			7-7	MK	8-3	MK	9-17	MK	10-27	MK	11-16	MK	12-20	MK
Grease Roller Bearings	6						3-3	MK							7-7	MK			9-18	MK					12-29	MK
Drain and Clean Basin		1																								
Lube Rail	6						3-3	MK							7-20				9-18	MK	10-27	MK			12-29	MK
Check Euro Drive Filters	6						3-3	MK							7-7	MK					10-27	MK			12-29	MK
3016 rail height																										
& clean out:	N	6"																								
	S	6"																								
	E	5⅞																								
	W	5⅞																								

Changed UPS-2110

COMMENTS

2016

BASIN 106

PREVENTIVE MAINTENANCE

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
#1 RECYCLE PUMP																										
Grease Motor Bearings		1	1/12	AS					4-11	MK																
Grease Stuffing Box	4		1/12	AS					4-11	MK																
Check Heat / Vibration	1										5-12	MK									10-4	MK				
Check Packing	1										5-12	MK									10-26	MK				
Vibration Analysis		1																			10-4	MK				
																					10-4	MK				
#2 RECYCLE PUMP																										
Grease Motor Bearings		1	1/12	AS					4-11	MK																
Grease Stuffing Box	4		1/10	AS							5-11	MK														
Check Heat / Vibration	1								4-11	MK	5-11	MK			7-11	MK	8-11	MK			10-4	MK				
Check Packing	1								4-11	MK	5-11	MK			7-11	MK	8-11	MK			10-4	MK				
Vibration Analysis		1																			10-4	MK				
Clean Euipment									4-12	MK	5-11															
Work Valves in Area		1							4-11	MK			6-30	MK												
Clean Inspect Vault																										
#1 SLUDGE PUMP																										
CK. Operation/Discharge to Pits	1		1/8	AS																						
Check discharge Line Seal	6								4-11	MK			6-30	MK			8-11	MK			10-4	MK				
#2 SLUDGE PUMP																										
CK. Operation/Discharge to Pits	1		1/8	AS			3-17	MK																		
Check discharge Line Seal	6												6-30	MK			8-11	MK								
Clean / Inspect Vault																										
Work Valves in Area		1							4-12	MK																
									4-12	MK			6-30	MK												
MISC.																										
Work Pond Valves		1																								
Check/Lube Res. Sludge Valve	6														7-8	MK KK										
Check/Lube Recycle Valve		1																								
Check/Lube Sludge Valve		1																								
Lagoon Valve Summer/Winter	6																									
Record pump hours, end of year		1													7-8	MK KK										
Dump Reservoir Sludge/Drain	1		1/8	AS																						
Ck BW Reservoir Sludge level	1		1/11	AS					4-12	MK			6-29	MK												

COMMENTS

EQUIPMENT	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
#1 BACKWASH PUMP																										
Check Oil Levels	1		1/8	AS					4-19	MK	5-13	MK	6-30	MK	7-30	MK	8-3	MK			10-27	MK			12-6	MK
Change Oil																										
Check Packing	1		1/8	AS							5-13	MK	6-30	MK	7-31	MK										
Check Heat / vibration	1		1/8	AS							5-13	MK	6-30	MK	7-31	MK									12-6	MK
Grease Stuffing Box	4								4-11	MK	5-13	MK														
Grease Motor Bearings		1							4-11	MK	5-13	MK									10-27	MK				
Clean Equipment									4-12	MK																
Vibration Analysis		1																								
#2 BACKWASH PUMP																										
Check Oil Levels	1		1/8	AS																						
Change Oil									4-19	MK			6-30	MK	7-30	MK	8-3	MK			10-4	MK			12-6	MK
Check Packing	1		1/8	AS							5-11	MK	6-30	MK	7-11	MK	8-3	MK			10-4	MK			12-6	MK
Check Heat / vibration	1		1/8	AS							5-13	MK	6-30	MK	7-11	MK	8-3	MK				MK				
Grease Stuffing Box	4								4-11	MK	5-13	MK									10-27	MK				
Grease Motor Bearings		1							4-11	MK	5-13	MK														
Clean Equipment									4-12	MK																
Vibration Analysis		1																								
#3 BACKWASH PUMP			OUT OF SERVICE 7/14/00																							
Check Oil Levels	1																									
Change Oil																										
Check Packing	1																									
Check Heat / vibration	1																									
Grease Stuffing Box	4																									
Grease Motor Bearings		1							05	MK																
Clean Equipment									05	MK																
Vibration Analysis									4-12	MK																
Rotate Pump Shaft	1		1/7	AS																						
MISC.									4-11	MK	5-11	MK	6-7	MK	7-11	MK	8-3	MK	9-	MK	10-4	MK	11-16	MK	12-7	MK
Clean / Inspect BW Vault		1																								
Clean / Inspect Reservoir	6								4-14	MK																
Work Valves in Area		1							4-14	MK			6-30	MK												
Clean 6 Million Reservoir		A							4-13	MK			6-30	MK												

COMMENTS

Chlorine Maintenance

Year: 2016

Equipment	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Chlorine Analyzer Contact Basin																										
Check Water flow	1		11	KR	9	JV	1	JV	7	JV	19	JV	14	JV	20	KV	16	KV	6	JV	11	JV	9	JV		
Clean Colorimeter	1		5	JV	8	KR	1	SA	11	KR	19	JV	21	JV	20	KV	16	KV	6	KV	6	JV	9	JV		
replace pump tubing		A					1	SA																		
Replace Analyzer tubing		2					1	SA															8	JV		
Check Calibration		A																								
Chlorine Analyzer Finished Water																										
Check Water flow	1		11	KR	9	JV	1	JV	7	JV	19	JV	14	JV	20	JV	16	KV	6	JV	11	JV	9	JV		
Clean Colorimeter	1		5	JV	8	KR	1	JV	11	KR	19	JV	21	JV	20	JV	16	KV	6	KL	6	JV	9	JV		
replace pump tubing		A																								
Replace Analyzer tubing		2																					8	JV		
Check Calibration		A																								
Misc. Chlorine																										
Clean/ inspect Vacuum Regulators	6																									
Replace CL2 lines		A																								
Clean Ejector		A																								
Clean Switchover	6																									
Operate switchover	1						24	JV			17	HW					22	HW								
Clean Rotometers	6																									
Ventilation system	1		4	KR	4	JV	1	KR	11	KR	2	JV	14	JV	7	JV	12	JV	15	JV	4	KV	9	JV	2	JV
Check for leaks on fittings	1		4	KR	4	JV	1	KR	11	KR	2	JV	3	JV	7	JV	12	JV	1	JV/KV	4	JV	9	JV	2	JV
Check Battery warning Light	1		4	KR	4	JV	1	KR	11	KR	2	JV	3	JV	7	JV	12	JV	1	JV/KV	4	JV	9	JV	2	JV
Chlorine Gas Monitors																										
Receiver Response Test	1						24	JV																		
Replace Sensor		2																								
Test Alarm Telemetry	1														16	HW/JV					20	HW				
Test Robo Control Shutoff	1														21	HW/JV					20	HW				
Test Emergency Shutoff	1																									
Chlorine Controller																										
Clean/inspect controller		A																								

* 7-21-16 ROBO CONTROL SHUT OFF PUT BACK IN SERVICE AFTER REBUILT

7-21-16 #1 REGULATOR PUT BACK IN SERVICE

Chlorine Maintenance

Year 2016

Equipment	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Change Battery out		5																								
Actuator/Positioner		A																								
Chlorine Hoist																										
Check Oil	6														28	JV										
Lube Chain	6																									
Check motor		A																								
Wind Sock																										
Check Sock Condition	1		4	KR	4	JV	1	KR	6	KR	2	JV	14	JV	21	JV	12	JV	1	JV	5	KV	8	JV	20	JV

2016

Equipment	Misc.	Oil	Filter	Lubrication
Vsa #1				
Cooling fan & Louvers	Clean every 250 HRS	4058, 4479,		
Blower Lubricant (BL-100)	Change every 2000 HRS			8-18-16 4058 HRS
Vsa Bed Lid Bolts	Check Torque every 2000 HRS (Torque to 20 ft-lb)			8-18-16 4058 HRS
Product Particulate Filter (F1)	Check / Replace every 2000 HRS			8-18-16 4058 HRS
Inlet Fiter (F-4)	Check / Replace every 2000 HRS			8-18-16 4058 HRS
Air Supply Filter (F-3)	Check / Replace every 2000 HRS			8-18-16 4058 HRS
Blower Coupling Screws	Check Torque every 2000 HRS (Torque to 17 ft-lb)			8-18-16 4058 HRS
Output Heat Exchanger	Clean / Inspect every 2000 HRS			8-18-16 4058 HRS
Product Intake Heat Exchanger	Clean / Inspect every 6000 HRS			
Booster Compressor Tip Seal Replacement	Replace every 8000 HRS			
Product Blower Motor	Replace every 20000 HRS			
Booster Compressor	Replace every 20000 HRS			
Primary Heat Exchanger Fan Motor	Replace every 20000 HRS			
Vsa #2				
Cooling fan & Louvers	Clean every 250 HRS	4144, 4502		
Blower Lubricant (BL-100)	Change every 2000 HRS			8-23-16 4144 HRS
Vsa Bed Lid Bolts	Check Torque every 2000 HRS (Torque to 20 ft-lb)			8-23-16 4144 HRS
Product Particulate Filter (F1)	Check / Replace every 2000 HRS			8-23-16 4144 HRS
Inlet Fiter (F-4)	Check / Replace every 2000 HRS			8-23-16 4144 HRS
Air Supply Filter (F-3)	Check / Replace every 2000 HRS			8-23-16 4144 HRS
Blower Coupling Screws	Check Torque every 2000 HRS (Torque to 17 ft-lb)			8-23-16 4144 HRS
Output Heat Exchanger	Clean / Inspect every 2000 HRS			8-23-16 4144 HRS
Product Intake Heat Exchanger	Clean / Inspect every 6000 HRS			
Booster Compressor Tip Seal Replacement	Replace every 8000 HRS			
Product Blower Motor	Replace every 20000 HRS			
Booster Compressor	Replace every 20000 HRS			
Primary Heat Exchanger Fan Motor	Replace every 20000 HRS			

2016

Equipment	Misc.	Oil	Filter	Lubrication
Compressor #1		1-15-16	1-15-16	
Coolant Filter	Change every 150 hrs.	3197	3197	
Separator Cartridge	Change every 2000 hrs.			
Air Filter	Change every 2000 hrs.	3197	3197	
Ultra Coolant	Change every 8000 hrs.	5 L coolant	3197	
Pre-filter Pad	Change every 2000 hrs.			
Safety Valve	Check every 2000 hrs.		3197	
Cooler Core	Check every 2000 hrs.		3197	
Fluid Analysis	Check every 2000 hrs.			

Compressor #2		1-14-16	1-14-16	
Coolant Filter	Change every 150 hrs.	2530	2530	
Separator Cartridge	Change every 2000 hrs.			
Air Filter	Change every 2000 hrs.	2530	2530	
Ultra Coolant	Change every 8000 hrs.	5 L coolant	2530	
Pre-filter Pad	Change every 2000 hrs.			
Safety Valve	Check every 2000 hrs.		2530	
Cooler Core	Check every 2000 hrs.		2530	
Fluid Analysis	Check every 2000 hrs.			

Blower #1				
Belt				
Air Filter	check air filter monthly			
Motor	grease motor mounts annually			
Blower	Add oil as needed		grease BOTH fittings every 500 hrs.	

Blower #2				
Belt				
Air Filter	check air filter monthly			
Motor	grease motor mounts annually			
Blower	Add oil as needed		grease BOTH fittings every 500 hrs.	

Philadelphia Mixer				
Motor				Mobilith AW2 or SHC 220 or
Mixer		Mobilgear 632 or Mobilgear SHC320		approved Lithium Grease

2016

Equipment		Misc.	Oil	Date Greased	Lubrication
UF Backwash Pump #1	VTP-1260	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
UF Backwash Pump #2	VTP-1261	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
RO Feed Pump #1	VTP-5150	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
RO Feed Pump #2	VTP-5151	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
RO Feed Pump #3	VTP-5154	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
RO By-pass Pump #1	VTP-5152	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
RO By-pass Pump #2	VTP-5153	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
UF Feed Pump #1	VTCP-1281	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
UF Feed Pump #2	VTCP-1282	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
UF Feed Pump #3	VTCP-1283	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
UF Feed Pump #4	VTCP-1284	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
High Service Pump #1	VTCP-689	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
High Service Pump #2	VTCP-615	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
High Service Pump #3	VTCP-610	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
High Service Pump #4	VTCP-694	Grease Annually approx. 10 pumps		3-2-16 JV	Lithium Grease
Sec. UF Feed Pump #1	CFP-4038	Grease Annually		3-2-16 JV	Lithium Grease
Sec. UF Feed Pump #2	CFP-4039	Grease Annually		3-2-16 JV	Lithium Grease
Sec. UF Backwash Pump #1	PMP-4011	Grease Annually		3-2-16 JV	Lithium Grease
Sec. UF Backwash Pump #2	PMP-4012	Grease Annually		3-2-16 JV	Lithium Grease
Sec. Sludge Pump	CFP-426	Grease Annually		3-2-16 JV	Lithium Grease
UF CIP Feed Pump		Grease Annually		3-2-16 JV	Lithium Grease
RO CIP Feed Pump	CIP-7009	Grease Annually		3-2-16 JV	Lithium Grease
RO Heating to RO CIP Pump		Grease Annually		3-2-16 JV	Lithium Grease
Concentrate Pump #1	CFP-635	Grease Annually		3-2-16 JV	Lithium Grease
Concentrate Pump #2	CFP-640	Grease Annually		3-2-16 JV	Lithium Grease
Sludge Pump	CFP-653	Grease Annually		3-2-16 JV	Lithium Grease
Permeate Flush Tank Pump	CFP-7003	Grease Annually		3-2-16 JV	Lithium Grease
Permeate Transfer Pump	CFP-585	Grease Annually		3-2-16 JV	Lithium Grease
Domestic Water	CFP-678	Grease Annually		3-2-16 JV	Lithium Grease
Sod. Hypo. Pump North		Grease every 250 hrs./ Oil after every use	Vanton pump oil or pure silicone		Lithium Grease
Sod. Hypo. Pump South		Grease every 250 hrs./ Oil weekly, a few drops	Vanton pump oil or pure silicone		Lithium Grease
Hydrochloric Acid Pump		Grease every 250 hrs./ Oil after every use	Vanton pump oil or pure silicone		Lithium Grease
Sod. Bisulfite Pump		Grease every 250 hrs./ Oil weekly,a few drops	Vanton pump oil or pure silicone		Lithium Grease
Ozone Skid #1 Pump		Grease Annually		3-2-16 JV	Lithium Grease
Ozone Skid #2 Pump		Grease Annually		3-2-16 JV	Lithium Grease
30% Caustic Transfer Pump	MP-672	Grease Annually		3-2-16 JV	Lithium Grease
50% Caustic Transfer Pump	MP-671	No Grease Zerks		N-A	

Equipment		Misc.	Oil	Date Greased	Lubrication
Dunn Center Pump #1	P-903	Grease Annually		3-2-16 JV	Lithium Grease
Dunn Center Pump #2	P-913	Grease Annually		3-2-16 JV	Lithium Grease
Dunn Center Pump #3	P-923	Grease Annually		3-2-16 JV	Lithium Grease
COMPRESSOR #1		OIL FILTER CHANGED EVERY 150 HRS	3723	7-13-16	
		NEXT	3880	9-2-16	
		~~4030~~	4057	11-1-16	
		~~4207~~	4206	12-20-16	
		4356			
COMPRESSOR #2		OIL FILTER CHANGED EVERY 150 HRS	2880	7-13-16	
		NEXT ~~3030~~	3039	9-30-16	
		~~3189~~	3197	12-20-16	
		3347			
EXERCIZE DUNN CENTER VALVE EVERY 3 MONTHS		NEXT			OCTOBER 11
		~~JANUARY~~			
		APRIL			
		JULY			
		OCTOBER			

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

Equipment	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Compressor Room																										
Drain compressor Air #1		1																								
Drain compressor Air #2		1																								
Drain secondary Air tank		1																								
Clean louvers & Lube	6								19	KR																
Exercise all Valves		1																								
Maintanance air dryer		1																								
Clean or replace Vent filter	6																									
Compressor #1																										
* Coolant Filter			15	JU											13	JU			2	JU			1	JU	20	JU
* Separator Cartridge																					12	JU				
* Air Filter			15	JU																						
* Ultra Coolant			15	JU																						
* Pre-filter Pad			√																							
* Safety Valve			√																							
* Cooler Core			√																							
* Fluid Analysis																										
Dust Compressor fins	3		14	KR																						
	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Compressor #2																										
* Coolant Filter			14	JU											13	JU			30	JU					20	JU
* Separator Cartridge																					5	JU				
* Air Filter			15	JU																						
* Ultra Coolant			14	JU																						
* Pre-filter Pad			√																							
* Safety Valve			√																							
* Cooler Core			√																							
* Fluid Analysis																										
Dust Compressor fins	3		14	KR																						
	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Blower #1																										
Check Belt	1		5	MR	9	JU	1	KR	7	JU	12	KR	21	JU	14	JU	24	JU	1	KU	11	JU	1	JU	20	JU
Air Filter	1		5	MR	9	JU	1	KR	7	JU	12	KR	21	JU	14	JU	24	JU	1	KU	11	JU	1	JU	20	JU
Motor(grease motor mounts)		1																								
Check Blower oil	1		5	MR	9	JU	1	KR	7	JU	12	KR	21	JU	14	JU	24	JU	1	KU	11	JU	1	JU	20	JU

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Blower #2																										
Check Belt	1		5	KR	9	JV	1	KR	7	JV	12	KR	21	JV	14	JV	24	JV	1	KL	11	JV	1	JV	20	JV
Air Filter	1		5	KR	9	JV	1	KR	7	JV	12	KR	21	JV	14	JV	24	JV	1	KL	11	JV	1	JV	20	JV
Motor(grease motor mounts)		1																								
Check Blower oil	1		5	KR	9	JV	1	KR	7	JV	12	KR	21	JV	14	JV	24	JV	1	KL	11	JV	1	JV	20	JV
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Raw water Analyzer Panel																										
Calibrate RW Turbidity Meter	6																		16	JV/KL						
RW Turbidity Verification	1																									
Calibrate UF Turbidity Meter	6																									
UF Turbidity Verification	1																									
Clean/Inspect Turbidity Meters	1		11	KR	9	JV	7	KR	7	JV	7	JV	21	JV	20	JV	2	JV/KV	6	JV/KL	5	KV	8	JV	13	KV
Clean/Inspect RW PH Probe	1		11	KR	9	JV	7	KR	7	JV	7	JV	14	JV	20	JV/KV	2	JV/KV	6	JV/KL	5	KV	9	KL	13	KV
Calibrate RW PH Probe	1		49.7	KR	63.0	JV	58.8	KR	58.6	JV	58.6	JV	58.2	JV	56.3	JV/KL	58.1	JV/KV	55.8	JV/KL	55.4	KV	47.0	KL	51.7	KV
Replace salt Bridge		1																								
	M	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Finished Water Analyzer																										
Clean/Inspect the Sensor	1		11	KR	9	JV	7	KR	7	JV	6	JV	14	JV	20	JV/KV	2	JV/KV	6	JV/KL	5	KV	9	KL	2	JV
Calibrate PH Probe	1		53.7	KR	56.4	JV	53.6	KR	56.4	JV	56.4	JV	54.5	JV	53.9	JV/KV	54.9	JV/KV	54.6	JV/KL	54.3	KV	53.2	KL	54.9	JV/JA
Replace salt Bridge		1													20	JV	2	JV/KV	6	JV/KL	5	KV	9	JV	20	JV
Clean/Inspect Turbidity Meter	1																									
Calibrate Turbidity Meter	6																									
Turbidity Meter Verfication	1																									
Inspect APA 6000	1		11	KR	9	JV	1	JA	7	JV	6	JV	14	JV	20	JV	2	JV/KV	6	JV	5	KV	2	JV	20	JV
APA 6000 Maintenance	3		26	JA			1	JA			24	JV					10	JV					2	KR/A	20	JV
	M	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Contact Basin Panel																										
Clean/Inspect the Sensor	1		11	JV	9	JV	7	KR	7	JV	6	JV	14	JV	20	JV/KV	2	JV/KV	6	JV/KL	5	KV	9	KL	2	JV/JA
Calibrate CB PH Probe	1		59.0	JV	54.4	JV	57.4	KR	55.0	JV	56.9	JV	55.6	JV	56.3	JV/KV	55.4	JV/KV	54.1	JV/KL	54.8	KV	50.5	KL	54.1	JV/JA
Replace CB Salt Bridge		1																								
Clean/Inspect the Sensor	1		11	JV	9	JV	7	KR	7	JV	6	JV	14	JV	20	JV/KV	2	JV/KV	6	JV/KL	5	KV	9	KL	2	JV/JA
Calibrate Clearwell PH probe	1		55.5	JV	54.9	JV	50.4	KR	54.3	JV	56.6	JV	48.8	JV	54.1	JV/KV	54.4	JV/KV	53.9	JV/KL	52.0	KV	45.7	KL	54.5	JV/JA
Replace Clearwell salt Bridge		1																								

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Inspect Chlorine Enjector	1		4	KR	8	KR	24	JV	11	KR	12	KR	16	JV	20	JV	16	JV	6	JV	5	KV	9	JV	20	JV
	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Concentrate Area																										
Clean/Inspect the Sensor	1																									
Calibrate PH Probe	1																									
Replace PH Salt Bridge		1																								
Clean/Inspect the Probe	1																									
Calibrate Conductivity Probe	1																									
Grease Concentrate Pump 1		1					2	JV																		
Grease Concentrate Pump 2		1					2	JV																		
	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Neutralization Area																										
Clean/Inspect the Sensor	1						2	JA																		
Calibrate PH Probe	1						516.8	JA																		
Replace PH Salt Bridge		1					KA	JA																		
Check/Inspect valves	1		2	KR	5	KR	2	JA			19	JV	16	JV	20	JV	16	JV	6	JV	11	JV	9	JV	20	JV
Check for Leaks	1		8	KR	5	KR	2	JA			19	JV	16	JV	20	JV	16	JV	6	JV	11	JV	9	JV	20	JV
	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Backup Generator																										
Run 30 Min.	1		4	JV	10	JV			28	JV	19	JV	8	JA	16	JA	26	JV	1	JV	27	JV			20	JV
Inspect/Check for leaks	1		4	JV	10	JV			28	JV	19	JV	14	JV	20	JV	26	JV	1	JV	28	JV			20	JV
Check Fuel Levels	1		66%	JV	66%	JV			62%	JV	61%	JV	51%	JV	45%	JV	33%	JV	32%	JV	28%	JV			25%	JV
Hours meter.	1		45:30	JV	46:15	JV			47:09	JV	47:57	JV	50.51	JV	55:27	JV	60.50	JV	61.21	JV	61.57	JV			62.48	JV
Batt. Volts	1		27.4	JV	27.4	JV			27.0	JV	26.5	JV	25.9	JV	25.6	JV	26.2	JV	266	JV	26.3	JV			27.5	JV
Maintenance Contract	6								13	FP											27	FP				
	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Handheld Gas Detector/Cl2																										
Bump test Gas Detector	1								11	JV					15	JA										
Calibrate gas Detector		1													15	JA										
Bump test Cl2 Detector	1								7	JV																
Calibrate CL2 Detector		1	12	JA																						

GENERATOR 3HRS = 10% FUEL

30 HRS = 100% FUEL

170 GAL FULL

JULY IS NEW 4 GAS DETECTOR

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

Basin Maintance	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
North BW Basin	3														19	ALL							7	ALL		
South BW Basin	3																						3	ALL		
Concentrate Basin	6														13	ALL										
Sludge Basin	3														20	ALL										
Secondary Sludge Tank	3						3	ALL							27	JV/KR					14	JV				
Buffer Basin		5																								
Contact Basin		5	27	All																						
Clearwell Basin		5																								
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF Skid #1																										
Calibrate Turbidity Meter	6																									
Turbidity meter Verification	1																									
Clean Skid	6		7	KR																						
Check Condition of valves	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	10	KR	17	JV	20	JV
Visual on DIT	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	10	KR	17	JV	20	JV
*Clean in Place							9	ALL																		
Exercise Valves		1					9	JV																		
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF Skid #2																										
Calibrate Turbidity Meter	6																									
Turbidity meter Verification	1																									
Clean Skid	6		13	KR																						
Check Condition of Valves	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	20	JV	17	JV	20	JV
Visual on DIT	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	20	JV	17	JV	20	JV
*Clean in Place							9	ALL																		
Exercise Valves		1					9	JV																		
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF Skid #3																										
Calibrate Turbidity Meter	6																									
Turbidity meter Verification	1																									
Clean Skid	6		21	KR																						
Check Condition of Valves	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	5	JV	17	JV	20	JV
Visual on DIT	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	5	JV	17	JV	20	JV
*Clean in Place							15	ALL																		
Exercise Valves		1					15																			
							1																			

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

Equipment	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
UF Skid #4																										
Calibrate Turbidity Meter	6																									
Turbidity meter Verification	1																									
Clean Skid	6		7	JU																						
Check Condition of Valves	1		4	KR	8	KR	1	KR	7	JU	11	KR	14	JU	15	JU	17	JU	15	JU	20	JU	17	JU	20	JU
*Clean in Place					24	All																				
Visual on DIT	1		4	KR	8	KR	1	KR	7	JU	11	KR	14	JU	15	JU	17	JU	15	JU	20	JU	17	JU	20	JU
Grease Sec. Uf feed pump #1		1					2	JU																		
Grease Sec. Uf feed pump #2		1					2	JU																		
Grease Sec. UF BW pump #1		1					2	JU																		
Grease Sec. UF BW pump #2		1					2	JU																		
Grease Trans.Sludge pump		1					2	JU																		
Exercise Valves		1			24	All																				
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF Skid # 5																										
Calibrate Turbidity Meter	6																									
Turbidity meter Verification	1																									
Clean Skid	6						21	KR																		
Check Condition of Valves	1		4	KR	5	KR	1	KR	7	JU	11	KR	14	JU	15	JU	17	JU	15	JU	5	JU	12	JU	20	JU
Visual on DIT	1		4	KR	5	KR	1	KR	7	JU	11	KR	14	JU	15	JU	17	JU	15	JU	5	JU	17	JU	20	JU
*Clean in Place							15	All																		
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF Skid # 6																										
Calibrate Turbidity Meter	6																									
Turbidity meter Verification	1																									
Clean Skid	6								20	KR																
Check Condition of Valves	1		4	KR	5	KR	1	KR	7	JU	11	KR	14	JU	15	JU	17	JU	15	JU	5	JU	17	JU	20	JU
Visual on DIT	1		4	KR	5	KR	1	KR	7	JU	11	KR	14	JU	15	JU	17	JU	15	JU	5	JU	17	JU	20	JU
*Clean in Place							22	All																		
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF Skid # 7																										
Calibrate Turbidity Meter	6																									
Turbidity meter Verification	1																									
Clean Skid	6								9	KR																

10-4 CHANGED MECHANICAL SEAL, SLEEVE AN O-Ring on #7 FEEDPUM

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

Check Condition of Valves	1		4	KR	8	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	27	JV	17	JV	20	JV
Future	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Visual on DIT	1		4	KR	8	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	27	JV	17	JV	20	JV
*Clean in Place					24	All																				
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
RO #1																										
*Coductivity Probing																										
Calibrate Conductivity Probe	1																									
*Clean in Place																										
Inspect Gauges	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Check Back Pressures	1								7	JV	17	JV	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Check Condition of Valves	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
RO #2																										
*Conductivity Probing																										
Calibrate Conductivity Probe	1																									
*Clean in Place									20	All																
Inspect Gauges	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Check Back Pressures	1								7	JV	17	JV	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Check Condition of Valves	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Future RO #3																										
*Conductivity Probing																										
Calibrate Conductivity Probe	1																									
*Clean in Place																										
Inspect Gauges	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Check Back Pressures	1								7	JV	17	JV	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Check Condition of Valves	1		4	KR	5	KR	1	KR	7	JV	11	KR	14	JV	15	JV	17	JV	15	JV	18	JV	18	JV	20	JV
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Philadelphia Mixer																										
Check oil	1		5	KR	1	JV	1	KR	7	KR	18	JV	14	JV	15	JV	17	JV	15	JV	13	JV	17	JV	20	JV
Check Heat and Vibration	1		5	KR	1	JV	1	KR	7	KR	18	JV	14	JV	15	JV	17	JV	15	JV	13	JV	17	JV	20	JV
Check run lights	1		5	KR	1	JV	1	KR	7	KR	18	JV	14	JV	15	JV	17	JV	15	JV	13	JV	17	JV	20	JV

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

Equipment	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Concentrate Vault																										
Pull Strainer and clean	1						3	HW																		
Check for leaks	1		11	JU	17	JU	3	HW	21	HW	24	JU	16	JU	2	JU	1	JU/KR	15	JU/KR	19	JU/KR	17	JU/KR	2	JU
Inspect Equipment	1		11	JU	17	JU	3	JU	21	HW	24	JU	16	JU	2	JU	1	JU/KR	15	JU/KR	19	JU/KR	17	JU/KR	2	JU
Ensure sump is working	1		11	KR	17	KR	3	JU	21	KR	24	JU	16	JU	2	JU	1	JU/KR	15	JU/KR	19	JU/KR	17	JU/KR	2	JU
Clean Vault	3		11	KR	17	KR	3	JU	21	KR	24	JU	16	JU	2	JU	1	JU/KR	15	JU/KR	19	JU/KR	17	JU/KR	2	JU
*Grounds Maintenance																										
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Filters																										
UF Backwash Bag Filters	6													ALL	7											
RO #1 Cartridge Filters	3								6	ALL																
RO #2 Cartridge Filters	3								6	ALL																
RO CIP Cartridge Filters	6								6	ALL																
Air Handler Filters(Contract)	6																									
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Pump Gallery																										
Exercise BW valve #1		1																	16	JU						
Exercise BW valve #2		1																	16	JU						
Exercise Feed valve #1		1																	16	JU						
Exercise Feed valve #2		1																	16	JU						
Exercise Feed bypass Valve		1																	16	JU						
Exercise Bypass valve #1		1																	16	JU						
Exercise Bypass valve #2		1																	16	JU						
Clean Harmonic filters	6																									
Clean or replace all VFD Filters	3																									
Clean all pump vent Screens	6																									
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Chemical Room																										
Change out Bisulfite lines		2																								
Change out vitec 3000 lines		2																								
maintenance Bisulfite pump 1		1																								
maintenance Bisulfite pump 2		1																								
maintenance Vitec pump 1		1																								
maintenance Vitec pump 2		1																								

8-11 CHANGED PRE-FILTER ON ROAT.

(*) Symbols By Hours ETC.

OMND Maintenance

Year_____

clean & lube exhaust louvers	6								6	KR															
clean exhaust fan	6								6	VS															
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Caustic Soda Room																									
Exercise all valves		1							6	SD HW															
Change out Caustic lines		2																							
clean & lube exhaust louvers	6								6	KR															
Calibrate watson marlo pump	3																								
replace watson pump tube	~~6~~	1							6	SD HW															
Flush eye wash station	1		2	KR	1	SD	1	KR	11	KR	12	KR	14	JV	14	JV	17	KV	14	KV	11	HW	15	KV	14	KV
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Ammonium Sulfate Room																									
Exercise all valves		1							6	HW SD															
Change out Sulfate lines		2							14	SA KR															
clean exhaust fan & lube	6								6	KR															
Calibrate watson marlo pump	3																								
replace watson pump tube	~~6~~	1							6	SD HW															
Clean Tank		1																							
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Flouride Room																									
Exercise all valves		1							6	SD HW															
Change out Flouride lines		2																	16	SV SA					
clean exhaust fan & lube	6								6	KR															
Calibrate watson marlo pump	3																								
replace watson pump tube	~~6~~	1							6	HW SD															
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Finished water Room																									
Clean vent filter	6																								
Grease FW pump #1		1					2	JV																	
Grease FW pump #2		1					2	JV																	
Grease FW pump #3		1					2	JV																	
Exercise all valves		1																	20	JV					
Clean all pump vent Screens	6																								
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
CIP Area																									
Exercise all valves		1			24	All																			
*Clean UFCIP Strainer (after Use)							9	JV																	

(*) Symbols By Hours ETC.

OMND Maintenance

Year_____

*Clean UFCIP Tanks (after use)					24	All																				
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Grease UFCIP Motors		1					2	JU																		
Replace UFCIP Chem Lines		2																								
Grease RO CIP Motors		1					2	JU																		
Grease Permeate flush motor		1					2	JU																		
Exercise permeate flush Valves		1																								
Replace ROCIP Chem lines		2																								
Exercise Neutro valves		1																								
*Clean RO Heating Tanks																										
Flush eye wash station	1		2	KR	1	JU	1	KR	11	KR	12	KR	14	JU	20	JU	17	KR	14	KR	11	KR	15	KR	14	KR
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF RW Feed																										
Clean UF feed Pump Screens	6																									
Exercise RW Valves		1																	20	JU						
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
UF Pre-Filters																										
Cover seal		1												All	7											
Course Screen		1												All	7											
Fine Screen		1												All	7											
Lube O-rings		1												All	7											
Piston		1												All	7											
Electric motor packing		1												All	7											
Dirt Collector		1												All	7											
Upper Bearing		1												All	7											
Lower Bearing		1												All	7											
Air/water connections		1												All	7											
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Valve Exercise Tank Field																										
3 Supply valves 18 inch		1									12	AL														
3 Outlet valves from tank		1									12	AL														
3 Dunn Center Valves 12 inch		1											8	DIST												
1 RW Valve coming to plant		1																								

(*) Symbols By Hours ETC.

OMND Maintenance

Year 2016

Equipment	M	A	JAN	BY	FEB	BY	MAR	BY	APR	BY	MAY	BY	JUN	BY	JUL	BY	AUG	BY	SEP	BY	OCT	BY	NOV	BY	DEC	BY
Ozone Generators																										
Inspect Equipment	1																		2	JV	16	JV	18	JV	20	JV
Check for leaks	1																		2	JV	16	JV	18	JV	20	JV
Clean fan screens	6																									
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Ozone Destruct																										
Inspect Equipment	1																		2	JV	16	JV	18	JV	20	JV
Clean Fan Filters on Cabinet		1																								
Change Catalyst		5																								
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Ozone VSA'S																										
Inspect Equipment	1																		2	JV	16	JV	18	JV	20	JV
Clean Louvers	6																									
Check Oil Level	1																		2	JV	16	JV	18	JV	20	JV
CALIBRATE	1																									
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Ozone Generator Cooling Water System																										
Inspect Equipment	1																		2	JV	16	JV	18	JV	20	JV
Check for Leaks on Piping	1																		2	JV	16	JV	16	JV	20	JV
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Ozone Contacting Skid #1																										
Inspect Equipment	1																		2	JV	16	JV	18	JV	20	JV
Check for Leaks	1																		2	JV	16	JV	16	JV	20	JV
Grease Injector Pump		1																								
Equipment	**M**	**A**	**JAN**	**BY**	**FEB**	**BY**	**MAR**	**BY**	**APR**	**BY**	**MAY**	**BY**	**JUN**	**BY**	**JUL**	**BY**	**AUG**	**BY**	**SEP**	**BY**	**OCT**	**BY**	**NOV**	**BY**	**DEC**	**BY**
Ozone Contacting Skid #2																										
Inspect Equipment	1																		2	JV	16	JV	16	JV	20	JV
Check for Leaks	1																		2	JV	16	JV	16	JV	20	JV
Grease Injector Pump		1																								

NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

MEMORANDUM

TO: Southwest Water Authority (ND4501434)

FROM: Division of Municipal Facilities
Drinking Water Program

DATE: March 6, 2017

RE: Safe Drinking Water Act Certificate of Achievement

Public water systems, such as yours, are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

The SDWA was passed by Congress in 1974 to protect public health by regulating the nation's public drinking (potable) water supplies. Over the years, there have been a number of changes to the Safe Drinking Water Act. These changes have made it more challenging to maintain compliance. The North Dakota Department of Health issues a Safe Drinking Water Act Certificate of Achievement as one way to recognize the public water systems that satisfied all applicable requirements during the previous calendar year.

In 2016, Southwest Water Authority satisfied all applicable Safe Drinking Water Act requirements. Southwest Water Authority is commended for this accomplishment from which their consumers benefitted.

To recognize Southwest Water Authority, the Department has issued the enclosed Safe Drinking Water Act Certificate of Achievement. Please provide a copy of the certificate to each of your water system staff. Information is also enclosed for your consideration should you wish to pursue a local news story.

Congratulations on a job well done.

For more information, please contact Greg Wavra, Drinking Water Program Manager at 701.328.5224.

Encs.

NORTH DAKOTA
DEPARTMENT *of* HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

SOUTHWEST WATER AUTHORITY RECOGNIZED FOR SAFE DRINKING WATER ACT COMPLIANCE

Public water systems are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

The SDWA was passed by Congress in 1974 to protect public health by regulating the nation's public drinking (potable) water supplies. Over the years, there have been a number of changes to the Safe Drinking Water Act. These changes have made it more challenging to maintain compliance. The North Dakota Department of Health issues a Safe Drinking Water Act Certificate of Achievement as one way to recognize the public water systems that satisfied all applicable requirements during the previous calendar year.

In 2016, Southwest Water Authority complied with all applicable Safe Drinking Water Act requirements. To recognize this accomplishment, the North Dakota Department of Health issued Southwest Water Authority a Safe Drinking Water Act Certificate of Achievement.

Southwest Water Authority commends its water system staff for a job well done from which its consumers benefitted.

(Option: The water system may wish to list staff members by name.)

THE NORTH DAKOTA DEPARTMENT OF HEALTH

presents

Southwest Water Authority

this

CERTIFICATE OF ACHIEVEMENT

for satisfying applicable requirements of the

SAFE DRINKING WATER ACT

for the year 2016.

D. Wayne Kern

Division of Municipal Facilities

March 6, 2017

Date of Issuance

© GOES 746

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NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

MEMORANDUM

TO: Omnd Water Treatment Plant (ND2901491)

FROM: Division of Municipal Facilities
Drinking Water Program

DATE: March 6, 2017

RE: Safe Drinking Water Act Certificate of Achievement

Public water systems, such as yours, are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

The SDWA was passed by Congress in 1974 to protect public health by regulating the nation's public drinking (potable) water supplies. Over the years, there have been a number of changes to the Safe Drinking Water Act. These changes have made it more challenging to maintain compliance. The North Dakota Department of Health issues a Safe Drinking Water Act Certificate of Achievement as one way to recognize the public water systems that satisfied all applicable requirements during the previous calendar year.

In 2016, Omnd Water Treatment Plant satisfied all applicable Safe Drinking Water Act requirements. Omnd Water Treatment Plant is commended for this accomplishment from which their consumers benefitted.

To recognize Omnd Water Treatment Plant, the Department has issued the enclosed Safe Drinking Water Act Certificate of Achievement. Please provide a copy of the certificate to each of your water system staff. Information is also enclosed for your consideration should you wish to pursue a local news story.

Congratulations on a job well done.

For more information, please contact Greg Wavra, Drinking Water Program Manager at 701.328.5224.

Encs.

NORTH DAKOTA
DEPARTMENT *of* HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

OMND WATER TREATMENT PLANT RECOGNIZED FOR SAFE DRINKING WATER ACT COMPLIANCE

Public water systems are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

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Omnd Water Treatment Plant commends its water system staff for a job well done from which its consumers benefitted.

(Option: The water system may wish to list staff members by name.)

THE NORTH DAKOTA DEPARTMENT OF HEALTH

presents

OMND Water Treatment Plant

this

CERTIFICATE OF ACHIEVEMENT

for satisfying applicable requirements of the

SAFE DRINKING WATER ACT

for the year 2016.

D. Wayne Kern

Division of Municipal Facilities

March 6, 2017

Date of Issuance

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www.ndhealth.gov

MEMORANDUM

TO: Southwest WA-Crown Butte(Missouri West) (ND3001488)

FROM: Division of Municipal Facilities
Drinking Water Program

DATE: March 6, 2017

RE: Safe Drinking Water Act Certificate of Achievement

Public water systems, such as yours, are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

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In 2016, Southwest WA-Crown Butte(Missouri West) satisfied all applicable Safe Drinking Water Act requirements. Southwest WA-Crown Butte(Missouri West) is commended for this accomplishment from which their consumers benefitted.

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Encs.

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SOUTHWEST WA-CROWN BUTTE(MISSOURI WEST) RECOGNIZED FOR SAFE DRINKING WATER ACT COMPLIANCE

Public water systems are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

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(Option: The water system may wish to list staff members by name.)

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D. Wayne Kern

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www.ndhealth.gov

MEMORANDUM

TO: Southwest WA-Tower Hill (Missouri West) (ND3001489)

FROM: Division of Municipal Facilities
Drinking Water Program

DATE: March 6, 2017

RE: Safe Drinking Water Act Certificate of Achievement

Public water systems, such as yours, are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

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In 2016, Southwest WA-Tower Hill (Missouri West) satisfied all applicable Safe Drinking Water Act requirements. Southwest WA-Tower Hill (Missouri West) is commended for this accomplishment from which their consumers benefitted.

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Encs.

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SOUTHWEST WA-TOWER HILL (MISSOURI WEST) RECOGNIZED FOR SAFE DRINKING WATER ACT COMPLIANCE

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(Option: The water system may wish to list staff members by name.)

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D. Wayne Kern

Division of Municipal Facilities

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www.ndhealth.gov

MEMORANDUM

TO: Southwest WA-Junction Inn(Missouri West) (ND3001490)

FROM: Division of Municipal Facilities
Drinking Water Program

DATE: March 6, 2017

RE: Safe Drinking Water Act Certificate of Achievement

Public water systems, such as yours, are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

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Encs.

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SOUTHWEST WA-JUNCTION INN(MISSOURI WEST) RECOGNIZED FOR SAFE DRINKING WATER ACT COMPLIANCE

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(Option: The water system may wish to list staff members by name.)

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D. Wayne Kern

Division of Municipal Facilities

March 6, 2017

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July 25, 2016

SOUTHWEST WA - ZAP TREATMENT PLANT
c/o MASSAD, MARY
4665 2 ST SW
DICKINSON, ND 58601

Public Water Supply I.D. No: ND2901491

Dear Ladies and Gentlemen:

On July 21, 2016, a representative of the Department of Health conducted a routine inspection/sanitary survey of the following as required by the Safe Drinking Water Act and/or the Clean Water Act:

Critical Inspection Areas

__X__ Drinking water source (well[s], spring[s], surface water, consecutive user)

__X__ Source water protection

__X__ Water treatment plant

_____ Chemical addition equipment for treatment of well water

__X__ Water distribution system

__X__ Finished water storage facilities

__X__ Potable water pumps, pump facilities, and controls

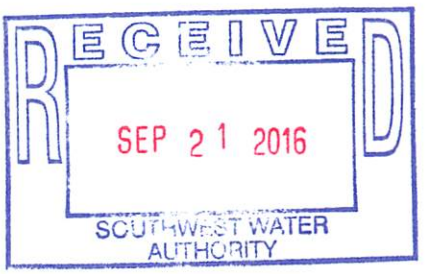
__X__ System managment and operation

__X__ Operator compliance with certification

__X__ Required monitoring and reporting, and data verification for drinking water

_____ Wastewater collection system

_____ Wastewater treatment facility



July 25, 2016

If any defects are noted in the enclosed inspection report, corrective action is required within the time line designated. You must notify this department in writing within forty-five (45) days of the date of this letter regarding the status of the corrected defects, or present a formalized plan to correct the defects.

Violations of the Safe Drinking Water and/or Clean Water Act, which have occurred within the last twelve (12) months, are discussed in the general remarks section of the inspection report, along with appropriate action to be taken by the system. In addition, any deficiencies reported in the critical inspection areas are also discussed with appropriate corrective action.

It is the intent of the department representative to complete a comprehensive inspection. However, factors such as time constraints, lack of appropriate testing, and accessibility may limit the detection of all defects in the system(s).

Please contact Shawn Heinle, the department representative who conducted the inspection at 701.328.6627 or me at 701.328.6622, if you have any questions regarding the inspection or the enclosed report.

Sincerely,

Mike Brisben

Mike Brisben
Administrator of Inspection Program
Division of Municipal Facilities

MB/:SH
Enc.

Custer District Health Unit

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF MUNICIPAL FACILITIES
BISMARCK, NORTH DAKOTA

DATE OF REPORT:	July 25, 2016
DATE OF SURVEY:	July 21, 2016
PLACE:	SOUTHWEST WA - ZAP TREATMENT PLANT
OBJECTIVE:	Drinking Water Survey
ACCOMPANIED BY:	Grace Rixen-Handford

DEFECTS, CORRECTIVE ACTIONS, TIME LINES, AND REFERENCES:

Drinking Water

DEFECT: No defects noted at this time.

CORRECTIVE ACTION:

TIME LINE:

REFERENCE:

COMMENT:

I appreciate the time and cooperation shown to me by Grace Rixen-Handford, during the recent inspection. If you have any questions or concerns, please contact me at 701.328.6627.

Respectfully Submitted,

Shawn Heinle
Environmental Scientist
Division of Municipal Facilities

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF MUNICIPAL FACILITIES
Survey of Public Drinking Water System

Facility Name: SOUTHWEST WA - ZAP TREATMENT PLANT
Address: 4665 2 ST SW
DICKINSON, ND 58601

County: Mercer
PWS#: ND2901491

GENERAL - FACILITY INFORMATION

Water treatment system classification	3
Inspection by	Shawn Heinle
Public Water System (PWS) Name	OMND Water Treatment Plant
PWS Owner or governing body	Cooperative
System Type	Community
Distribution system classification	2
Title	Environmental Scientist
Accompanied by	Grace Rixen-Handford
Title	Operator
Inspection Date	7/21/2016
Previous Inspection Date	10/30/2014

GENERAL - OPERATOR INFORMATION

Operator in direct responsible charge	Grace Rixen-Handford
Title	Operator
Water treatment certification grade	4
Water distribution system certification grade	1
Home address	
Home phone #	
Cell phone #	
E-mail address, if applicable	
Pager phone #	
Other certified operators and system personnel	See fact sheet.

GENERAL - SUMMARY

Source	N - No Deficiencies/Recommendations
Treatment	N - No Deficiencies/Recommendations
Distribution System	N - No Deficiencies/Recommendations
Finished Water Storage	N - No Deficiencies/Recommendations
Pumps (fac, cntls, etc.)	N - No Deficiencies/Recommendations
M&R & Date Verification	N - No Deficiencies/Recommendations
Management & Operations	N - No Deficiencies/Recommendations
Operator Compliance	N - No Deficiencies/Recommendations

Other	

GENERAL - SYSTEM INFORMATION

Physical Address	101 County Road 13
City / State / Zip	Zap, ND 58580
System Phone #	701-948-2272
System Fax #	
E-mail Address	
Operator Contact	Grace Rixen-Handford
Phone	701-290-0277
Administrative Contact	Mary Massad
Phone	701-225-0241
Population Served	2778
Annual water use (in gallons)	40,482,500 (2015 Report)
System interconnections	See Fact Sheet
Reason	Sell
System interconnections	.
Reason	.

MANAGEMENT - FINANCIAL INFORMATION

Number of residential connections	
Commercial connections	
Does the system maintain a separate set of accounts for the water utility?	Yes
Does the system produce and utilize an annual budget?	Yes
Are annual revenues greater than costs?	Yes
Water rates (attach rate schedule)	Rural 39.88 per month plus 4.39 per thousand gallons, Demand Contract 5.08 per thousand gallons, Contract 3.94 per thousand gallons.
Does the system conduct a financial audit of the water utility at least every five years?	Yes
Does the system fund and maintain a reserve account to be used strictly for emergency replacement of water system components or other unanticipated expenses related to the water system?	Yes
Are all service connections metered?	Yes
If no, percent metered connections	
Total # of connections	1000+, number grows with expansion.
Other connections	
Is the system in compliance with Government Accounting Standards Board (GASB) Statement 34?	Not applicable
Does the system have written accounting and audit procedures in place?	Yes
Does the system have bond insurance for employees who handle system funds?	Yes
Does the system have written billing procedures and a collection policy in place?	Yes

Does the system have written purchasing and inventory control in place?	Yes
Comments	

MANAGEMENT - GENERAL

Does the system have an organizational chart that shows the lines of authority?	Yes
Does the system have written job descriptions and selection criteria?	Yes
Does the system have a procedure in place for handling customer complaints?	Yes
Does the system have a public relations program (newsletters, news releases, bill fliers, open house, etc..)?	Yes

MANAGEMENT - OPERATIONS

Does operating staff have authority to make required decisions involving operations?	Yes
Does the system have operation and maintenance manuals?	Yes
Is an emergency plan of action available?	Yes
Is the plan reviewed and updated annually?	Yes
"equipment breakdown" found in Emergency Plan	Yes
"loss of power" found in Emergency Plan	Yes
"pipe/storage tank breaks" found in Emergency Plan	Yes
"security" found in Emergency Plan	Yes
"chemical or toxic spills" found in Emergency Plan	Yes
"natural disasters" found in Emergency Plan	Yes
"alternative sources of finished water" found in Emergency Plan	Yes
"recovery plan" found in Emergency Plan	Yes
"list of personnel and responsibilities" found in Emergency Plan	Yes
"communication procedures" found in Emergency Plan	Yes
"list of emergency equipment and facilities" found in Emergency Plan	Yes
"other items" found in Emergency Plan	

STORAGE - GROUND AND ELEVATED STORAGE 1

Interior paint type	Epoxy
Facility name	Orginal tank
Type	Ground
Construction material	Steel
Tank height (ft)	35
Overflow terminate 12 to 24 inches above ground?	Yes
Overflow screened or weighted flap	Yes
Corrosion control	Yes

Tank capacity in gallons	1.5 million
Date of last inspection	2012
Date interior painted	2012
NSF 61 certified (33-17-01-19.4.)	Yes
Date of last cleaning	2012
Apparent structural problems	No
Condition of tank exterior	Satisfactory
Roof leaks	No
Access hatch locked	Yes
Roof vent condition	Satisfactory
Tank drain	Yes
Access openings	Yes
Access ladders (protected against climbing?)	Yes
Valving operable?	Yes
Bypass present / operable?	Yes
Level control type	SCADA
Alarm system operable?	Yes
Security fence	Yes
Locked access	Yes
Comments	

STORAGE - GROUND AND ELEVATED STORAGE 2

Facility name	Plant clearwell
Type	Clearwell
Construction material	Concrete
Tank height (ft)	Not checked.
Overflow terminate 12 to 24 inches above ground?	Not applicable
Overflow screened or weighted flap	Not applicable
Corrosion control	Not applicable
Tank capacity in gallons	92, 807 (CT factor)
Date of last inspection	2012
Date interior painted	Not applicable
NSF 61 certified (33-17-01-19.4.)	Yes
Date of last cleaning	New in 2012
Apparent structural problems	No
Condition of tank exterior	Satisfactory
Roof leaks	No
Access hatch locked	Not applicable
Roof vent condition	Satisfactory
Tank drain	No
Access openings	Yes
Access ladders (protected against climbing?)	Yes
Valving operable?	Yes
Bypass present / operable?	No

Level control type	SCADA
Alarm system operable?	Yes
Security fence	Not applicable
Locked access	Yes
Comments	

STORAGE - GROUND AND ELEVATED STORAGE 3

Facility name	New Tank
Type	Ground
Construction material	Steel
Tank height (ft)	35
Overflow terminate 12 to 24 inches above ground?	Yes
Overflow screened or weighted flap	Yes
Corrosion control	Yes
Tank capacity in gallons	1.5 million
Date of last inspection	2014
Date interior painted	2014
NSF 61 certified (33-17-01-19.4.)	Yes
Date of last cleaning	2014
Apparent structural problems	No
Condition of tank exterior	Satisfactory
Roof leaks	No
Access hatch locked	Yes
Roof vent condition	Satisfactory
Tank drain	Yes
Access openings	Yes
Access ladders (protected against climbing?)	Yes
Valving operable?	Yes
Bypass present / operable?	Yes
Level control type	SCADA
Alarm system operable?	Yes
Security fence	Yes
Locked access	Yes
Comments	

DISTRIBUTION - DISTRIBUTION 1

Maximum distribution disinfectant residual (mg/L)	3.0
Location	TCR sample site
Minimum distribution disinfectant residual (mg/L)	2.0
Location	TCR sample site
Disinfectant residual check: Point of entry (mg/L)	3.2
Date of last update	2015

Does the system have a flushing program?	Yes
Frequency	As needed
Frequency	As needed
Are there maps of the distribution system(s)	Yes
How often are the maps updated	As needed
Does the system retain records or documentation on the following	
Operation and maintenance distribution system repairs	Yes
Leak detection / Water loss	Yes
Water loss last year (%)	< 3%
Does the system utilize directional flushing?	Yes
Does the system utilize pigging?	No
Frequency	As needed
Are valves inspected and exercised?	Yes
Are fire hydrants inspected and operated routinely?	Not applicable
Are sampling hydrants available?	No
Number	
Does the system have lead service lines in use?	No
If yes, does the system have a removal or replacement program	
Where does the systems responsibility for the distribution system end?	Curb stop
Frequency of checking distribution disinfectant residual?	Monthly
Is a DPD test being used?	Yes
Is the test kit able to read above 4 mg/L (manufacturer & model number)?	Yes
Reagent Supply	Yes
Historical maximum distribution pressure (psi)	130
Minimum pressure (psi)	45
Are pressure readings routinely done in the distribution system?	Yes
Frequency	As needed
Distribution pressure during inspection (psi)	Varied depending on location.
Is there a routine inspection program?	Yes
Is there a routine cleaning program?	Yes
How is water supply maintained with storage facilities out of service?	Other storage facilities
Does the water dispensing unit (bulk water sales) have a proper backflow prevention device?	Yes
Comments	

DISTRIBUTION - TRANSMISSION

Does the transmission line deliver untreated water to customers?	No
If yes, explain	
Length of raw water transmission line	8 miles

Size of raw water transmission line	10 "
Number of raw water transmission lines	2
Do the air relief valves terminate above ground level?	Yes
Are air relief valves screened?	Yes
Are blow off valves capped?	Not checked
Is there a valve exercise program for the transmission lines?	Yes
Frequency	As needed.
Is there an adequate spare part inventory available for the repair of transmission lines?	Yes
Are replacement materials NSF Standard 61 approved?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED

Chemical added	Ammonium Sulfate
MSDS	Yes
Dosage	Depends on water chemistry
Purpose	Disinfection
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes
Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	No
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED 2

Chemical added	Fluoride
MSDS	Yes
Dosage	Depends on water chemistry.
Purpose	Dental Health
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes

NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes
Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED 3

Chemical added	Vitec 3000
MSDS	Yes
Dosage	Depends on water chemistry.
Purpose	Anti-scalant
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes
Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED 4

Chemical added	Sodium Bisulfate
MSDS	Yes
Dosage	Depends on water chemistry.
Purpose	Dechloronation
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes

Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes
Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED 5

Chemical added	Sodium Hypochlorite
MSDS	Yes
Dosage	Depends on water chemsitry.
Purpose	UF membrane back-wash.
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes
Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED 6

Chemical added	Citric Acid
MSDS	Yes
Dosage	Depends on water chemistry.
Purpose	UF membrane cleaning
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes

Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED 7

Chemical added	High and Low pH products.
MSDS	Yes
Dosage	Depends on water chemistry.
Purpose	RO cleaning.
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes
Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED 8

Chemical added	Ozone
MSDS	Yes
Dosage	Depends on water chemistry.
Purpose	Disinfection.
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes
Is the appropriate chemical safety equipment available to all personnel?	Yes

Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - DISINFECTION-CHLORINE

Application point	Pre-filter and Post-filter
Disinfection type	Chlorine gas using 1 ton cylinders
Purpose	Disinfection
Comments	
Separate chlorine room?	Yes
Room free of chemicals?	Yes
All openings sealed?	Yes
Chlorine room locked?	Yes
Door opens to outside?	Yes
Exterior electrical switch?	Yes
Chlorinator vent screened?	Yes
Adequate ventilation?	Yes
Platform scale?	Yes
Wrench on cylinder valve?	No
Cylinders chained to wall?	Not applicable
Caps on extra cylinders?	Not applicable
Ammonia bottle available?	Yes
Proper vacuum feed system?	Yes
Gas leak alarm system?	Yes
Is respiratory protection available?	Yes
Is there an adequate spare parts inventory?	Yes
Comments	Windows to room also have fire doors
Are all applicable cross-connection devices installed?	Yes
Comments	

TREATMENTS - MEMBRANES

Type of Membrane Filter	Toray Holoow Fiber Membrane (NTU) Wigen Water Technologies (RO)
Number of membranes	5 UF mains, 2 UF secondary, 3 ROs.
Date of last membrane installation or replacement	2014
Useful life of membranes (years)	10
Life remaining on current membranes	Varies as membranes are replaced.
Pretreatment requirements	Chlorine
Purpose	Chlorination (biological)
Maximum filtration rate at design capacity in gallons per minute (gpm)	Rated on pressure

Treatment Efficiency (%)	80-85%
Comments	
How much water bypasses the unit (%)?	Bypassed water varies and is recycled.
Comments	
What is the percent of brine or reject water (%)?	15-20%
How is the brine or reject water disposed of?	Recycle to head of plant
Type of post treatment	Chloramines
Are loss of head gauges present on the inlet and outlet of the filter?	Yes
Are the gauges functioning?	Yes
Has the RO unit experienced membrane fouling?	Yes
If yes, type of fouling	Due to blending of water between ROs and UFs, 60/40.
How are the membranes cleaned?	Replaced.
How often are the membranes cleaned?	Once per year.
What chemicals are used to clean the membranes?	pH products.
Does the operator keep records of cleaning and repairs?	Yes
How is the adequacy of the cleaning process evaluated?	Pressure tests
Does the operator have an owner's manual for the unit?	Yes
Adequate humidity control?	Yes
Painting adequate?	Yes
Plant locked?	Yes
Comments	1 Secondary Skid, 2 Primary Skids

SOURCE - SURFACE WATER 1

Source Type	Surface water intake
Other	
Does the system have a water permit from State Water Commission?	Yes
Is the permit adequate?	No
Does the system have a Watershed Management Program?	Yes
Does the system have a delineated Source Water Protection Area (SWPA)?	Yes
Date	2003
Has a contaminate inventory for the SWPA been completed?	Yes
Date	2003
Is the source water quality tested for each source?	Yes
Frequency	
Comments	
Is there an emergency response plan for spills within SWPA?	Yes
Has an encroachment resolution or ordinance been adopted?	Not applicable

Date	
Is the source adequate to meet current needs?	No
Comment	Water usage is a max for current permit. SWA is adding second intake.
Is the source metered at all sites?	Yes
Comment	
Are there provisions for drought mitigation or management?	Yes
Comment	
Are the source water facilities located within a floodplain?	No
If yes, which source water facilities are located within a floodplain?	
Has the source water facility ever been flooded?	No
If flooded, are operations impaired?	Not applicable
Comment	

SOURCE - SW FACILITES1

Source Locations(s)	Intake in Lake Sakakawea
Source common Name(s)	
Frequency site is inspected by PWS	Site is leased from Basin Electric. Basin does inspections.
Other	
Average daily flow (gpm)	500
Comments on average flow	
Maximum daily flow (gpm)	3400
Comments on Maximum flow	
Intake structure(s) able to function at multiple depths?	No
Depths	1862 (280 foot difference from intake to transmission pipe)
Last inspection date	2010
Inspection type	Video
Other inspections	none
Which of the following can impact water quality at this facility	
Turbidity from excess runoff	Yes
Explain Turbidity	Spring runoffs
Vulnerability to spills	Yes
Explain vulnerability to spills	Spills from oil wells near lake
Livestock feeding or grazing	No
Explain livestock feeding or grazing	
Unrestricted swimming or boating	Yes
Explain unrestricted swimming or boating	
Excessive siltation	No
Explain excessive siltation	
Can water be withdrawn during prolonged drought?	Yes

Minimum usable water level	1860 feet
Are facilities well maintained?	Yes
Are facilities secure?	Yes
Does facility allow recreational use?	Yes
Are there special provisions for recreational use?	No
Explain the security measures for this source	
Comments	

RECORDS - CHEMICAL

Volatile organic chemicals	Yes
Nitrite / nitrate	No
Pesticides	Not applicable
Primary inorganic chemicals	Yes
Secondary inorganic chemicals	Yes
Radionuclides	Yes
Are testing records available?	Yes
Are calibration records readily available?	Yes
Is testing equipment calibrated or standardized?	Yes

RECORDS - CONTROL SYSTEMS

Briefly describe the controls	PC based and SCADA monitors reserviors
Age of control system or installation date	2012
Mode of Communications	Phone owned
Federal Communication Commission (FCC) license number	Not applicable
Exp. Date	
Other	
Is there a backup communications system?	No
Explain	
Is backup power available for control systems (uninterruptible power supply)?	Yes
Duration of backup	Until fuel not availible, 3 days of 8 hour run time.
Are all control wires properly tagged and / or identified?	Yes
Frequency of data logging - Chlorine residual	Continuous
Frequency of data logging - Combined filter effluent turbidity	Continuous report is hourly
Frequency of data logging - Individual filter effluent turbidity	Continuous report is hourly
Frequency of reports	Hourly
Comments	
Are all necessary control aspects of system operations included in the control system?	Yes
Comments	
Who has the authority to make set-point changes?	Operators

Is system secure?	Yes
Comments	
Explain the alarm or call out system	Computer calls cell phones
Is a spare parts inventory maintained on-hand?	No
Comments	
Is lightning protection installed?	Yes
Type	
Comments	

RECORDS - DBPR

TTHMs/HAA5 records?	Yes
TTHMs MCL (0.080 mg/L) exceeded?	No
HAA5 MCL (0.060 mg/L) exceeded?	No
Free chlorine, chloramines or total chlorine exceeded (4.0 mg/L)?	No
Sample siting plan?	Yes
Where is the point of maximum detention time in the distribution system?	See fact sheet
How is the point of maximum detention time determined?	Distance & usage
DBPR summary form	Yes

RECORDS - GENERAL

Are there any recent violations for the system?	No
If yes, explain	
Are there any recent administrative orders for the system?	No
If yes, explain	
Are the requirements of the order being followed?	Not applicable
If not, explain	
Bacteriological records?	Yes
Sample siting plan?	Yes
Lead/Copper records?	Yes
Sample siting plan?	Yes
Did system exceed action level for lead (0.015 mg/L)?	No
If yes, explain treatment technique	
Did system exceed action level for copper (1.3 mg/L)?	No
If yes, explain treatment technique	
Consumer Confidence Report (CCR)	Yes
Is the system current with all monitoring requirements?	Yes
Comments	

RECORDS - SURFACE WATER

Individual filter turbidity monitoring data form	Yes

Is the system meeting their individual filter effluent (IFE) requirements?	Yes
Individual filter monitoring exceptions form	Yes
Is combined filter effluent (CFE) <= 0.3 NTU in at least 95% of monthly readings?	Yes
Is CFE levels less than 1 NTU?	Yes
Point of entry disinfectant residual monitoring form	Yes
Is the system meeting its point-of-entry disinfectant residual monitoring requirements?	Yes
Distribution disinfectant residual monitoring data form	Yes
Total organic carbon (TOC) records?	Yes
Enhanced coagulation or softening	No
Total organic carbon (TOC) removal (%)	2.26 mg/L
Required removal of TOC (%)	15
Is actual removal percent greater than required removal percent?	Not checked
Interim Enhanced Surface Water Treatment Rule (IESWTR) – 2 log (99% removal of cryptosporidium) IESWTR summary form?	Yes
Finished water turbidity monitoring data form	Yes
Comments	

PUMPS - PUMP 1

Location/ID	Pump Room
Preventive maintenance program?	Yes
Backup power available?	Yes
Comments	
Are all pumps operational	Yes
Is redunancy provided?	Yes
Are adequate spare parts on hand for repairs?	Yes
Are the pump facilities subject to flooding?	No
If yes, what are the provisions?	
Are all drains properly screened?	Yes
Are all vents properly screened?	Yes
Are the following items at all facilities adequate for operation?	
Lighting	Yes
Signage	Yes
Ventilation	Yes
Heating	Yes
Interior drainage	Yes
Comments	

NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

To: Southwest WA - Zap Treatment Plant PWS Number: ND2901491

From: Division of Municipal Facilities, Drinking Water Program

Date: November 13, 2015

Re: Sampling and Reporting Schedule for 2016

The attached report lists the tentative sampling and reporting requirements for Southwest WA - Zap Treatment Plant during the calendar year 2016. While the department believes this report to be accurate, proper testing and reporting is ultimately the water system's responsibility.

The sampling schedule(s) may have changed after the printing of this report and may unexpectedly change throughout the year. For example, a positive bacteria test will require follow-up testing which is not reflected on this report.

Please contact the appropriate person below with any questions regarding the testing or reporting requirements.

Category	Contact	Phone	Email
System changes (new operators, contact information updates, etc.)	Tammy Lamphear	701-328-5295	tmlamphear@nd.gov
Bacteria (distribution system)	Jeni Walsh	701-328-5231	jwalsh@nd.gov
RTCR sampling site plans, assessments, seasonal system start-up procedures	Josh Seerup	701-328-5257	jseerup@nd.gov
Lead, copper, arsenic, nitrate/nitrite, added fluoride, lead consumer notice	Amy Kinzler	701-328-5258	ankinzler@nd.gov
Surface water requirements	Mike Trythall	701-328-5269	mtrythal@nd.gov
Violations, public notice, CCR	LeeAnn Tillotson	701-328-5293	ltillots@nd.gov
Acrylamide and epichlorohydrin, filter backwash recycling, bacteria (source)	Gary Stefanovsky	701-328-5287	gstefano@nd.gov
Disinfection byproducts, volatile organic compounds, synthetic organic compounds (pesticides), primary and secondary inorganic compounds, Maximum Residual Disinfectant Levels	Lydia Fewless	701-328-5221	lfewless@nd.gov
Electronic reporting	Barrett Brown	701-328-5209	bjbrown@nd.gov

Estimated 2016 Sampling and Reporting Requirements for: Southwest WA - Zap Treatment Plant (ND2901491)

Sampling - Monthly

Test	Site(s)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Note
Carbon, Total	201	1	1	1	1	1	1	1	1	1	1	1	1	
TOC & Alkalinity	CH001	1	1	1	1	1	1	1	1	1	1	1	1	
Bacteria (RTCR Sites) And	RTCR Sites				2	2	2	2	2	2	2	2	2	(14)
Chlorine Residual					2	2	2	2	2	2	2	2	2	(15)
Bacteria (TCR Sites) And	TCR Sites	2	2	2										(14)
Chlorine Residual		2	2	2										(15)

Sampling - Quarterly

Test	Site(s)	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Note
Stage 2 DBP (TTHM/HAA5)	Stage 2 Sites	1	1	1	1	(3)

Sampling - Annually

Test	Site(s)	Jan - Dec	Note
Arsenic	101	1	
Nitrate-Nitrite	101	1	

Sampling - Every 3 Years - Due To Be Sampled in 2016

Test	Site(s)	Jan - Dec	Note
Regulated VOCs	101	1	
Lead & Copper	Lead & Copper Sites	10	(11)

Sampling - Every 6 Years - Due To Be Sampled in 2016

Test	Site(s)	Jan - Dec	Note
Pesticides (SOCs)	101	1	

Sampling - Every 9 Years - Due To Be Sampled in 2016

Test	Site(s)	Jan - Dec	Note
Primary IOCs	101	1	

Reporting - Monthly

Report	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Note
SWTR Summary Reports	R*	R*	R*	R*	R*	R*	R*	R*	R*	R*	R*	R*	(6)

Reporting - Quarterly

Report	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Note
Stage 2 Chlorine Residual Summary Report	R*	R*	R*	R*	(7)

Reporting - Annually

Report	Jan - Dec	Note
Acrylamide And Epichlorohydrin	R*	(8)
CCR	R*	(5)
RTCR Sampling Site Plan	R*	(12)

R* = Required

Note(s)

(3) Samples must be collected in accordance with the Stage 2 Sample Site Plan. Additional information will be provided later about specific sample dates/times.

(5) CCR must be submitted to the Department by July 1 and the Certification must be submitted to the Department by October 1.

(6) SWTR Summary Reports are due to the Department by the 10th of the following month.

(7) Stage 2 Chlorine Residual Summary Reports are due to the Department on January 10, April 10, July 10 and October 10 for the previous quarter.

(8) Any water system adding chemicals containing Acrylamide or Epichlorohydrin must report the previous calendar year's dosage information to the Department by the 10th of January.

(11) Samples must be collected in accordance with the Lead & Copper Rule Sample Site Plan and samples must also be collected between June 1 and September 30. Please confirm this schedule prior to sampling. Lead Consumer Notice requirements will apply.

(12) RTCR Sampling Site Plan must be submitted to the Department by December 1, 2015.

(14) Samples must be collected in accordance with the Total Coliform Rule or the Revised Total Coliform Rule Sampling Site Plans.

(15) Chlorine Residual measurements are to be taken at the same time and same location as the Total Coliform samples.

Sample Site Plans for Southwest WA - Zap Treatment Plant (ND2901491)

TCR Sample Site Plan - through March 31, 2016

TCR Site	Site Description	Desc Line 2	Desc Line 3	Desc Line 4
00	SOUTHWEST WA - BEULAH ISA (BEULAH)	Unspecified TC Point		
01	MORAST PRV VAULT			
02	HAZEN PRV VAULT			
03	DAKOTA HELICOPTERS	6620 County Road 20	Bathroom sink	
04	RDO EQUIPMENT			

05	ZAP PRV VAULT
06	BEULAH PRV VAULT
07	ROUGHRIDER RVS INC

Required RTCR Site Plan Not Yet Received

Lead & Copper Sample Site Plan

PBCU Site	Site Description	Desc Line 2	Desc Line 3	Desc Line 4
ALC01	1933 COTTONTAIL DRIVE, BEULAH			
LC01	1840 MURRAY DRIVE			
LC02	1816 MURRAY DRIVE			
LC03	1728 COTTONTAIL DRIVE			
LC04	517 1ST ST SW			
LC05	1937 COTTONTAIL DRIVE			
LC06	1739 COTTONTAIL DRIVE			
LC07	1925 COULEE DRIVE			
LC08	1731 COTTONTAIL DRIVE			
LC09	1921 COTTONTAIL DRIVE			
LC10	6140 COUNTY ROAD 20			

Stage2 Sample Site Plan

Stage2 Site	Site Description	Desc Line 2	Desc Line 3	Desc Line 4
STG2-01	SOUTHWEST WA - ZAP TREATMENT PLANT	T145 R85 Sec25SW1/4	Clean-out	
STG2-02	SOUTHWEST WA - ZAP TREATMENT PLANT	Joe & Brenda Schutt	09054 (7-9A)	

Other Sample Sites

Site		
201	TREATMENT PLANT	*Detailed sample location information will be on bottle labels.
101	SAMPLE STATION	*Detailed sample location information will be on bottle labels.
CH001	COMMON HEADER	*Detailed sample location information will be on bottle labels.

NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

RECEIVED
SEP 21 2016
SOUTHWEST WATER AUTHORITY

July 25, 2016

SOUTHWEST WATER AUTHORITY
c/o MASSAD, MARY
4665 2ND ST SW
DICKINSON, ND 58601

Public Water Supply I.D. No: ND4501434

Dear Ladies and Gentlemen:

On July 20, 2016, a representative of the Department of Health conducted a routine inspection/sanitary survey of the following as required by the Safe Drinking Water Act and/or the Clean Water Act:

Critical Inspection Areas

X	Drinking water source (well[s], spring[s], surface water, consecutive user)
X	Source water protection
X	Water treatment plant
X	Chemical addition equipment for treatment of well water
X	Water distribution system
	Finished water storage facilities
X	Potable water pumps, pump facilities, and controls
X	System managment and operation
X	Operator compliance with certification
X	Required monitoring and reporting, and data verification for drinking water
	Wastewater collection system
	Wastewater treatment facility

July 25, 2016

If any defects are noted in the enclosed inspection report, corrective action is required within the time line designated. You must notify this department in writing within forty-five (45) days of the date of this letter regarding the status of the corrected defects, or present a formalized plan to correct the defects.

Violations of the Safe Drinking Water and/or Clean Water Act, which have occurred within the last twelve (12) months, are discussed in the general remarks section of the inspection report, along with appropriate action to be taken by the system. In addition, any deficiencies reported in the critical inspection areas are also discussed with appropriate corrective action.

It is the intent of the department representative to complete a comprehensive inspection. However, factors such as time constraints, lack of appropriate testing, and accessibility may limit the detection of all defects in the system(s).

Please contact Shawn Heinle, the department representative who conducted the inspection at 701.328.6627 or me at 701.328.6622, if you have any questions regarding the inspection or the enclosed report.

Sincerely,

Mike Brisben

Mike Brisben
Administrator of Inspection Program
Division of Municipal Facilities

MB/:SH
Enc.

Southwestern District Health Unit
Grace Rixen-Handford, Plant Manager
Lee Messer, Water Distribution Manager

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF MUNICIPAL FACILITIES
BISMARCK, NORTH DAKOTA

DATE OF REPORT:	July 25, 2016
DATE OF SURVEY:	July 20, 2016
PLACE:	SOUTHWEST WATER AUTHORITY
OBJECTIVE:	Drinking Water Survey
ACCOMPANIED BY:	Grace Rixen-Handford and Toby Turner

DEFECTS, CORRECTIVE ACTIONS, TIME LINES, AND REFERENCES:

Drinking Water

DEFECT:	Appropriate Material Safety Data Sheet (MSDS) is not posted for chemical in use.
CORRECTIVE ACTION:	All chemicals used to treat water to public health standards shall have Material Safety Data Sheets (MSDS) posted at the storage location and next to the chemical feed equipment. Copies shall be on file with the local fire department, county disaster emergency service office, and SARA Title III coordinator.
TIME LINE:	**7 days**
REFERENCE:	Department of Health Policy 98-119; SARA Title III Rules.
COMMENT:	

I appreciate the time and cooperation shown to me by Grace Rixen-Handford and Toby Turner, during the recent inspection. If you have any questions or concerns, please contact me at 701.328.6627.

Respectfully Submitted,

Shawn Heinle
Environmental Scientist
Division of Municipal Facilities

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF MUNICIPAL FACILITIES
Survey of Public Drinking Water System

Facility Name: SOUTHWEST WATER AUTHORITY
Address: 4665 2ND ST SW
DICKINSON, ND 58601

County: Stark
PWS#: ND4501434

Water NDPDES Permit: ND0023183

GENERAL - FACILITY INFORMATION

Water treatment system classification	4
Inspection by	Shawn Heinle
Public Water System (PWS) Name	Southwest Water Authority
PWS Owner or governing body	Cooperative
System Type	Community
Distribution system classification	2
Title	Environmental Scientist
Accompanied by	Grace Rixen-Handford and Toby Turner
Title	Operator
Inspection Date	7/20/2016
Previous Inspection Date	8/11/2014

GENERAL - OPERATOR INFORMATION

Operator in direct responsible charge	See attached sheets.
Title	
Water treatment certification grade	
Water distribution system certification grade	
Home address	
Home phone #	
Cell phone #	
E-mail address, if applicable	
Pager phone #	
Other certified operators and system personnel	
Name	
Treatment Grade	
Distribution Grade	
Name	
Treatment Grade	
Distribution Grade	
Name	
Treatment Grade	
Distribution Grade	

Name	
Treatment Grade	
Distribution Grade	
Comments	

GENERAL - SUMMARY

Source	
Treatment	
Distribution System	
Finished Water Storage	
Pumps (fac, cntls, etc.)	
M&R & Date Verification	R - Recommendation(s) Made
Management & Operations	
Operator Compliance	
Other	

GENERAL - SYSTEM INFORMATION

Physical Address	4665 2nd Street SW
City / State / Zip	Dickinson, ND 58601
System Phone #	701.225.0241
System Fax #	
E-mail Address	mmassad@swwater,com
Operator Contact	Andrew Erickson Jr. (see attached sheets for a list of certified operators)
Phone	701-225-0241
Administrative Contact	Mary Massad
Phone	701-225-0241
Population Served	8537 (SWA)
Annual water use (in gallons)	2,239,748,000 total treated water (2015)
System interconnections	See Fact Sheet
Reason	Sell
System interconnections	
Reason	

MANAGEMENT - FINANCIAL INFORMATION

Number of residential connections	6,200
Commercial connections	26 contract, 21 raw water, 2 rural water systems, and 2 raw water depots.
Does the system maintain a separate set of accounts for the water utility?	Not applicable
Does the system subsidize other departments within the city?	Not applicable
Does the system produce and utilize an annual budget?	Yes
Are annual revenues greater than costs?	Yes

Water rates (attach rate schedule)	Rural $39.88, $4.58 / 1,000 gal. after and $4.06 / 1,000 gal. above 10,000 gal. Demand contract $5.07/1,000, Contract cust. $3.94/1,000, Oil $22.00/1,000, Raw $3.16/1,000
Does the system conduct a financial audit of the water utility at least every five years?	Yes
Does the system fund and maintain a reserve account to be used strictly for emergency replacement of water system components or other unanticipated expenses related to the water system?	Yes
Are all service connections metered?	Yes
Total # of connections	6251 (2015 Annual Report p. 11)
Is the system in compliance with Government Accounting Standards Board (GASB) Statement 34?	Yes
Does the system have written accounting and audit procedures in place?	Yes
Does the system have bond insurance for employees who handle system funds?	Yes
Does the system have written billing procedures and a collection policy in place?	Yes
Does the system have written purchasing and inventory control in place?	Yes
Comments	

MANAGEMENT - GENERAL

Does the system have an organizational chart that shows the lines of authority?	Yes (annual report)
Does the system have written job descriptions and selection criteria?	Yes
Does the system have a procedure in place for handling customer complaints?	Yes
Does the system have a public relations program (newsletters, news releases, bill fliers, open house, etc..)?	Yes (newsletter, web site)

MANAGEMENT - OPERATIONS

Does operating staff have authority to make required decisions involving operations?	Yes
Does the system have operation and maintenance manuals?	Yes
Is an emergency plan of action available?	Yes (not reviewed)
Is the plan reviewed and updated annually?	Yes
"equipment breakdown" found in Emergency Plan	Yes
"loss of power" found in Emergency Plan	Yes
"pipe/storage tank breaks" found in Emergency Plan	Yes
"security" found in Emergency Plan	Yes
"chemical or toxic spills" found in Emergency Plan	Yes
"natural disasters" found in Emergency Plan	Yes
"alternative sources of finished water" found in Emergency Plan	No

"recovery plan" found in Emergency Plan	Yes
"list of personnel and responsibilities" found in Emergency Plan	Yes
"communication procedures" found in Emergency Plan	Yes
"list of emergency equipment and facilities" found in Emergency Plan	Yes
"other items" found in Emergency Plan	

STORAGE - GROUND AND ELEVATED STORAGE 1

Interior paint type	Epoxy
Facility name	See attached list
Type	Elevated
Construction material	Steel
	Also, concrete.
Tank height (ft)	Varies
Overflow terminate 12 to 24 inches above ground?	Yes
Overflow screened or weighted flap	Yes
Corrosion control	Yes
Tank capacity in gallons	See attached list
Date of last inspection	See attached list
Date interior painted	See attached list
NSF 61 certified (33-17-01-19.4.)	Yes
Date of last cleaning	Rotates, five year period.
Apparent structural problems	No
Condition of tank exterior	Satisfactory
Roof leaks	No
Access hatch locked	Yes
Roof vent condition	Satisfactory
Tank drain	Yes
Access openings	Yes
Access ladders (protected against climbing?)	Yes
Valving operable?	Yes
Bypass present / operable?	Yes
Level control type	SCADA
Alarm system operable?	Yes
Security fence	Yes
Locked access	Yes
Comments	

DISTRIBUTION - DISTRIBUTION 1

Maximum distribution disinfectant residual (mg/L)	3.6
Location	Locations near treatment plant
Minimum distribution disinfectant residual (mg/L)	2.4

Location	Low use areas, operators will flush lines if residual drops below 1.5 mg/L
Disinfectant residual check: Point of entry (mg/L)	3.0
Date of last update	2016
Does the system have a flushing program?	Yes
Frequency	As needed
Frequency	Yearly
Are there maps of the distribution system(s)	Yes
How often are the maps updated	As needed
Does the system retain records or documentation on the following	
Operation and maintenance distribution system repairs	Yes
Leak detection / Water loss	Yes
Water loss last year (%)	About 6.39%
Does the system utilize directional flushing?	Yes
Does the system utilize pigging?	Yes
Frequency	As needed
Are valves inspected and exercised?	Yes
Are fire hydrants inspected and operated routinely?	Not applicable
Are sampling hydrants available?	Yes
Does the system have lead service lines in use?	No
Where does the systems responsibility for the distribution system end?	Curb stop
Other checks	Operators take chlorine residuals several times a month at each vault (very good records)
Frequency of checking distribution disinfectant residual?	Monthly
Is a DPD test being used?	Yes
Is the test kit able to read above 4 mg/L (manufacturer & model number)?	Yes
Reagent Supply	Yes
Historical maximum distribution pressure (psi)	Varies depending on location.
Minimum pressure (psi)	Will not hook up if less than 20 PSI
Are pressure readings routinely done in the distribution system?	Yes
Frequency	Several times a month at vaults
Distribution pressure during inspection (psi)	Varied, see attached list
Location	Meter pits, vaults, VFDs
Is there a routine inspection program?	Yes
Is there a routine cleaning program?	Yes
How is water supply maintained with storage facilities out of service?	Other storage facilities
Does the water dispensing unit (bulk water sales) have a proper backflow prevention device?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED

Chemical added	Aqua Pure AF 3335, Aqua Hawk 2325, Hawkins-Simplot Ammonium Sulfate, Innophos Sodium Tripolyphosphate, Hawkins-Hydrofluorosilic Acid, Hawkins-Chlorine Gas, Hawkins -Sodium Permanganate, Lime, Carbon Dioxide.
MSDS	Yes
Dosage	Varies
Purpose	Flocculant & Coagulant, Fluoridation, Chloramination, Taste & Odor, Hardness removal, pH adjustment
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	No
Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	Moved sodium permanganate feed point to Richardton pumping station, previous location caused issues with OMD plant.

TREATMENTS - DISINFECTION-CHLORINE

Application point	Dodge raw water reservoir and treatment plant
Disinfection type	Chloramines
Purpose	Disinfection
Comments	Added a shower & eye wash outside chlorine room (result of an EPA contractor inspection)
Separate chlorine room?	Yes
Room free of chemicals?	Yes
All openings sealed?	Yes
Chlorine room locked?	Yes
Door opens to outside?	Yes
Exterior electrical switch?	Switch inside plant at window looking into chlorine room
Chlorinator vent screened?	Yes
Adequate ventilation?	Yes
Platform scale?	Yes
Wrench on cylinder valve?	Yes
Cylinders chained to wall?	Not applicable

Caps on extra cylinders?	Yes
Ammonia bottle available?	Yes
Proper vacuum feed system?	
Gas leak alarm system?	Yes
Is respiratory protection available?	Yes
Is there an adequate spare parts inventory?	Yes
Comments	
Are all applicable cross-connection devices installed?	Yes
Comments	Using a CL 17 inline chlorine meter & Hach 2700 at plant

TREATMENTS - FACILITIES AND PROCESSES

Physical location and directions, if necessary	
Are there any potential contamination sources in the vicinity of the plant?	No
If yes, explain	
Are the grounds and facility well maintained?	Yes
Is the facility secure from unauthorized access?	Yes
Summer operation hours	6 am to 12pm, looking at running 24 hours during peak demand, ran 24 hours a day when 8 MGD contact unit was down for maintenance.
Winter operation hours	8 am to 6 pm
Design capacity of plant (Gallons Per Day (GPD))	12 MGD
Average daily production (gallons)	5.3 MGD (2015)
Maximum daily production (gallons)	10+ MGD
Total annual production	1,947,394,000 (page 13, 2015 annual report)
Total annual production unit	million gallons
Are there any limitations to plant flows?	Yes
If yes, what are the limitations?	Filter capacity
Is there a backup or standby power source?	Yes
Type	
Frequency of testing of emergency power source	Monthly
Preventive maintenance program?	Yes
Comments	

TREATMENTS - GRAVITY FILTERS

Number of filters	7
Installation date	
Filter technology	3 gravity (#s 5-7) and 4 greenleaf gravity (#s1-4) filters
Filter media	Anthracite
Gravel support	Yes
Other	Also uses rapid sand.
Date of last media installation or replacement?	Looking to add anthracite in 2017, 3 to 8 " depending on which filter.

Are there any visible problems with filter media?	No
Comments	Chlorinate filters in spring.
Date underdrain system was inspected?	2005
Designed filtration rate (gpm /sq. ft.)	4.2
Design media depth	30 inches
Current media depth	Average 22" (greenleaf), 25" (rapid sand)
Criteria for initiating backwash	Filter run time
Monitoring equipment - Rate-of-flow controller (s)	Yes
Type	Set speed
Filter effluent turbidimeters	Yes
Loss-of-head indicators	Yes
Is there a surface wash system for the filter?	Yes
Is there air scour?	Yes
Is the surface wash system used during entire backwash?	No
Is there filter to waste capability?	No
Is there cross connection protection?	Yes
How are back washed filters brought back onto line	Filter rests for 30 minutes before being brought back online
Condition of pipe gallery	Satisfactory
Has a filter profile been developed for the filter?	No
Comments	
Has a filter self-assessment been completed for the filter?	No
Comments	
Date of last assessment	
Significant findings	
Date of last filter effluent turbidimeter calibration?	July 2016
Calibration frequency	Secondary is weekly, primary every 4 months
Are calibration records current and accessible?	Yes
Comments	
How are required turbidimeter readings recorded?	Data-logging
Frequency of readings	15 minutes
Is redundancy provided for readings?	Yes
Is backwash water retained for recycle?	Yes
If yes, method	Water is allowed to settle overnight then brought back to head of plant
Comment	
What is the point of entry for recycling backwash water?	Head of plant
Comments	

TREATMENTS - SOLIDS CONTACT UNIT

Type	Accelator

Manufacturer	Infilco
Capacity of unit	8 MGD (106) and 4 MGD (105), Units are drained, cleaned, and serviced every February.
Impeller drive working?	Yes
Is food grade grease used on impeller drive chain?	Yes
Adequate mixing in the primary or secondary mixing and reaction zone?	Yes
Do any of the chemicals added contain Acrylamide or Epichlorohydrin?	Not checked
If yes, list the chemicals	
Is there documentation showing compliance with Acrylamide or Epichlorohydrin standards set by EPA?	Yes
How does the operator determine proper chemical treatment?	Visual, water color, tests and turbidity
Are chemical dosages adjusted using standard jar tests?	Yes
How does the operator determine optimum performance of the unit?	Turbidity and hardness removal
Suspended solids removal percent	Not done, uses settling test
Frequency of sludge removal	Variable
How does the operator determine optimum sludge removal?	Sludge settling test
Disposal location	Sludge pit then to ponds
Average settled turbidity Nephelometric Turbidity Unit(s) (NTU)	Less than 2.
Maintenance frequency	Yearly
Is an owners manual available?	Yes
Comments	Jar tests are done if there is a switch of chemical brands, helps insure correct dosage.

SOURCE - SURFACE WATER 1

Source Type	Surface water intake
Does the system have a water permit from State Water Commission?	Yes
	Permit # 3688
Is the permit adequate?	No
Does the system have a Watershed Management Program?	Not applicable
Does the system have a delineated Source Water Protection Area (SWPA)?	Yes
Date	7/1/2002
Has a contaminate inventory for the SWPA been completed?	Yes
Date	2001-2003
Is the source water quality tested for each source?	Yes
Frequency	As needed
Comments	Moderately Susceptible
Is there an emergency response plan for spills within SWPA?	No
Has an encroachment resolution or ordinance been adopted?	Not applicable

Date	
Is the source adequate to meet current needs?	No
Comment	Working on installing a second intake.
Is the source metered at all sites?	Yes
Comment	
Are there provisions for drought mitigation or management?	No
Comment	
Are the source water facilities located within a floodplain?	No
If yes, which source water facilities are located within a floodplain?	
Has the source water facility ever been flooded?	Yes
If flooded, are operations impaired?	Not applicable
Comment	

RECORDS - CHEMICAL

Volatile organic chemicals	Yes
Nitrite / nitrate	Yes
Pesticides	Yes
Primary inorganic chemicals	Yes
Secondary inorganic chemicals	Yes
Radionuclides	Yes
Are testing records available?	Yes
Are calibration records readily available?	Yes
Is testing equipment calibrated or standardized?	Yes

RECORDS - CONTROL SYSTEMS

Briefly describe the controls	SCADA monitors major pumping stations, reservoirs and PRV vaults. Able to shut down system or portions when needed
Age of control system or installation date	Varies, upgrades as needed
Mode of Communications	Radio
Federal Communication Commission (FCC) license number	Multiple
Exp. Date	
Other	
Is there a backup communications system?	Yes
Explain	
Is backup power available for control systems (uninterruptible power supply)?	Yes
Duration of backup	As long as fuel is available
Are all control wires properly tagged and / or identified?	Yes
Frequency of data logging - Chlorine residual	Continuous - CL17 meter
Frequency of data logging - Combined filter effluent turbidity	Every four hours

Frequency of data logging - Individual filter effluent turbidity	Continuous
Frequency of reports	Continuous
Comments	Can monitor SCADA system from treatment plant
Are all necessary control aspects of system operations included in the control system?	Yes
Comments	
Who has the authority to make set-point changes?	Certified operator on duty
Is system secure?	Yes
Comments	
Explain the alarm or call out system	Calls operator on duty via cell phone
Is a spare parts inventory maintained on-hand?	Yes
Comments	
Is lightning protection installed?	Yes
Type	
Comments	

RECORDS - DBPR

TTHMs/HAA5 records?	Yes
TTHMs MCL (0.080 mg/L) exceeded?	No
HAA5 MCL (0.060 mg/L) exceeded?	No
Free chlorine, chloramines or total chlorine exceeded (4.0 mg/L)?	No
Sample siting plan?	Yes
Where is the point of maximum detention time in the distribution system?	See fact sheet
	Lemmon SD, 120 days
How is the point of maximum detention time determined?	Distance & usage
DBPR summary form	Yes

RECORDS - GENERAL

Are there any recent violations for the system?	No
If yes, explain	
Are there any recent administrative orders for the system?	No
If yes, explain	
Are the requirements of the order being followed?	
If not, explain	
Bacteriological records?	Yes
Sample siting plan?	Yes
Lead/Copper records?	Yes
Sample siting plan?	Yes
Did system exceed action level for lead (0.015 mg/L)?	No
If yes, explain treatment technique	

Did system exceed action level for copper (1.3 mg/L)?	No
If yes, explain treatment technique	
Consumer Confidence Report (CCR)	Yes
Is the system current with all monitoring requirements?	
Comments	

RECORDS - SURFACE WATER

Individual filter turbidity monitoring data form	Yes
Is the system meeting their individual filter effluent (IFE) requirements?	Yes
Individual filter monitoring exceptions form	Yes
Is combined filter effluent (CFE) <= 0.3 NTU in at least 95% of monthly readings?	Yes
Is CFE levels less than 1 NTU?	Yes
Point of entry disinfectant residual monitoring form	Yes
Is the system meeting its point-of-entry disinfectant residual monitoring requirements?	Yes
Distribution disinfectant residual monitoring data form	Yes
Total organic carbon (TOC) records?	Yes
Enhanced coagulation or softening	Yes
Total organic carbon (TOC) removal (%)	Removal ratio ranged from 1.9 to 2.2 over the last year
	25% if over 4.0 mg/L
Required removal of TOC (%)	15
Is actual removal percent greater than required removal percent?	Yes
Interim Enhanced Surface Water Treatment Rule (IESWTR) – 2 log (99% removal of cryptosporidium) IESWTR summary form?	Yes
Finished water turbidity monitoring data form	Yes
Comments	

PUMPS - PUMP 1

Location/ID	Water plant & booster stations, see attached list
Preventive maintenance program?	Yes
Backup power available?	Yes, permanent at Ray C. booster station and portable generators
Comments	Can run some pumps at Ray C. booster station on backup power
Are all pumps operational	Yes
Is redunancy provided?	Yes
Are adequate spare parts on hand for repairs?	Yes
Are the pump facilities subject to flooding?	No
If yes, what are the provisions?	
Are all drains properly screened?	Yes
Are all vents properly screened?	Yes

Are the following items at all facilities adequate for operation?	
Lighting	Yes
Signage	Yes
Ventilation	Yes
Heating	Yes
Interior drainage	Yes
Comments	Addition of new pump station adjacent to the WTP. (2015)

NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

To: Southwest Water Authority PWS Number: ND4501434

From: Division of Municipal Facilities, Drinking Water Program

Date: November 13, 2015

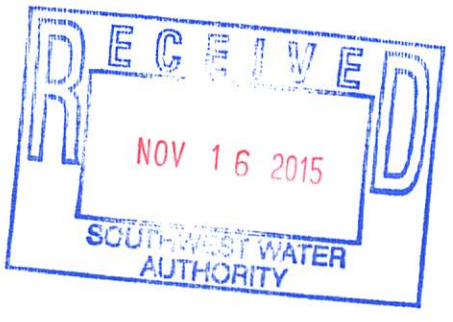
Re: Sampling and Reporting Schedule for 2016

The attached report lists the tentative sampling and reporting requirements for Southwest Water Authority during the calendar year 2016. While the department believes this report to be accurate, proper testing and reporting is ultimately the water system's responsibility.

The sampling schedule(s) may have changed after the printing of this report and may unexpectedly change throughout the year. For example, a positive bacteria test will require follow-up testing which is not reflected on this report.

Please contact the appropriate person below with any questions regarding the testing or reporting requirements.

Category	Contact	Phone	Email
System changes (new operators, contact information updates, etc.)	Tammy Lamphear	701-328-5295	tmlamphear@nd.gov
Bacteria (distribution system)	Jeni Walsh	701-328-5231	jwalsh@nd.gov
RTCR sampling site plans, assessments, seasonal system start-up procedures	Josh Seerup	701-328-5257	jseerup@nd.gov
Lead, copper, arsenic, nitrate/nitrite, added fluoride, lead consumer notice	Amy Kinzler	701-328-5258	ankinzler@nd.gov
Surface water requirements	Mike Trythall	701-328-5269	mtrythal@nd.gov
Violations, public notice, CCR	LeeAnn Tillotson	701-328-5293	ltillots@nd.gov
Acrylamide and epichlorohydrin, filter backwash recycling, bacteria (source)	Gary Stefanovsky	701-328-5287	gstefano@nd.gov
Disinfection byproducts, volatile organic compounds, synthetic organic compounds (pesticides), primary and secondary inorganic compounds, Maximum Residual Disinfectant Levels	Lydia Fewless	701-328-5221	lfewless@nd.gov
Electronic reporting	Barrett Brown	701-328-5209	bjbrown@nd.gov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Estimated 2016 Sampling and Reporting Requirements for: Southwest Water Authority (ND4501434)

Sampling - Monthly

Test	Site(s)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Note
Carbon, Total	201	1	1	1	1	1	1	1	1	1	1	1	1	
TOC & Alkalinity	CH001	1	1	1	1	1	1	1	1	1	1	1	1	
Bacteria (RTCR Sites) And	RTCR Sites				9	9	9	9	9	9	9	9	9	(14)
Chlorine Residual					9	9	9	9	9	9	9	9	9	(15)
Bacteria (TCR Sites) And	TCR Sites	9	9	9										(14)
Chlorine Residual		9	9	9										(15)

Sampling - Quarterly

Test	Site(s)	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Note
Stage 2 DBP (TTHM/HAA5)	Stage 2 Sites	2	2	2	2	(3)

Sampling - Annually

Test	Site(s)	Jan - Dec	Note
Nitrate-Nitrite	101	1	

Sampling - Every 3 Years - Due To Be Sampled in 2016

Test	Site(s)	Jan - Dec	Note
Lead & Copper	Lead & Copper Sites	20	(11)

Sampling - Every 6 Years - Due To Be Sampled in 2016

Test	Site(s)	Jan - Dec	Note
Pesticides (SOCs)	101	1	
Regulated VOCs	101	1	

Sampling - Every 9 Years - Due To Be Sampled in 2016

Test	Site(s)	Jan - Dec	Note
Arsenic	101	1	
Primary IOCs	101	1	

Reporting - Monthly

Report	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Note
SWTR Summary Reports	R*	R*	R*	R*	R*	R*	R*	R*	R*	R*	R*	R*	(6)

Reporting - Quarterly

Report	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Note
Stage 2 Chlorine Residual Summary Report	R*	R*	R*	R*	(7)

Reporting - Annually

Report	Jan - Dec	Note
Acrylamide And Epichlorohydrin	R*	(8)
CCR	R*	(5)
RTCR Sampling Site Plan	R*	(12)

R* = Required

Note(s)

(3) Samples must be collected in accordance with the Stage 2 Sample Site Plan. Additional information will be provided later about specific sample dates/times.

(5) CCR must be submitted to the Department by July 1 and the Certification must be submitted to the Department by October 1.

(6) SWTR Summary Reports are due to the Department by the 10th of the following month.

(7) Stage 2 Chlorine Residual Summary Reports are due to the Department on January 10, April 10, July 10 and October 10 for the previous quarter.

(8) Any water system adding chemicals containing Acrylamide or Epichlorohydrin must report the previous calendar year's dosage information to the Department by the 10th of January.

(11) Samples must be collected in accordance with the Lead & Copper Rule Sample Site Plan and samples must also be collected between June 1 and September 30. Please confirm this schedule prior to sampling. Lead Consumer Notice requirements will apply.

(12) RTCR Sampling Site Plan must be submitted to the Department by December 1, 2015.

(14) Samples must be collected in accordance with the Total Coliform Rule or the Revised Total Coliform Rule Sampling Site Plans.

(15) Chlorine Residual measurements are to be taken at the same time and same location as the Total Coliform samples.

Sample Site Plans for Southwest Water Authority (ND4501434)

TCR Sample Site Plan - through March 31, 2016

TCR Site	Site Description	Desc Line 2	Desc Line 3	Desc Line 4
00	UNSPECIFIED TC POINT			
01	PRV W OF DICKINSON			
02	ZOE LIFE PRV			
03	HALLIDAY BOOSTER STA			
04	PRV N OF TAYLOR			
05	DAVIS BUTTE TANK			

06	HWY 21/22 PRV	
07	HEBRON PRV	
08	BUCYRUS PRV	
09	BURT BOOSTER PUMP	
10	ELGIN PRV	
11	BOWMAN RES	
12	NEW ENGLAND RES	
13	FRYBURG TANK	
14	GOLVA BPS VAULT	T139N, R105W, S22, NWNWQ
15	S FRYBURG VFD BOOSTER	T137N, R99W, S4, SW1/4
16	FAIRFIELD VFD BOOSTER	T141N, R99W, S11, NW1/4
17	BEACH TANK CONTROL VAULT	Twp 140N, Rge 105W, Sec 27, NE1/4
18	COFFIN BUTTES VFD BOOSTER PUMP STATION	Twp 132N, Rge 90W, Sec 5, NE1/4

Required RTCR Site Plan Not Yet Received

Lead & Copper Sample Site Plan

PBCU Site	Site Description	Desc Line 2	Desc Line 3	Desc Line 4
ALC21	29 LITTLESHALES CT	DICKINSON		
ALC42	9544 58 AVE SW MOTT	MOTT		
LC01	12020 HWY 10 DICKINS			
LC02	12631 37 ST SW SOUTH			
LC03	11680 HWY 10 W DICKI			
LC04	308 HWY 85 N BELFIELD			
LC05	1515 37 ST E DICKINS			
LC06	11095 3O STREET SW DICKINSON			
LC07	11270 31 ST SW DICKINSON			
LC08	3410 103 AVE SW GLAD			
LC09	10070 16 ST SW GLADSTONE			
LC10	1921 HWY 22 MANNING			
LC11	11125 25TH ST SW DICKINSON			

LC12	3881 121 AVE SW SOUTH HEART	
LC13	719 30 AVE SW DICKINSON	
LC14	1454 7 AVE SW DICKIN	
LC15	12230 4O ST SW SOUTH HEART	
LC16	4411 122 AVE SW SOUT	
LC17	3241 HWY 8 RICHARDTO	
LC18	9010 34 ST SW RICHAR	
LC19	9025 38 ST SW RICHARDTON	
LC20	3075 90 AVE SW RICHA	
LC22	4135 63 AVE SW GLEN ULLIN	
LC23	7841 35TH ST SW HEBRON	HEBRON
LC24	3640 60TH AVE	GLEN ULLIN
LC25	8080 32 1/2 STREET SW HEBRON	
LC26	7660 35 ST SW HEBRON	
LC27	7407 130TH AVE SW	SCRANTON
LC28	8875 62 ST SW MOTT	
LC29	7448 111 AVE SW REGENT	
LC30	10176 56 ST SW REGENT	REGENT
LC31	9099 71 ST SW MOTT	MOTT
LC32	10452 68 ST SW REGENT	
LC33	1310 11 AVE NW REEDER	
LC34	410 23RD ST SE LEMMON	LEMMON
LC35	105 2 AVE SW HETTINGER	HETTINGER
LC36	7910 68 AVE SW ELGIN	
LC37	7890 70TH AVE SW	ELGIN
LC38	8120 HWY 49 NEW LEIPZIG	
LC39	5890 65TH ST SW	ELGIN
LC40	6667 43 AVE SW FLASHER	
LC41	6890 51ST AVE SW	CARSON

Stage2 Sample Site Plan

Stage2 Site	Site Description	Desc Line 2	Desc Line 3	Desc Line 4
STG2-01	SOUTHWEST WATER AUTHORITY	Cleanout Valve (T135 R100 S7)		

STG2-02 SOUTHWEST WATER AUTHORITY Cleanout Valve (T130 R92 S27)

Other Sample Sites

Site		
101	SAMPLE STATION	*Detailed sample location information will be on bottle labels.
201	TREATMENT PLANT	*Detailed sample location information will be on bottle labels.
CH001	COMMON HEADER	*Detailed sample location information will be on bottle labels.

NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
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www.ndhealth.gov

MEMORANDUM

TO: Southwest Water Authority (ND4501434)

FROM: Division of Municipal Facilities
Drinking Water Program

DATE: March 6, 2017

RE: Safe Drinking Water Act Certificate of Achievement

Public water systems, such as yours, are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

The SDWA was passed by Congress in 1974 to protect public health by regulating the nation's public drinking (potable) water supplies. Over the years, there have been a number of changes to the Safe Drinking Water Act. These changes have made it more challenging to maintain compliance. The North Dakota Department of Health issues a Safe Drinking Water Act Certificate of Achievement as one way to recognize the public water systems that satisfied all applicable requirements during the previous calendar year.

In 2016, Southwest Water Authority satisfied all applicable Safe Drinking Water Act requirements. Southwest Water Authority is commended for this accomplishment from which their consumers benefitted.

To recognize Southwest Water Authority, the Department has issued the enclosed Safe Drinking Water Act Certificate of Achievement. Please provide a copy of the certificate to each of your water system staff. Information is also enclosed for your consideration should you wish to pursue a local news story.

Congratulations on a job well done.

For more information, please contact Greg Wavra, Drinking Water Program Manager at 701.328.5224.

Encs.

NORTH DAKOTA
DEPARTMENT *of* HEALTH

ENVIRONMENTAL HEALTH SECTION
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SOUTHWEST WATER AUTHORITY RECOGNIZED FOR SAFE DRINKING WATER ACT COMPLIANCE

Public water systems are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

The SDWA was passed by Congress in 1974 to protect public health by regulating the nation's public drinking (potable) water supplies. Over the years, there have been a number of changes to the Safe Drinking Water Act. These changes have made it more challenging to maintain compliance. The North Dakota Department of Health issues a Safe Drinking Water Act Certificate of Achievement as one way to recognize the public water systems that satisfied all applicable requirements during the previous calendar year.

In 2016, Southwest Water Authority complied with all applicable Safe Drinking Water Act requirements. To recognize this accomplishment, the North Dakota Department of Health issued Southwest Water Authority a Safe Drinking Water Act Certificate of Achievement.

Southwest Water Authority commends its water system staff for a job well done from which its consumers benefitted.

(Option: The water system may wish to list staff members by name.)

THE NORTH DAKOTA DEPARTMENT OF HEALTH

presents

Southwest Water Authority

this

CERTIFICATE OF ACHIEVEMENT

for satisfying applicable requirements of the

SAFE DRINKING WATER ACT

for the year 2016.

D. Wayne Kern

Division of Municipal Facilities

March 6, 2017

Date of Issuance

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NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

MEMORANDUM

TO: Omnd Water Treatment Plant (ND2901491)

FROM: Division of Municipal Facilities
Drinking Water Program

DATE: March 6, 2017

RE: Safe Drinking Water Act Certificate of Achievement

Public water systems, such as yours, are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

The SDWA was passed by Congress in 1974 to protect public health by regulating the nation's public drinking (potable) water supplies. Over the years, there have been a number of changes to the Safe Drinking Water Act. These changes have made it more challenging to maintain compliance. The North Dakota Department of Health issues a Safe Drinking Water Act Certificate of Achievement as one way to recognize the public water systems that satisfied all applicable requirements during the previous calendar year.

In 2016, Omnd Water Treatment Plant satisfied all applicable Safe Drinking Water Act requirements. Omnd Water Treatment Plant is commended for this accomplishment from which their consumers benefitted.

To recognize Omnd Water Treatment Plant, the Department has issued the enclosed Safe Drinking Water Act Certificate of Achievement. Please provide a copy of the certificate to each of your water system staff. Information is also enclosed for your consideration should you wish to pursue a local news story.

Congratulations on a job well done.

For more information, please contact Greg Wavra, Drinking Water Program Manager at 701.328.5224.

Encs.

NORTH DAKOTA
DEPARTMENT of HEALTH

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OMND WATER TREATMENT PLANT RECOGNIZED FOR SAFE DRINKING WATER ACT COMPLIANCE

Public water systems are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

The SDWA was passed by Congress in 1974 to protect public health by regulating the nation's public drinking (potable) water supplies. Over the years, there have been a number of changes to the Safe Drinking Water Act. These changes have made it more challenging to maintain compliance. The North Dakota Department of Health issues a Safe Drinking Water Act Certificate of Achievement as one way to recognize the public water systems that satisfied all applicable requirements during the previous calendar year.

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Omnd Water Treatment Plant commends its water system staff for a job well done from which its consumers benefitted.

(Option: The water system may wish to list staff members by name.)

THE NORTH DAKOTA DEPARTMENT OF HEALTH

presents

OMND Water Treatment Plant

this

CERTIFICATE OF ACHIEVEMENT

for satisfying applicable requirements of the

SAFE DRINKING WATER ACT

for the year 2016.

D. Wayne Kern

Division of Municipal Facilities

March 6, 2017

Date of Issuance

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701.328.5200 (fax)
www.ndhealth.gov

MEMORANDUM

TO: Southwest WA-Crown Butte(Missouri West) (ND3001488)

FROM: Division of Municipal Facilities
Drinking Water Program

DATE: March 6, 2017

RE: Safe Drinking Water Act Certificate of Achievement

Public water systems, such as yours, are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

The SDWA was passed by Congress in 1974 to protect public health by regulating the nation's public drinking (potable) water supplies. Over the years, there have been a number of changes to the Safe Drinking Water Act. These changes have made it more challenging to maintain compliance. The North Dakota Department of Health issues a Safe Drinking Water Act Certificate of Achievement as one way to recognize the public water systems that satisfied all applicable requirements during the previous calendar year.

In 2016, Southwest WA-Crown Butte(Missouri West) satisfied all applicable Safe Drinking Water Act requirements. Southwest WA-Crown Butte(Missouri West) is commended for this accomplishment from which their consumers benefitted.

To recognize Southwest WA-Crown Butte(Missouri West), the Department has issued the enclosed Safe Drinking Water Act Certificate of Achievement. Please provide a copy of the certificate to each of your water system staff. Information is also enclosed for your consideration should you wish to pursue a local news story.

Congratulations on a job well done.

For more information, please contact Greg Wavra, Drinking Water Program Manager at 701.328.5224.

Encs.

NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

SOUTHWEST WA-CROWN BUTTE(MISSOURI WEST) RECOGNIZED FOR SAFE DRINKING WATER ACT COMPLIANCE

Public water systems are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

The SDWA was passed by Congress in 1974 to protect public health by regulating the nation's public drinking (potable) water supplies. Over the years, there have been a number of changes to the Safe Drinking Water Act. These changes have made it more challenging to maintain compliance. The North Dakota Department of Health issues a Safe Drinking Water Act Certificate of Achievement as one way to recognize the public water systems that satisfied all applicable requirements during the previous calendar year.

In 2016, Southwest WA-Crown Butte(Missouri West) complied with all applicable Safe Drinking Water Act requirements. To recognize this accomplishment, the North Dakota Department of Health issued Southwest WA-Crown Butte(Missouri West) a Safe Drinking Water Act Certificate of Achievement.

Southwest WA-Crown Butte(Missouri West) commends its water system staff for a job well done from which its consumers benefitted.

(Option: The water system may wish to list staff members by name.)

THE NORTH DAKOTA DEPARTMENT OF HEALTH

presents

Southwest WA-Crown Butte(Missouri West)

this

CERTIFICATE OF ACHIEVEMENT

for satisfying applicable requirements of the

SAFE DRINKING WATER ACT

for the year 2016.

D. Wayne Kern

Division of Municipal Facilities

March 6, 2017

Date of Issuance

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NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

MEMORANDUM

TO: Southwest WA-Tower Hill (Missouri West) (ND3001489)

FROM: Division of Municipal Facilities
Drinking Water Program

DATE: March 6, 2017

RE: Safe Drinking Water Act Certificate of Achievement

Public water systems, such as yours, are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

The SDWA was passed by Congress in 1974 to protect public health by regulating the nation's public drinking (potable) water supplies. Over the years, there have been a number of changes to the Safe Drinking Water Act. These changes have made it more challenging to maintain compliance. The North Dakota Department of Health issues a Safe Drinking Water Act Certificate of Achievement as one way to recognize the public water systems that satisfied all applicable requirements during the previous calendar year.

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To recognize Southwest WA-Tower Hill (Missouri West), the Department has issued the enclosed Safe Drinking Water Act Certificate of Achievement. Please provide a copy of the certificate to each of your water system staff. Information is also enclosed for your consideration should you wish to pursue a local news story.

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For more information, please contact Greg Wavra, Drinking Water Program Manager at 701.328.5224.

Encs.

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SOUTHWEST WA-TOWER HILL (MISSOURI WEST) RECOGNIZED FOR SAFE DRINKING WATER ACT COMPLIANCE

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(Option: The water system may wish to list staff members by name.)

THE NORTH DAKOTA DEPARTMENT OF HEALTH

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Southwest WA-Tower Hill (Missouri West)

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Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

MEMORANDUM

TO: Southwest WA-Junction Inn(Missouri West) (ND3001490)

FROM: Division of Municipal Facilities
Drinking Water Program

DATE: March 6, 2017

RE: Safe Drinking Water Act Certificate of Achievement

Public water systems, such as yours, are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

The SDWA was passed by Congress in 1974 to protect public health by regulating the nation's public drinking (potable) water supplies. Over the years, there have been a number of changes to the Safe Drinking Water Act. These changes have made it more challenging to maintain compliance. The North Dakota Department of Health issues a Safe Drinking Water Act Certificate of Achievement as one way to recognize the public water systems that satisfied all applicable requirements during the previous calendar year.

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For more information, please contact Greg Wavra, Drinking Water Program Manager at 701.328.5224.

Encs.

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DEPARTMENT of HEALTH

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SOUTHWEST WA-JUNCTION INN(MISSOURI WEST) RECOGNIZED FOR SAFE DRINKING WATER ACT COMPLIANCE

Public water systems are required by the Safe Drinking Water Act (SDWA) to take many actions to provide safe drinking water.

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(Option: The water system may wish to list staff members by name.)

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D. Wayne Kern

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www.ndhealth.gov

July 25, 2016

SOUTHWEST WA - ZAP TREATMENT PLANT
c/o MASSAD, MARY
4665 2 ST SW
DICKINSON, ND 58601

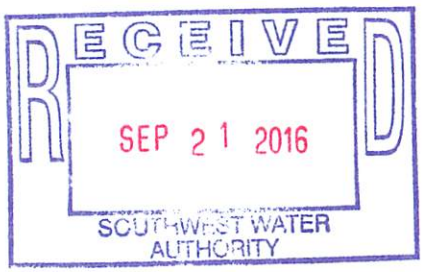
Public Water Supply I.D. No: ND2901491

Dear Ladies and Gentlemen:

On July 21, 2016, a representative of the Department of Health conducted a routine inspection/sanitary survey of the following as required by the Safe Drinking Water Act and/or the Clean Water Act:

Critical Inspection Areas

X	Drinking water source (well[s], spring[s], surface water, consecutive user)
X	Source water protection
X	Water treatment plant
	Chemical addition equipment for treatment of well water
X	Water distribution system
X	Finished water storage facilities
X	Potable water pumps, pump facilities, and controls
X	System managment and operation
X	Operator compliance with certification
X	Required monitoring and reporting, and data verification for drinking water
	Wastewater collection system
	Wastewater treatment facility



July 25, 2016

If any defects are noted in the enclosed inspection report, corrective action is required within the time line designated. You must notify this department in writing within forty-five (45) days of the date of this letter regarding the status of the corrected defects, or present a formalized plan to correct the defects.

Violations of the Safe Drinking Water and/or Clean Water Act, which have occurred within the last twelve (12) months, are discussed in the general remarks section of the inspection report, along with appropriate action to be taken by the system. In addition, any deficiencies reported in the critical inspection areas are also discussed with appropriate corrective action.

It is the intent of the department representative to complete a comprehensive inspection. However, factors such as time constraints, lack of appropriate testing, and accessibility may limit the detection of all defects in the system(s).

Please contact Shawn Heinle, the department representative who conducted the inspection at 701.328.6627 or me at 701.328.6622, if you have any questions regarding the inspection or the enclosed report.

Sincerely,

Mike Brisben

Mike Brisben
Administrator of Inspection Program
Division of Municipal Facilities

MB/:SH
Enc.

Custer District Health Unit

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF MUNICIPAL FACILITIES
BISMARCK, NORTH DAKOTA

DATE OF REPORT:	July 25, 2016
DATE OF SURVEY:	July 21, 2016
PLACE:	SOUTHWEST WA - ZAP TREATMENT PLANT
OBJECTIVE:	Drinking Water Survey
ACCOMPANIED BY:	Grace Rixen-Handford

DEFECTS, CORRECTIVE ACTIONS, TIME LINES, AND REFERENCES:

Drinking Water

DEFECT: No defects noted at this time.

CORRECTIVE ACTION:

TIME LINE:

REFERENCE:

COMMENT:

I appreciate the time and cooperation shown to me by Grace Rixen-Handford, during the recent inspection. If you have any questions or concerns, please contact me at 701.328.6627.

Respectfully Submitted,

Shawn Heinle
Environmental Scientist
Division of Municipal Facilities

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF MUNICIPAL FACILITIES
Survey of Public Drinking Water System

Facility Name: SOUTHWEST WA - ZAP TREATMENT PLANT
Address: 4665 2 ST SW
DICKINSON, ND 58601

County: Mercer
PWS#: ND2901491

GENERAL - FACILITY INFORMATION

Water treatment system classification	3
Inspection by	Shawn Heinle
Public Water System (PWS) Name	OMND Water Treatment Plant
PWS Owner or governing body	Cooperative
System Type	Community
Distribution system classification	2
Title	Environmental Scientist
Accompanied by	Grace Rixen-Handford
Title	Operator
Inspection Date	7/21/2016
Previous Inspection Date	10/30/2014

GENERAL - OPERATOR INFORMATION

Operator in direct responsible charge	Grace Rixen-Handford
Title	Operator
Water treatment certification grade	4
Water distribution system certification grade	1
Home address	
Home phone #	
Cell phone #	
E-mail address, if applicable	
Pager phone #	
Other certified operators and system personnel	See fact sheet.

GENERAL - SUMMARY

Source	N - No Deficiencies/Recommendations
Treatment	N - No Deficiencies/Recommendations
Distribution System	N - No Deficiencies/Recommendations
Finished Water Storage	N - No Deficiencies/Recommendations
Pumps (fac, cntls, etc.)	N - No Deficiencies/Recommendations
M&R & Date Verification	N - No Deficiencies/Recommendations
Management & Operations	N - No Deficiencies/Recommendations
Operator Compliance	N - No Deficiencies/Recommendations

Other	

GENERAL - SYSTEM INFORMATION

Physical Address	101 County Road 13
City / State / Zip	Zap, ND 58580
System Phone #	701-948-2272
System Fax #	
E-mail Address	
Operator Contact	Grace Rixen-Handford
Phone	701-290-0277
Administrative Contact	Mary Massad
Phone	701-225-0241
Population Served	2778
Annual water use (in gallons)	40,482,500 (2015 Report)
System interconnections	See Fact Sheet
Reason	Sell
System interconnections	.
Reason	.

MANAGEMENT - FINANCIAL INFORMATION

Number of residential connections	
Commercial connections	
Does the system maintain a separate set of accounts for the water utility?	Yes
Does the system produce and utilize an annual budget?	Yes
Are annual revenues greater than costs?	Yes
Water rates (attach rate schedule)	Rural 39.88 per month plus 4.39 per thousand gallons, Demand Contract 5.08 per thousand gallons, Contract 3.94 per thousand gallons.
Does the system conduct a financial audit of the water utility at least every five years?	Yes
Does the system fund and maintain a reserve account to be used strictly for emergency replacement of water system components or other unanticipated expenses related to the water system?	Yes
Are all service connections metered?	Yes
If no, percent metered connections	
Total # of connections	1000+, number grows with expansion.
Other connections	
Is the system in compliance with Government Accounting Standards Board (GASB) Statement 34?	Not applicable
Does the system have written accounting and audit procedures in place?	Yes
Does the system have bond insurance for employees who handle system funds?	Yes
Does the system have written billing procedures and a collection policy in place?	Yes

Does the system have written purchasing and inventory control in place?	Yes
Comments	

MANAGEMENT - GENERAL

Does the system have an organizational chart that shows the lines of authority?	Yes
Does the system have written job descriptions and selection criteria?	Yes
Does the system have a procedure in place for handling customer complaints?	Yes
Does the system have a public relations program (newsletters, news releases, bill fliers, open house, etc..)?	Yes

MANAGEMENT - OPERATIONS

Does operating staff have authority to make required decisions involving operations?	Yes
Does the system have operation and maintenance manuals?	Yes
Is an emergency plan of action available?	Yes
Is the plan reviewed and updated annually?	Yes
"equipment breakdown" found in Emergency Plan	Yes
"loss of power" found in Emergency Plan	Yes
"pipe/storage tank breaks" found in Emergency Plan	Yes
"security" found in Emergency Plan	Yes
"chemical or toxic spills" found in Emergency Plan	Yes
"natural disasters" found in Emergency Plan	Yes
"alternative sources of finished water" found in Emergency Plan	Yes
"recovery plan" found in Emergency Plan	Yes
"list of personnel and responsibilities" found in Emergency Plan	Yes
"communication procedures" found in Emergency Plan	Yes
"list of emergency equipment and facilities" found in Emergency Plan	Yes
"other items" found in Emergency Plan	

STORAGE - GROUND AND ELEVATED STORAGE 1

Interior paint type	Epoxy
Facility name	Orginal tank
Type	Ground
Construction material	Steel
Tank height (ft)	35
Overflow terminate 12 to 24 inches above ground?	Yes
Overflow screened or weighted flap	Yes
Corrosion control	Yes

Tank capacity in gallons	1.5 million
Date of last inspection	2012
Date interior painted	2012
NSF 61 certified (33-17-01-19.4.)	Yes
Date of last cleaning	2012
Apparent structural problems	No
Condition of tank exterior	Satisfactory
Roof leaks	No
Access hatch locked	Yes
Roof vent condition	Satisfactory
Tank drain	Yes
Access openings	Yes
Access ladders (protected against climbing?)	Yes
Valving operable?	Yes
Bypass present / operable?	Yes
Level control type	SCADA
Alarm system operable?	Yes
Security fence	Yes
Locked access	Yes
Comments	

STORAGE - GROUND AND ELEVATED STORAGE 2

Facility name	Plant clearwell
Type	Clearwell
Construction material	Concrete
Tank height (ft)	Not checked.
Overflow terminate 12 to 24 inches above ground?	Not applicable
Overflow screened or weighted flap	Not applicable
Corrosion control	Not applicable
Tank capacity in gallons	92, 807 (CT factor)
Date of last inspection	2012
Date interior painted	Not applicable
NSF 61 certified (33-17-01-19.4.)	Yes
Date of last cleaning	New in 2012
Apparent structural problems	No
Condition of tank exterior	Satisfactory
Roof leaks	No
Access hatch locked	Not applicable
Roof vent condition	Satisfactory
Tank drain	No
Access openings	Yes
Access ladders (protected against climbing?)	Yes
Valving operable?	Yes
Bypass present / operable?	No

Level control type	SCADA
Alarm system operable?	Yes
Security fence	Not applicable
Locked access	Yes
Comments	

STORAGE - GROUND AND ELEVATED STORAGE 3

Facility name	New Tank
Type	Ground
Construction material	Steel
Tank height (ft)	35
Overflow terminate 12 to 24 inches above ground?	Yes
Overflow screened or weighted flap	Yes
Corrosion control	Yes
Tank capacity in gallons	1.5 million
Date of last inspection	2014
Date interior painted	2014
NSF 61 certified (33-17-01-19.4.)	Yes
Date of last cleaning	2014
Apparent structural problems	No
Condition of tank exterior	Satisfactory
Roof leaks	No
Access hatch locked	Yes
Roof vent condition	Satisfactory
Tank drain	Yes
Access openings	Yes
Access ladders (protected against climbing?)	Yes
Valving operable?	Yes
Bypass present / operable?	Yes
Level control type	SCADA
Alarm system operable?	Yes
Security fence	Yes
Locked access	Yes
Comments	

DISTRIBUTION - DISTRIBUTION 1

Maximum distribution disinfectant residual (mg/L)	3.0
Location	TCR sample site
Minimum distribution disinfectant residual (mg/L)	2.0
Location	TCR sample site
Disinfectant residual check: Point of entry (mg/L)	3.2
Date of last update	2015

Does the system have a flushing program?	Yes
Frequency	As needed
Frequency	As needed
Are there maps of the distribution system(s)	Yes
How often are the maps updated	As needed
Does the system retain records or documentation on the following	
Operation and maintenance distribution system repairs	Yes
Leak detection / Water loss	Yes
Water loss last year (%)	< 3%
Does the system utilize directional flushing?	Yes
Does the system utilize pigging?	No
Frequency	As needed
Are valves inspected and exercised?	Yes
Are fire hydrants inspected and operated routinely?	Not applicable
Are sampling hydrants available?	No
Number	
Does the system have lead service lines in use?	No
If yes, does the system have a removal or replacement program	
Where does the systems responsibility for the distribution system end?	Curb stop
Frequency of checking distribution disinfectant residual?	Monthly
Is a DPD test being used?	Yes
Is the test kit able to read above 4 mg/L (manufacturer & model number)?	Yes
Reagent Supply	Yes
Historical maximum distribution pressure (psi)	130
Minimum pressure (psi)	45
Are pressure readings routinely done in the distribution system?	Yes
Frequency	As needed
Distribution pressure during inspection (psi)	Varied depending on location.
Is there a routine inspection program?	Yes
Is there a routine cleaning program?	Yes
How is water supply maintained with storage facilities out of service?	Other storage facilities
Does the water dispensing unit (bulk water sales) have a proper backflow prevention device?	Yes
Comments	

DISTRIBUTION - TRANSMISSION

Does the transmission line deliver untreated water to customers?	No
If yes, explain	
Length of raw water transmission line	8 miles

Size of raw water transmission line	10 "
Number of raw water transmission lines	2
Do the air relief valves terminate above ground level?	Yes
Are air relief valves screened?	Yes
Are blow off valves capped?	Not checked
Is there a valve exercise program for the transmission lines?	Yes
Frequency	As needed.
Is there an adequate spare part inventory available for the repair of transmission lines?	Yes
Are replacement materials NSF Standard 61 approved?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED

Chemical added	Ammonium Sulfate
MSDS	Yes
Dosage	Depends on water chemistry
Purpose	Disinfection
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes
Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	No
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED 2

Chemical added	Fluoride
MSDS	Yes
Dosage	Depends on water chemistry.
Purpose	Dental Health
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes

NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes
Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED 3

Chemical added	Vitec 3000
MSDS	Yes
Dosage	Depends on water chemistry.
Purpose	Anti-scalant
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes
Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED 4

Chemical added	Sodium Bisulfate
MSDS	Yes
Dosage	Depends on water chemistry.
Purpose	Dechloronation
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes

Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes
Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED 5

Chemical added	Sodium Hypochlorite
MSDS	Yes
Dosage	Depends on water chemsitry.
Purpose	UF membrane back-wash.
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes
Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED 6

Chemical added	Citric Acid
MSDS	Yes
Dosage	Depends on water chemistry.
Purpose	UF membrane cleaning
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes

Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED 7

Chemical added	High and Low pH products.
MSDS	Yes
Dosage	Depends on water chemistry.
Purpose	RO cleaning.
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes
Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED 8

Chemical added	Ozone
MSDS	Yes
Dosage	Depends on water chemistry.
Purpose	Disinfection.
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	Yes
Is the appropriate chemical safety equipment available to all personnel?	Yes

Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	

TREATMENTS - DISINFECTION-CHLORINE

Application point	Pre-filter and Post-filter
Disinfection type	Chlorine gas using 1 ton cylinders
Purpose	Disinfection
Comments	
Separate chlorine room?	Yes
Room free of chemicals?	Yes
All openings sealed?	Yes
Chlorine room locked?	Yes
Door opens to outside?	Yes
Exterior electrical switch?	Yes
Chlorinator vent screened?	Yes
Adequate ventilation?	Yes
Platform scale?	Yes
Wrench on cylinder valve?	No
Cylinders chained to wall?	Not applicable
Caps on extra cylinders?	Not applicable
Ammonia bottle available?	Yes
Proper vacuum feed system?	Yes
Gas leak alarm system?	Yes
Is respiratory protection available?	Yes
Is there an adequate spare parts inventory?	Yes
Comments	Windows to room also have fire doors
Are all applicable cross-connection devices installed?	Yes
Comments	

TREATMENTS - MEMBRANES

Type of Membrane Filter	Toray Holoow Fiber Membrane (NTU) Wigen Water Technologies (RO)
Number of membranes	5 UF mains, 2 UF secondary, 3 ROs.
Date of last membrane installation or replacement	2014
Useful life of membranes (years)	10
Life remaining on current membranes	Varies as membranes are replaced.
Pretreatment requirements	Chlorine
Purpose	Chlorination (biological)
Maximum filtration rate at design capacity in gallons per minute (gpm)	Rated on pressure

Treatment Efficiency (%)	80-85%
Comments	
How much water bypasses the unit (%)?	Bypassed water varies and is recycled.
Comments	
What is the percent of brine or reject water (%)?	15-20%
How is the brine or reject water disposed of?	Recycle to head of plant
Type of post treatment	Chloramines
Are loss of head gauges present on the inlet and outlet of the filter?	Yes
Are the gauges functioning?	Yes
Has the RO unit experienced membrane fouling?	Yes
If yes, type of fouling	Due to blending of water between ROs and UFs, 60/40.
How are the membranes cleaned?	Replaced.
How often are the membranes cleaned?	Once per year.
What chemicals are used to clean the membranes?	pH products.
Does the operator keep records of cleaning and repairs?	Yes
How is the adequacy of the cleaning process evaluated?	Pressure tests
Does the operator have an owner's manual for the unit?	Yes
Adequate humidity control?	Yes
Painting adequate?	Yes
Plant locked?	Yes
Comments	1 Secondary Skid, 2 Primary Skids

SOURCE - SURFACE WATER 1

Source Type	Surface water intake
Other	
Does the system have a water permit from State Water Commission?	Yes
Is the permit adequate?	No
Does the system have a Watershed Management Program?	Yes
Does the system have a delineated Source Water Protection Area (SWPA)?	Yes
Date	2003
Has a contaminate inventory for the SWPA been completed?	Yes
Date	2003
Is the source water quality tested for each source?	Yes
Frequency	
Comments	
Is there an emergency response plan for spills within SWPA?	Yes
Has an encroachment resolution or ordinance been adopted?	Not applicable

Date	
Is the source adequate to meet current needs?	No
Comment	Water usage is a max for current permit. SWA is adding second intake.
Is the source metered at all sites?	Yes
Comment	
Are there provisions for drought mitigation or management?	Yes
Comment	
Are the source water facilities located within a floodplain?	No
If yes, which source water facilities are located within a floodplain?	
Has the source water facility ever been flooded?	No
If flooded, are operations impaired?	Not applicable
Comment	

SOURCE - SW FACILITES1

Source Locations(s)	Intake in Lake Sakakawea
Source common Name(s)	
Frequency site is inspected by PWS	Site is leased from Basin Electric. Basin does inspections.
Other	
Average daily flow (gpm)	500
Comments on average flow	
Maximum daily flow (gpm)	3400
Comments on Maximum flow	
Intake structure(s) able to function at multiple depths?	No
Depths	1862 (280 foot difference from intake to transmission pipe)
Last inspection date	2010
Inspection type	Video
Other inspections	none
Which of the following can impact water quality at this facility	
Turbidity from excess runoff	Yes
Explain Turbidity	Spring runoffs
Vulnerability to spills	Yes
Explain vulnerability to spills	Spills from oil wells near lake
Livestock feeding or grazing	No
Explain livestock feeding or grazing	
Unrestricted swimming or boating	Yes
Explain unrestricted swimming or boating	
Excessive siltation	No
Explain excessive siltation	
Can water be withdrawn during prolonged drought?	Yes

Minimum usable water level	1860 feet
Are facilities well maintained?	Yes
Are facilities secure?	Yes
Does facility allow recreational use?	Yes
Are there special provisions for recreational use?	No
Explain the security measures for this source	
Comments	

RECORDS - CHEMICAL

Volatile organic chemicals	Yes
Nitrite / nitrate	No
Pesticides	Not applicable
Primary inorganic chemicals	Yes
Secondary inorganic chemicals	Yes
Radionuclides	Yes
Are testing records available?	Yes
Are calibration records readily available?	Yes
Is testing equipment calibrated or standardized?	Yes

RECORDS - CONTROL SYSTEMS

Briefly describe the controls	PC based and SCADA monitors reserviors
Age of control system or installation date	2012
Mode of Communications	Phone owned
Federal Communication Commission (FCC) license number	Not applicable
Exp. Date	
Other	
Is there a backup communications system?	No
Explain	
Is backup power available for control systems (uninterruptible power supply)?	Yes
Duration of backup	Until fuel not availible, 3 days of 8 hour run time.
Are all control wires properly tagged and / or identified?	Yes
Frequency of data logging - Chlorine residual	Continuous
Frequency of data logging - Combined filter effluent turbidity	Continuous report is hourly
Frequency of data logging - Individual filter effluent turbidity	Continuous report is hourly
Frequency of reports	Hourly
Comments	
Are all necessary control aspects of system operations included in the control system?	Yes
Comments	
Who has the authority to make set-point changes?	Operators

Is system secure?	Yes
Comments	
Explain the alarm or call out system	Computer calls cell phones
Is a spare parts inventory maintained on-hand?	No
Comments	
Is lightning protection installed?	Yes
Type	
Comments	

RECORDS - DBPR

TTHMs/HAA5 records?	Yes
TTHMs MCL (0.080 mg/L) exceeded?	No
HAA5 MCL (0.060 mg/L) exceeded?	No
Free chlorine, chloramines or total chlorine exceeded (4.0 mg/L)?	No
Sample siting plan?	Yes
Where is the point of maximum detention time in the distribution system?	See fact sheet
How is the point of maximum detention time determined?	Distance & usage
DBPR summary form	Yes

RECORDS - GENERAL

Are there any recent violations for the system?	No
If yes, explain	
Are there any recent administrative orders for the system?	No
If yes, explain	
Are the requirements of the order being followed?	Not applicable
If not, explain	
Bacteriological records?	Yes
Sample siting plan?	Yes
Lead/Copper records?	Yes
Sample siting plan?	Yes
Did system exceed action level for lead (0.015 mg/L)?	No
If yes, explain treatment technique	
Did system exceed action level for copper (1.3 mg/L)?	No
If yes, explain treatment technique	
Consumer Confidence Report (CCR)	Yes
Is the system current with all monitoring requirements?	Yes
Comments	

RECORDS - SURFACE WATER

Individual filter turbidity monitoring data form	Yes

Is the system meeting their individual filter effluent (IFE) requirements?	Yes
Individual filter monitoring exceptions form	Yes
Is combined filter effluent (CFE) <= 0.3 NTU in at least 95% of monthly readings?	Yes
Is CFE levels less than 1 NTU?	Yes
Point of entry disinfectant residual monitoring form	Yes
Is the system meeting its point-of-entry disinfectant residual monitoring requirements?	Yes
Distribution disinfectant residual monitoring data form	Yes
Total organic carbon (TOC) records?	Yes
Enhanced coagulation or softening	No
Total organic carbon (TOC) removal (%)	2.26 mg/L
Required removal of TOC (%)	15
Is actual removal percent greater than required removal percent?	Not checked
Interim Enhanced Surface Water Treatment Rule (IESWTR) – 2 log (99% removal of cryptosporidium) IESWTR summary form?	Yes
Finished water turbidity monitoring data form	Yes
Comments	

PUMPS - PUMP 1

Location/ID	Pump Room
Preventive maintenance program?	Yes
Backup power available?	Yes
Comments	
Are all pumps operational	Yes
Is redunancy provided?	Yes
Are adequate spare parts on hand for repairs?	Yes
Are the pump facilities subject to flooding?	No
If yes, what are the provisions?	
Are all drains properly screened?	Yes
Are all vents properly screened?	Yes
Are the following items at all facilities adequate for operation?	
Lighting	Yes
Signage	Yes
Ventilation	Yes
Heating	Yes
Interior drainage	Yes
Comments	

NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

To: Southwest WA - Zap Treatment Plant PWS Number: ND2901491

From: Division of Municipal Facilities, Drinking Water Program

Date: November 13, 2015

Re: Sampling and Reporting Schedule for 2016

The attached report lists the tentative sampling and reporting requirements for Southwest WA - Zap Treatment Plant during the calendar year 2016. While the department believes this report to be accurate, proper testing and reporting is ultimately the water system's responsibility.

The sampling schedule(s) may have changed after the printing of this report and may unexpectedly change throughout the year. For example, a positive bacteria test will require follow-up testing which is not reflected on this report.

Please contact the appropriate person below with any questions regarding the testing or reporting requirements.

Category	Contact	Phone	Email
System changes (new operators, contact information updates, etc.)	Tammy Lamphear	701-328-5295	tmlamphear@nd.gov
Bacteria (distribution system)	Jeni Walsh	701-328-5231	jwalsh@nd.gov
RTCR sampling site plans, assessments, seasonal system start-up procedures	Josh Seerup	701-328-5257	jseerup@nd.gov
Lead, copper, arsenic, nitrate/nitrite, added fluoride, lead consumer notice	Amy Kinzler	701-328-5258	ankinzler@nd.gov
Surface water requirements	Mike Trythall	701-328-5269	mtrythal@nd.gov
Violations, public notice, CCR	LeeAnn Tillotson	701-328-5293	ltillots@nd.gov
Acrylamide and epichlorohydrin, filter backwash recycling, bacteria (source)	Gary Stefanovsky	701-328-5287	gstefano@nd.gov
Disinfection byproducts, volatile organic compounds, synthetic organic compounds (pesticides), primary and secondary inorganic compounds, Maximum Residual Disinfectant Levels	Lydia Fewless	701-328-5221	lfewless@nd.gov
Electronic reporting	Barrett Brown	701-328-5209	bjbrown@nd.gov

Estimated 2016 Sampling and Reporting Requirements for: Southwest WA - Zap Treatment Plant (ND2901491)

Sampling - Monthly

Test	Site(s)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Note
Carbon, Total	201	1	1	1	1	1	1	1	1	1	1	1	1	
TOC & Alkalinity	CH001	1	1	1	1	1	1	1	1	1	1	1	1	
Bacteria (RTCR Sites) And	RTCR Sites				2	2	2	2	2	2	2	2	2	(14)
Chlorine Residual					2	2	2	2	2	2	2	2	2	(15)
Bacteria (TCR Sites) And	TCR Sites	2	2	2										(14)
Chlorine Residual		2	2	2										(15)

Sampling - Quarterly

Test	Site(s)	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Note
Stage 2 DBP (TTHM/HAA5)	Stage 2 Sites	1	1	1	1	(3)

Sampling - Annually

Test	Site(s)	Jan - Dec	Note
Arsenic	101	1	
Nitrate-Nitrite	101	1	

Sampling - Every 3 Years - Due To Be Sampled in 2016

Test	Site(s)	Jan - Dec	Note
Regulated VOCs	101	1	
Lead & Copper	Lead & Copper Sites	10	(11)

Sampling - Every 6 Years - Due To Be Sampled in 2016

Test	Site(s)	Jan - Dec	Note
Pesticides (SOCs)	101	1	

Sampling - Every 9 Years - Due To Be Sampled in 2016

Test	Site(s)	Jan - Dec	Note
Primary IOCs	101	1	

Reporting - Monthly

Report	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Note
SWTR Summary Reports	R*	R*	R*	R*	R*	R*	R*	R*	R*	R*	R*	R*	(6)

Reporting - Quarterly

Report	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Note
Stage 2 Chlorine Residual Summary Report	R*	R*	R*	R*	(7)

Reporting - Annually

Report	Jan - Dec	Note
Acrylamide And Epichlorohydrin	R*	(8)
CCR	R*	(5)
RTCR Sampling Site Plan	R*	(12)

R* = Required

Note(s)

(3) Samples must be collected in accordance with the Stage 2 Sample Site Plan. Additional information will be provided later about specific sample dates/times.

(5) CCR must be submitted to the Department by July 1 and the Certification must be submitted to the Department by October 1.

(6) SWTR Summary Reports are due to the Department by the 10th of the following month.

(7) Stage 2 Chlorine Residual Summary Reports are due to the Department on January 10, April 10, July 10 and October 10 for the previous quarter.

(8) Any water system adding chemicals containing Acrylamide or Epichlorohydrin must report the previous calendar year's dosage information to the Department by the 10th of January.

(11) Samples must be collected in accordance with the Lead & Copper Rule Sample Site Plan and samples must also be collected between June 1 and September 30. Please confirm this schedule prior to sampling. Lead Consumer Notice requirements will apply.

(12) RTCR Sampling Site Plan must be submitted to the Department by December 1, 2015.

(14) Samples must be collected in accordance with the Total Coliform Rule or the Revised Total Coliform Rule Sampling Site Plans.

(15) Chlorine Residual measurements are to be taken at the same time and same location as the Total Coliform samples.

Sample Site Plans for Southwest WA - Zap Treatment Plant (ND2901491)

TCR Sample Site Plan - through March 31, 2016

TCR Site	Site Description	Desc Line 2	Desc Line 3	Desc Line 4
00	SOUTHWEST WA - BEULAH ISA (BEULAH)	Unspecified TC Point		
01	MORAST PRV VAULT			
02	HAZEN PRV VAULT			
03	DAKOTA HELICOPTERS	6620 County Road 20	Bathroom sink	
04	RDO EQUIPMENT			

05	ZAP PRV VAULT
06	BEULAH PRV VAULT
07	ROUGHRIDER RVS INC

Required RTCR Site Plan Not Yet Received

Lead & Copper Sample Site Plan

PBCU Site	Site Description	Desc Line 2	Desc Line 3	Desc Line 4
ALC01	1933 COTTONTAIL DRIVE, BEULAH			
LC01	1840 MURRAY DRIVE			
LC02	1816 MURRAY DRIVE			
LC03	1728 COTTONTAIL DRIVE			
LC04	517 1ST ST SW			
LC05	1937 COTTONTAIL DRIVE			
LC06	1739 COTTONTAIL DRIVE			
LC07	1925 COULEE DRIVE			
LC08	1731 COTTONTAIL DRIVE			
LC09	1921 COTTONTAIL DRIVE			
LC10	6140 COUNTY ROAD 20			

Stage2 Sample Site Plan

Stage2 Site	Site Description	Desc Line 2	Desc Line 3	Desc Line 4
STG2-01	SOUTHWEST WA - ZAP TREATMENT PLANT	T145 R85 Sec25SW1/4	Clean-out	
STG2-02	SOUTHWEST WA - ZAP TREATMENT PLANT	Joe & Brenda Schutt	09054 (7-9A)	

Other Sample Sites

Site		
201	TREATMENT PLANT	*Detailed sample location information will be on bottle labels.
101	SAMPLE STATION	*Detailed sample location information will be on bottle labels.
CH001	COMMON HEADER	*Detailed sample location information will be on bottle labels.

NORTH DAKOTA
DEPARTMENT of HEALTH

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Gold Seal Center, 918 E. Divide Ave.
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www.ndhealth.gov

RECEIVED
SEP 21 2016
SOUTHWEST WATER AUTHORITY

July 25, 2016

SOUTHWEST WATER AUTHORITY
c/o MASSAD, MARY
4665 2ND ST SW
DICKINSON, ND 58601

Public Water Supply I.D. No: ND4501434

Dear Ladies and Gentlemen:

On July 20, 2016, a representative of the Department of Health conducted a routine inspection/sanitary survey of the following as required by the Safe Drinking Water Act and/or the Clean Water Act:

Critical Inspection Areas

X	Drinking water source (well[s], spring[s], surface water, consecutive user)
X	Source water protection
X	Water treatment plant
X	Chemical addition equipment for treatment of well water
X	Water distribution system
	Finished water storage facilities
X	Potable water pumps, pump facilities, and controls
X	System managment and operation
X	Operator compliance with certification
X	Required monitoring and reporting, and data verification for drinking water
	Wastewater collection system
	Wastewater treatment facility

July 25, 2016

If any defects are noted in the enclosed inspection report, corrective action is required within the time line designated. You must notify this department in writing within forty-five (45) days of the date of this letter regarding the status of the corrected defects, or present a formalized plan to correct the defects.

Violations of the Safe Drinking Water and/or Clean Water Act, which have occurred within the last twelve (12) months, are discussed in the general remarks section of the inspection report, along with appropriate action to be taken by the system. In addition, any deficiencies reported in the critical inspection areas are also discussed with appropriate corrective action.

It is the intent of the department representative to complete a comprehensive inspection. However, factors such as time constraints, lack of appropriate testing, and accessibility may limit the detection of all defects in the system(s).

Please contact Shawn Heinle, the department representative who conducted the inspection at 701.328.6627 or me at 701.328.6622, if you have any questions regarding the inspection or the enclosed report.

Sincerely,

Mike Brisben

Mike Brisben
Administrator of Inspection Program
Division of Municipal Facilities

MB/:SH
Enc.

Southwestern District Health Unit
Grace Rixen-Handford, Plant Manager
Lee Messer, Water Distribution Manager

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF MUNICIPAL FACILITIES
BISMARCK, NORTH DAKOTA

DATE OF REPORT:	July 25, 2016
DATE OF SURVEY:	July 20, 2016
PLACE:	SOUTHWEST WATER AUTHORITY
OBJECTIVE:	Drinking Water Survey
ACCOMPANIED BY:	Grace Rixen-Handford and Toby Turner

DEFECTS, CORRECTIVE ACTIONS, TIME LINES, AND REFERENCES:

Drinking Water

DEFECT:	Appropriate Material Safety Data Sheet (MSDS) is not posted for chemical in use.
CORRECTIVE ACTION:	All chemicals used to treat water to public health standards shall have Material Safety Data Sheets (MSDS) posted at the storage location and next to the chemical feed equipment. Copies shall be on file with the local fire department, county disaster emergency service office, and SARA Title III coordinator.
TIME LINE:	**7 days**
REFERENCE:	Department of Health Policy 98-119; SARA Title III Rules.
COMMENT:	

I appreciate the time and cooperation shown to me by Grace Rixen-Handford and Toby Turner, during the recent inspection. If you have any questions or concerns, please contact me at 701.328.6627.

Respectfully Submitted,

Shawn Heinle
Environmental Scientist
Division of Municipal Facilities

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF MUNICIPAL FACILITIES
Survey of Public Drinking Water System

Facility Name: SOUTHWEST WATER AUTHORITY
Address: 4665 2ND ST SW
DICKINSON, ND 58601

County: Stark
PWS#: ND4501434

Water NDPDES Permit: ND0023183

GENERAL - FACILITY INFORMATION

Water treatment system classification	4
Inspection by	Shawn Heinle
Public Water System (PWS) Name	Southwest Water Authority
PWS Owner or governing body	Cooperative
System Type	Community
Distribution system classification	2
Title	Environmental Scientist
Accompanied by	Grace Rixen-Handford and Toby Turner
Title	Operator
Inspection Date	7/20/2016
Previous Inspection Date	8/11/2014

GENERAL - OPERATOR INFORMATION

Operator in direct responsible charge	See attached sheets.
Title	
Water treatment certification grade	
Water distribution system certification grade	
Home address	
Home phone #	
Cell phone #	
E-mail address, if applicable	
Pager phone #	
Other certified operators and system personnel	
Name	
Treatment Grade	
Distribution Grade	
Name	
Treatment Grade	
Distribution Grade	
Name	
Treatment Grade	
Distribution Grade	

Name	
Treatment Grade	
Distribution Grade	
Comments	

GENERAL - SUMMARY

Source	
Treatment	
Distribution System	
Finished Water Storage	
Pumps (fac, cntls, etc.)	
M&R & Date Verification	R - Recommendation(s) Made
Management & Operations	
Operator Compliance	
Other	

GENERAL - SYSTEM INFORMATION

Physical Address	4665 2nd Street SW
City / State / Zip	Dickinson, ND 58601
System Phone #	701.225.0241
System Fax #	
E-mail Address	mmassad@swwater,com
Operator Contact	Andrew Erickson Jr. (see attached sheets for a list of certified operators)
Phone	701-225-0241
Administrative Contact	Mary Massad
Phone	701-225-0241
Population Served	8537 (SWA)
Annual water use (in gallons)	2,239,748,000 total treated water (2015)
System interconnections	See Fact Sheet
Reason	Sell
System interconnections	
Reason	

MANAGEMENT - FINANCIAL INFORMATION

Number of residential connections	6,200
Commercial connections	26 contract, 21 raw water, 2 rural water systems, and 2 raw water depots.
Does the system maintain a separate set of accounts for the water utility?	Not applicable
Does the system subsidize other departments within the city?	Not applicable
Does the system produce and utilize an annual budget?	Yes
Are annual revenues greater than costs?	Yes

Water rates (attach rate schedule)	Rural $39.88, $4.58 / 1,000 gal. after and $4.06 / 1,000 gal. above 10,000 gal. Demand contract $5.07/1,000, Contract cust. $3.94/1,000, Oil $22.00/1,000, Raw $3.16/1,000
Does the system conduct a financial audit of the water utility at least every five years?	Yes
Does the system fund and maintain a reserve account to be used strictly for emergency replacement of water system components or other unanticipated expenses related to the water system?	Yes
Are all service connections metered?	Yes
Total # of connections	6251 (2015 Annual Report p. 11)
Is the system in compliance with Government Accounting Standards Board (GASB) Statement 34?	Yes
Does the system have written accounting and audit procedures in place?	Yes
Does the system have bond insurance for employees who handle system funds?	Yes
Does the system have written billing procedures and a collection policy in place?	Yes
Does the system have written purchasing and inventory control in place?	Yes
Comments	

MANAGEMENT - GENERAL

Does the system have an organizational chart that shows the lines of authority?	Yes (annual report)
Does the system have written job descriptions and selection criteria?	Yes
Does the system have a procedure in place for handling customer complaints?	Yes
Does the system have a public relations program (newsletters, news releases, bill fliers, open house, etc..)?	Yes (newsletter, web site)

MANAGEMENT - OPERATIONS

Does operating staff have authority to make required decisions involving operations?	Yes
Does the system have operation and maintenance manuals?	Yes
Is an emergency plan of action available?	Yes (not reviewed)
Is the plan reviewed and updated annually?	Yes
"equipment breakdown" found in Emergency Plan	Yes
"loss of power" found in Emergency Plan	Yes
"pipe/storage tank breaks" found in Emergency Plan	Yes
"security" found in Emergency Plan	Yes
"chemical or toxic spills" found in Emergency Plan	Yes
"natural disasters" found in Emergency Plan	Yes
"alternative sources of finished water" found in Emergency Plan	No

"recovery plan" found in Emergency Plan	Yes
"list of personnel and responsibilities" found in Emergency Plan	Yes
"communication procedures" found in Emergency Plan	Yes
"list of emergency equipment and facilities" found in Emergency Plan	Yes
"other items" found in Emergency Plan	

STORAGE - GROUND AND ELEVATED STORAGE 1

Interior paint type	Epoxy
Facility name	See attached list
Type	Elevated
Construction material	Steel
	Also, concrete.
Tank height (ft)	Varies
Overflow terminate 12 to 24 inches above ground?	Yes
Overflow screened or weighted flap	Yes
Corrosion control	Yes
Tank capacity in gallons	See attached list
Date of last inspection	See attached list
Date interior painted	See attached list
NSF 61 certified (33-17-01-19.4.)	Yes
Date of last cleaning	Rotates, five year period.
Apparent structural problems	No
Condition of tank exterior	Satisfactory
Roof leaks	No
Access hatch locked	Yes
Roof vent condition	Satisfactory
Tank drain	Yes
Access openings	Yes
Access ladders (protected against climbing?)	Yes
Valving operable?	Yes
Bypass present / operable?	Yes
Level control type	SCADA
Alarm system operable?	Yes
Security fence	Yes
Locked access	Yes
Comments	

DISTRIBUTION - DISTRIBUTION 1

Maximum distribution disinfectant residual (mg/L)	3.6
Location	Locations near treatment plant
Minimum distribution disinfectant residual (mg/L)	2.4

Location	Low use areas, operators will flush lines if residual drops below 1.5 mg/L
Disinfectant residual check: Point of entry (mg/L)	3.0
Date of last update	2016
Does the system have a flushing program?	Yes
Frequency	As needed
Frequency	Yearly
Are there maps of the distribution system(s)	Yes
How often are the maps updated	As needed
Does the system retain records or documentation on the following	
Operation and maintenance distribution system repairs	Yes
Leak detection / Water loss	Yes
Water loss last year (%)	About 6.39%
Does the system utilize directional flushing?	Yes
Does the system utilize pigging?	Yes
Frequency	As needed
Are valves inspected and exercised?	Yes
Are fire hydrants inspected and operated routinely?	Not applicable
Are sampling hydrants available?	Yes
Does the system have lead service lines in use?	No
Where does the systems responsibility for the distribution system end?	Curb stop
Other checks	Operators take chlorine residuals several times a month at each vault (very good records)
Frequency of checking distribution disinfectant residual?	Monthly
Is a DPD test being used?	Yes
Is the test kit able to read above 4 mg/L (manufacturer & model number)?	Yes
Reagent Supply	Yes
Historical maximum distribution pressure (psi)	Varies depending on location.
Minimum pressure (psi)	Will not hook up if less than 20 PSI
Are pressure readings routinely done in the distribution system?	Yes
Frequency	Several times a month at vaults
Distribution pressure during inspection (psi)	Varied, see attached list
Location	Meter pits, vaults, VFDs
Is there a routine inspection program?	Yes
Is there a routine cleaning program?	Yes
How is water supply maintained with storage facilities out of service?	Other storage facilities
Does the water dispensing unit (bulk water sales) have a proper backflow prevention device?	Yes
Comments	

TREATMENTS - CHEMICALS AND CHEMICAL FEED

Chemical added	Aqua Pure AF 3335, Aqua Hawk 2325, Hawkins-Simplot Ammonium Sulfate, Innophos Sodium Tripolyphosphate, Hawkins-Hydrofluorosilic Acid, Hawkins-Chlorine Gas, Hawkins -Sodium Permanganate, Lime, Carbon Dioxide.
MSDS	Yes
Dosage	Varies
Purpose	Flocculant & Coagulant, Fluoridation, Chloramination, Taste & Odor, Hardness removal, pH adjustment
Backflow (anti-siphon)	Yes
Flow sensing switch	Yes
Containment	Yes
Vent	Yes
Records	Yes
NSF Standard 60	Yes
Is the Material Safety Data Sheet (MSDS) readily accessible to all personnel?	No
Is the appropriate chemical safety equipment available to all personnel?	Yes
Are there any visible problems with the application point?	No
Is there redundancy or a backup unit available for the feeder?	Yes
Cross connection control for chemical feed?	Yes
Do the chemical feeders stop when water is not flowing?	Yes
Comments	Moved sodium permanganate feed point to Richardton pumping station, previous location caused issues with OMD plant.

TREATMENTS - DISINFECTION-CHLORINE

Application point	Dodge raw water reservoir and treatment plant
Disinfection type	Chloramines
Purpose	Disinfection
Comments	Added a shower & eye wash outside chlorine room (result of an EPA contractor inspection)
Separate chlorine room?	Yes
Room free of chemicals?	Yes
All openings sealed?	Yes
Chlorine room locked?	Yes
Door opens to outside?	Yes
Exterior electrical switch?	Switch inside plant at window looking into chlorine room
Chlorinator vent screened?	Yes
Adequate ventilation?	Yes
Platform scale?	Yes
Wrench on cylinder valve?	Yes
Cylinders chained to wall?	Not applicable

Caps on extra cylinders?	Yes
Ammonia bottle available?	Yes
Proper vacuum feed system?	
Gas leak alarm system?	Yes
Is respiratory protection available?	Yes
Is there an adequate spare parts inventory?	Yes
Comments	
Are all applicable cross-connection devices installed?	Yes
Comments	Using a CL 17 inline chlorine meter & Hach 2700 at plant

TREATMENTS - FACILITIES AND PROCESSES

Physical location and directions, if necessary	
Are there any potential contamination sources in the vicinity of the plant?	No
If yes, explain	
Are the grounds and facility well maintained?	Yes
Is the facility secure from unauthorized access?	Yes
Summer operation hours	6 am to 12pm, looking at running 24 hours during peak demand, ran 24 hours a day when 8 MGD contact unit was down for maintenance.
Winter operation hours	8 am to 6 pm
Design capacity of plant (Gallons Per Day (GPD))	12 MGD
Average daily production (gallons)	5.3 MGD (2015)
Maximum daily production (gallons)	10+ MGD
Total annual production	1,947,394,000 (page 13, 2015 annual report)
Total annual production unit	million gallons
Are there any limitations to plant flows?	Yes
If yes, what are the limitations?	Filter capacity
Is there a backup or standby power source?	Yes
Type	
Frequency of testing of emergency power source	Monthly
Preventive maintenance program?	Yes
Comments	

TREATMENTS - GRAVITY FILTERS

Number of filters	7
Installation date	
Filter technology	3 gravity (#s 5-7) and 4 greenleaf gravity (#s1-4) filters
Filter media	Anthracite
Gravel support	Yes
Other	Also uses rapid sand.
Date of last media installation or replacement?	Looking to add anthracite in 2017, 3 to 8 " depending on which filter.

Are there any visible problems with filter media?	No
Comments	Chlorinate filters in spring.
Date underdrain system was inspected?	2005
Designed filtration rate (gpm /sq. ft.)	4.2
Design media depth	30 inches
Current media depth	Average 22" (greenleaf), 25" (rapid sand)
Criteria for initiating backwash	Filter run time
Monitoring equipment - Rate-of-flow controller (s)	Yes
Type	Set speed
Filter effluent turbidimeters	Yes
Loss-of-head indicators	Yes
Is there a surface wash system for the filter?	Yes
Is there air scour?	Yes
Is the surface wash system used during entire backwash?	No
Is there filter to waste capability?	No
Is there cross connection protection?	Yes
How are back washed filters brought back onto line	Filter rests for 30 minutes before being brought back online
Condition of pipe gallery	Satisfactory
Has a filter profile been developed for the filter?	No
Comments	
Has a filter self-assessment been completed for the filter?	No
Comments	
Date of last assessment	
Significant findings	
Date of last filter effluent turbidimeter calibration?	July 2016
Calibration frequency	Secondary is weekly, primary every 4 months
Are calibration records current and accessible?	Yes
Comments	
How are required turbidimeter readings recorded?	Data-logging
Frequency of readings	15 minutes
Is redundancy provided for readings?	Yes
Is backwash water retained for recycle?	Yes
If yes, method	Water is allowed to settle overnight then brought back to head of plant
Comment	
What is the point of entry for recycling backwash water?	Head of plant
Comments	

TREATMENTS - SOLIDS CONTACT UNIT

Type	Accelator

Manufacturer	Infilco
Capacity of unit	8 MGD (106) and 4 MGD (105), Units are drained, cleaned, and serviced every February.
Impeller drive working?	Yes
Is food grade grease used on impeller drive chain?	Yes
Adequate mixing in the primary or secondary mixing and reaction zone?	Yes
Do any of the chemicals added contain Acrylamide or Epichlorohydrin?	Not checked
If yes, list the chemicals	
Is there documentation showing compliance with Acrylamide or Epichlorohydrin standards set by EPA?	Yes
How does the operator determine proper chemical treatment?	Visual, water color, tests and turbidity
Are chemical dosages adjusted using standard jar tests?	Yes
How does the operator determine optimum performance of the unit?	Turbidity and hardness removal
Suspended solids removal percent	Not done, uses settling test
Frequency of sludge removal	Variable
How does the operator determine optimum sludge removal?	Sludge settling test
Disposal location	Sludge pit then to ponds
Average settled turbidity Nephelometric Turbidity Unit(s) (NTU)	Less than 2.
Maintenance frequency	Yearly
Is an owners manual available?	Yes
Comments	Jar tests are done if there is a switch of chemical brands, helps insure correct dosage.

SOURCE - SURFACE WATER 1

Source Type	Surface water intake
Does the system have a water permit from State Water Commission?	Yes
	Permit # 3688
Is the permit adequate?	No
Does the system have a Watershed Management Program?	Not applicable
Does the system have a delineated Source Water Protection Area (SWPA)?	Yes
Date	7/1/2002
Has a contaminate inventory for the SWPA been completed?	Yes
Date	2001-2003
Is the source water quality tested for each source?	Yes
Frequency	As needed
Comments	Moderately Susceptible
Is there an emergency response plan for spills within SWPA?	No
Has an encroachment resolution or ordinance been adopted?	Not applicable

Date	
Is the source adequate to meet current needs?	No
Comment	Working on installing a second intake.
Is the source metered at all sites?	Yes
Comment	
Are there provisions for drought mitigation or management?	No
Comment	
Are the source water facilities located within a floodplain?	No
If yes, which source water facilities are located within a floodplain?	
Has the source water facility ever been flooded?	Yes
If flooded, are operations impaired?	Not applicable
Comment	

RECORDS - CHEMICAL

Volatile organic chemicals	Yes
Nitrite / nitrate	Yes
Pesticides	Yes
Primary inorganic chemicals	Yes
Secondary inorganic chemicals	Yes
Radionuclides	Yes
Are testing records available?	Yes
Are calibration records readily available?	Yes
Is testing equipment calibrated or standardized?	Yes

RECORDS - CONTROL SYSTEMS

Briefly describe the controls	SCADA monitors major pumping stations, reservoirs and PRV vaults. Able to shut down system or portions when needed
Age of control system or installation date	Varies, upgrades as needed
Mode of Communications	Radio
Federal Communication Commission (FCC) license number	Multiple
Exp. Date	
Other	
Is there a backup communications system?	Yes
Explain	
Is backup power available for control systems (uninterruptible power supply)?	Yes
Duration of backup	As long as fuel is available
Are all control wires properly tagged and / or identified?	Yes
Frequency of data logging - Chlorine residual	Continuous - CL17 meter
Frequency of data logging - Combined filter effluent turbidity	Every four hours

Frequency of data logging - Individual filter effluent turbidity	Continuous
Frequency of reports	Continuous
Comments	Can monitor SCADA system from treatment plant
Are all necessary control aspects of system operations included in the control system?	Yes
Comments	
Who has the authority to make set-point changes?	Certified operator on duty
Is system secure?	Yes
Comments	
Explain the alarm or call out system	Calls operator on duty via cell phone
Is a spare parts inventory maintained on-hand?	Yes
Comments	
Is lightning protection installed?	Yes
Type	
Comments	

RECORDS - DBPR

TTHMs/HAA5 records?	Yes
TTHMs MCL (0.080 mg/L) exceeded?	No
HAA5 MCL (0.060 mg/L) exceeded?	No
Free chlorine, chloramines or total chlorine exceeded (4.0 mg/L)?	No
Sample siting plan?	Yes
Where is the point of maximum detention time in the distribution system?	See fact sheet
	Lemmon SD, 120 days
How is the point of maximum detention time determined?	Distance & usage
DBPR summary form	Yes

RECORDS - GENERAL

Are there any recent violations for the system?	No
If yes, explain	
Are there any recent administrative orders for the system?	No
If yes, explain	
Are the requirements of the order being followed?	
If not, explain	
Bacteriological records?	Yes
Sample siting plan?	Yes
Lead/Copper records?	Yes
Sample siting plan?	Yes
Did system exceed action level for lead (0.015 mg/L)?	No
If yes, explain treatment technique	

Did system exceed action level for copper (1.3 mg/L)?	No
If yes, explain treatment technique	
Consumer Confidence Report (CCR)	Yes
Is the system current with all monitoring requirements?	
Comments	.

RECORDS - SURFACE WATER

Individual filter turbidity monitoring data form	Yes
Is the system meeting their individual filter effluent (IFE) requirements?	Yes
Individual filter monitoring exceptions form	Yes
Is combined filter effluent (CFE) <= 0.3 NTU in at least 95% of monthly readings?	Yes
Is CFE levels less than 1 NTU?	Yes
Point of entry disinfectant residual monitoring form	Yes
Is the system meeting its point-of-entry disinfectant residual monitoring requirements?	Yes
Distribution disinfectant residual monitoring data form	Yes
Total organic carbon (TOC) records?	Yes
Enhanced coagulation or softening	Yes
Total organic carbon (TOC) removal (%)	Removal ratio ranged from 1.9 to 2.2 over the last year
	25% if over 4.0 mg/L
Required removal of TOC (%)	15
Is actual removal percent greater than required removal percent?	Yes
Interim Enhanced Surface Water Treatment Rule (IESWTR) – 2 log (99% removal of cryptosporidium) IESWTR summary form?	Yes
Finished water turbidity monitoring data form	Yes
Comments	

PUMPS - PUMP 1

Location/ID	Water plant & booster stations, see attached list
Preventive maintenance program?	Yes
Backup power available?	Yes, permanent at Ray C. booster station and portable generators
Comments	Can run some pumps at Ray C. booster station on backup power
Are all pumps operational	Yes
Is redunancy provided?	Yes
Are adequate spare parts on hand for repairs?	Yes
Are the pump facilities subject to flooding?	No
If yes, what are the provisions?	
Are all drains properly screened?	Yes
Are all vents properly screened?	Yes

Are the following items at all facilities adequate for operation?	
Lighting	Yes
Signage	Yes
Ventilation	Yes
Heating	Yes
Interior drainage	Yes
Comments	Addition of new pump station adjacent to the WTP. (2015)

NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

To: Southwest Water Authority PWS Number: ND4501434

From: Division of Municipal Facilities, Drinking Water Program

Date: November 13, 2015

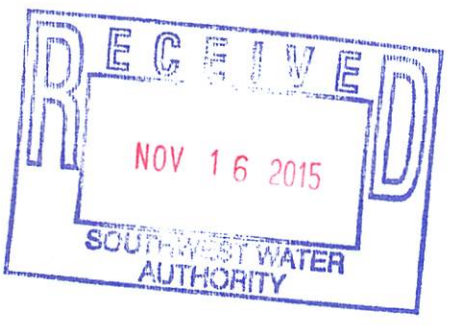
Re: Sampling and Reporting Schedule for 2016

The attached report lists the tentative sampling and reporting requirements for Southwest Water Authority during the calendar year 2016. While the department believes this report to be accurate, proper testing and reporting is ultimately the water system's responsibility.

The sampling schedule(s) may have changed after the printing of this report and may unexpectedly change throughout the year. For example, a positive bacteria test will require follow-up testing which is not reflected on this report.

Please contact the appropriate person below with any questions regarding the testing or reporting requirements.

Category	Contact	Phone	Email
System changes (new operators, contact information updates, etc.)	Tammy Lamphear	701-328-5295	tmlamphear@nd.gov
Bacteria (distribution system)	Jeni Walsh	701-328-5231	jwalsh@nd.gov
RTCR sampling site plans, assessments, seasonal system start-up procedures	Josh Seerup	701-328-5257	jseerup@nd.gov
Lead, copper, arsenic, nitrate/nitrite, added fluoride, lead consumer notice	Amy Kinzler	701-328-5258	ankinzler@nd.gov
Surface water requirements	Mike Trythall	701-328-5269	mtrythal@nd.gov
Violations, public notice, CCR	LeeAnn Tillotson	701-328-5293	ltillots@nd.gov
Acrylamide and epichlorohydrin, filter backwash recycling, bacteria (source)	Gary Stefanovsky	701-328-5287	gstefano@nd.gov
Disinfection byproducts, volatile organic compounds, synthetic organic compounds (pesticides), primary and secondary inorganic compounds, Maximum Residual Disinfectant Levels	Lydia Fewless	701-328-5221	lfewless@nd.gov
Electronic reporting	Barrett Brown	701-328-5209	bjbrown@nd.gov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AUTHORITY

Estimated 2016 Sampling and Reporting Requirements for: Southwest Water Authority (ND4501434)

Sampling - Monthly

Test	Site(s)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Note
Carbon, Total	201	1	1	1	1	1	1	1	1	1	1	1	1	
TOC & Alkalinity	CH001	1	1	1	1	1	1	1	1	1	1	1	1	
Bacteria (RTCR Sites) And	RTCR Sites				9	9	9	9	9	9	9	9	9	(14)
Chlorine Residual					9	9	9	9	9	9	9	9	9	(15)
Bacteria (TCR Sites) And	TCR Sites	9	9	9										(14)
Chlorine Residual		9	9	9										(15)

Sampling - Quarterly

Test	Site(s)	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Note
Stage 2 DBP (TTHM/HAA5)	Stage 2 Sites	2	2	2	2	(3)

Sampling - Annually

Test	Site(s)	Jan - Dec	Note
Nitrate-Nitrite	101	1	

Sampling - Every 3 Years - Due To Be Sampled in 2016

Test	Site(s)	Jan - Dec	Note
Lead & Copper	Lead & Copper Sites	20	(11)

Sampling - Every 6 Years - Due To Be Sampled in 2016

Test	Site(s)	Jan - Dec	Note
Pesticides (SOCs)	101	1	
Regulated VOCs	101	1	

Sampling - Every 9 Years - Due To Be Sampled in 2016

Test	Site(s)	Jan - Dec	Note
Arsenic	101	1	
Primary IOCs	101	1	

Reporting - Monthly

Report	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Note
SWTR Summary Reports	R*	R*	R*	R*	R*	R*	R*	R*	R*	R*	R*	R*	(6)

Reporting - Quarterly

Report	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Note
Stage 2 Chlorine Residual Summary Report	R*	R*	R*	R*	(7)

Reporting - Annually

Report	Jan - Dec	Note
Acrylamide And Epichlorohydrin	R*	(8)
CCR	R*	(5)
RTCR Sampling Site Plan	R*	(12)

R* = Required

Note(s)

(3) Samples must be collected in accordance with the Stage 2 Sample Site Plan. Additional information will be provided later about specific sample dates/times.

(5) CCR must be submitted to the Department by July 1 and the Certification must be submitted to the Department by October 1.

(6) SWTR Summary Reports are due to the Department by the 10th of the following month.

(7) Stage 2 Chlorine Residual Summary Reports are due to the Department on January 10, April 10, July 10 and October 10 for the previous quarter.

(8) Any water system adding chemicals containing Acrylamide or Epichlorohydrin must report the previous calendar year's dosage information to the Department by the 10th of January.

(11) Samples must be collected in accordance with the Lead & Copper Rule Sample Site Plan and samples must also be collected between June 1 and September 30. Please confirm this schedule prior to sampling. Lead Consumer Notice requirements will apply.

(12) RTCR Sampling Site Plan must be submitted to the Department by December 1, 2015.

(14) Samples must be collected in accordance with the Total Coliform Rule or the Revised Total Coliform Rule Sampling Site Plans.

(15) Chlorine Residual measurements are to be taken at the same time and same location as the Total Coliform samples.

Sample Site Plans for Southwest Water Authority (ND4501434)

TCR Sample Site Plan - through March 31, 2016

TCR Site	Site Description	Desc Line 2	Desc Line 3	Desc Line 4
00	UNSPECIFIED TC POINT			
01	PRV W OF DICKINSON			
02	ZOE LIFE PRV			
03	HALLIDAY BOOSTER STA			
04	PRV N OF TAYLOR			
05	DAVIS BUTTE TANK			

06	HWY 21/22 PRV	
07	HEBRON PRV	
08	BUCYRUS PRV	
09	BURT BOOSTER PUMP	
10	ELGIN PRV	
11	BOWMAN RES	
12	NEW ENGLAND RES	
13	FRYBURG TANK	
14	GOLVA BPS VAULT	T139N, R105W, S22, NWNWQ
15	S FRYBURG VFD BOOSTER	T137N, R99W, S4, SW1/4
16	FAIRFIELD VFD BOOSTER	T141N, R99W, S11, NW1/4
17	BEACH TANK CONTROL VAULT	Twp 140N, Rge 105W, Sec 27, NE1/4
18	COFFIN BUTTES VFD BOOSTER PUMP STATION	Twp 132N, Rge 90W, Sec 5, NE1/4

Required RTCR Site Plan Not Yet Received

Lead & Copper Sample Site Plan

PBCU Site	Site Description	Desc Line 2	Desc Line 3	Desc Line 4
ALC21	29 LITTLESHALES CT	DICKINSON		
ALC42	9544 58 AVE SW MOTT	MOTT		
LC01	12020 HWY 10 DICKINS			
LC02	12631 37 ST SW SOUTH			
LC03	11680 HWY 10 W DICKI			
LC04	308 HWY 85 N BELFIELD			
LC05	1515 37 ST E DICKINS			
LC06	11095 3O STREET SW DICKINSON			
LC07	11270 31 ST SW DICKINSON			
LC08	3410 103 AVE SW GLAD			
LC09	10070 16 ST SW GLADSTONE			
LC10	1921 HWY 22 MANNING			
LC11	11125 25TH ST SW DICKINSON			

LC12	3881 121 AVE SW SOUTH HEART	
LC13	719 30 AVE SW DICKINSON	
LC14	1454 7 AVE SW DICKIN	
LC15	12230 4O ST SW SOUTH HEART	
LC16	4411 122 AVE SW SOUT	
LC17	3241 HWY 8 RICHARDTO	
LC18	9010 34 ST SW RICHAR	
LC19	9025 38 ST SW RICHARDTON	
LC20	3075 90 AVE SW RICHA	
LC22	4135 63 AVE SW GLEN ULLIN	
LC23	7841 35TH ST SW HEBRON	HEBRON
LC24	3640 60TH AVE	GLEN ULLIN
LC25	8080 32 1/2 STREET SW HEBRON	
LC26	7660 35 ST SW HEBRON	
LC27	7407 130TH AVE SW	SCRANTON
LC28	8875 62 ST SW MOTT	
LC29	7448 111 AVE SW REGENT	
LC30	10176 56 ST SW REGENT	REGENT
LC31	9099 71 ST SW MOTT	MOTT
LC32	10452 68 ST SW REGENT	
LC33	1310 11 AVE NW REEDER	
LC34	410 23RD ST SE LEMMON	LEMMON
LC35	105 2 AVE SW HETTINGER	HETTINGER
LC36	7910 68 AVE SW ELGIN	
LC37	7890 70TH AVE SW	ELGIN
LC38	8120 HWY 49 NEW LEIPZIG	
LC39	5890 65TH ST SW	ELGIN
LC40	6667 43 AVE SW FLASHER	
LC41	6890 51ST AVE SW	CARSON

Stage2 Sample Site Plan

Stage2 Site	Site Description	Desc Line 2	Desc Line 3	Desc Line 4
STG2-01	SOUTHWEST WATER AUTHORITY	Cleanout Valve (T135 R100 S7)		

STG2-02 SOUTHWEST WATER AUTHORITY Cleanout Valve (T130 R92 S27)

Other Sample Sites

Site		
101	SAMPLE STATION	*Detailed sample location information will be on bottle labels.
201	TREATMENT PLANT	*Detailed sample location information will be on bottle labels.
CH001	COMMON HEADER	*Detailed sample location information will be on bottle labels.