



City of Grand Island Utilities Department Annual Report for 2023



Utilities Department – Highlights for 2023

Production Division

- The Utility Generating facilities are the Platte Generating Station (PGS) and Burdick Generating Station (BGS). There are a total of 53 fulltime personnel and 1.75 summer personnel.
- In April, PGS had a 14 day outage to complete semi-annual routine maintenance and to tie in the new bottom ash equipment. The new bottom ash project was required for PGS to meet the Effluent Limit Guidelines for the EPA. This \$4M project made the bottom ash system zero discharge.
- In May, contractors and plant personnel started a hot gas path inspection on GT2 at BGS. This is an inspection of all the parts of the turbine in which there is a flame from firing the unit on natural gas or diesel fuel.
- Once the GT2 inspection was done in September, PGS's 100MW coal unit went into a turbine major overhaul and major boiler repair work which occurs every 6 years. This long extensive outage is to prepare PGS for reliable operation and normally takes 6 weeks, but this year the outage was 12 weeks to get parts of the turbine repaired at an outside repair facility. During this time, there were contractors and plant personnel making repairs on all aspects of the power plant.
- In addition to the forementioned major repairs, all three of the generators at BGS were inspected, GT2 and 3 station batteries were replaced, GT1 CO2 fire extinguishing system was replaced and we completed NOx correlation testing on GT2 and 3.
- The BGS site saw major changes with the demolition of the existing steam units. You can see the YouTube video at https://youtu.be/kryuwx_4qts. The site looks completely different with the building and three of the old #6 fuel oil tanks gone.
- The same 53 personnel also take care of the water pumping stations, wellfield and reservoirs. These areas saw fiber installed and an upgrade of the PLCs at six wells, the inspection and cleaning of the water storage reservoirs, the cleaning of wellfield wells 6, 7, and 8 and the upgrade of train 1 of the uranium removal system.

Water Department

Statistics from the Water Shop Include:

- 323 - Work Orders Opened and Closed/Pending
- 69 - Trouble Calls responded to after hours
- 2 – Ludlow Fire Hydrant Change Out Program
 - 10th and Boggs
 - Lousie and Greenwich
- 7 - New fire hydrants were installed/fire hydrants relocated by the Water Shop at:
 - Cherry and Groff
 - 435 Commanche
 - 2112 Chanticleer
 - 4 for the Highway 30 relocation project
- 0 – Spring hydrant checks were completed
- 5,173 - Fall hydrant checks were completed
- 807 - Fire hydrants were painted
- 423 - Dead end Fire Hydrants were flushed
- 15 - Hydrants were repaired or replaced that had been damaged by motor vehicles at:
 - 1510 E. Airport Rd
 - 6th and Broadwell
 - 1512 E. 4th St

- 2525 Old Lincoln Highway
- 1st and Walnut
- 2514 E. Highway 30
- 3111 Stolley Park Rd
- 3853 Skypark Rd
- 1st and Pine
- 1220 E. Capital Ave
- Arapaho and Old Potash
- Stolley Park Rd and W. Highway 30
- Anna and Eddy
- Stolley Park Rd and Adams St
- Silver and Bronze Rd
- 5 - Private fire hydrants were repaired/replaced at:
 - Lawrence Lane PH#1332
 - PGS PH#1007
 - Piper Glen Apartments
 - Chrysalis Lutheran Homes
 - Kingswood Estates
- 21 - Broken Water Mains were repaired – 2” through 12” at:
 - 1523 S. Sylvan
 - 2331 N. Sheridan
 - Swift Rd
 - 3810 Skypark Rd
 - Harrison and Oklahoma (20”)
 - 13th and St. Paul Rd
 - 3579 Skypark Rd
 - 2812 Pioneer Blvd
 - 425 feet east of Skypark Rd and 750 feet south of Mirage
 - Swift Rd, 400’ east of Museum Dr
 - College and Lafayette
 - 2414 Wicklow Dr
 - Hedde and Sylvan
 - 235 Roberts St
 - 308 E. Ashton
 - Park and Forrest
 - 432 E. Dodge
 - 11th and Ruby
 - 2611 St. Patrick Ave
 - 4th and Beal
 - 532 E. 18th St
- 4 - Water Main and Service that was damaged by Contractor were repaired
 - Rolling Green Dr and Terrace Cir
 - 3870 Skypark Rd
 - 1303 Stagecoach
 - 1915 Spring
- 7 - 4” through 18” Line Valves added or broken/replaced with new valves at:
 - 3rd and Washington
 - 3579 Skypark
 - Swift Rd LV2653
 - 4th and Pine NE corner
 - Bismark and Joehnck
 - Bismark and Sun Valley Dr
 - 10th and Pine SE corner
- 0 – 4” through 18” water main installed by the Water Department
- 963 - 4” through 24” main line valves were exercised
- 30 - Water mains/line valves were turned off and on for plumbers and contractors
- 58 - Broken water services were checked by the Water Department
- 13 - Backflow Preventors were tested for all City Departments
- 102 - Fire hydrant meters and backflow assemblies were set out for contractors
- 15 – Copper Water Services Repaired/Replaced by the Water Department or Plumbers
 - 715 W. John
 - 522 S. Cleburn

- 419 Hall St
- 415 Dodge
- 416 E. Nebraska
- 3139 Woodridge Blvd
- 1901 W. Anna
- 117 W. Anna
- 616 W. 16th St
- 707 W. John
- 419 W. 12th St
- 126 E. Bismark
- 1715 S. Blaine
- 604 N. Sherman
- 618 E. Ashton
- 28 – Lead Water Services Replaced by the Water Department or Plumbers
 - 1215 N. Greenwich
 - 924 W. 12th
 - 411 E. 13th
 - 104 E. 7th
 - 1521 W. 5th
 - 1413 N. Wheeler
 - 1417 N. Wheeler
 - 1004 W. 10th
 - 304 N. Washington
 - 621 W. 10th
 - 214 W. 10th
 - 415 W. 8th
 - 1015 W. 12th
 - 203 W. 15th
 - 1414 N. Locust
 - 1415 N. Locust
 - 709 W. Koenig
 - 2015 W. John
 - 803 N. Kimball
 - 1215 W. 6th
 - 210 E. 6th
 - 1308 W. North Front
 - 222 E. 15th
 - 824 W. 12th
 - 1211 N. Clark
 - 511 S. Eddy
 - 308 W. 11th
 - 804 N. Pine
- 4 - Abandoned water mains had services capped at:
 - Bellwood Dr and Wedgewood Dr
 - Five Points
 - 1701 Stagecoach
 - 3rd and Clark
- 0 – Frozen services thawed
- 23 - 3/4" Service Taps were made - new/replacement
- 245 - 1" Service Taps were made – new/replacement
- 11 - 1 1/2" Service taps were made
- 24 - 2" Water Mains were tapped, with test taps
- 2 – 4" Water Mains were tapped
- 11 – 6" Water Mains were tapped
- 6 – 8" Water Mains were tapped
- 2 – 10" Water Main was tapped
- 0 – 12" Water Main were tapped
- 0 – Line Stop/"Team" insert valves were placed
- 164 – New water meters were installed - 5/8" through 6"
- 272 – Replacements meters were installed – 5/8" through 6"

- 18 – Meters were repaired/rebuilt
- 267,395 - gallons of water sold to contractors/trucking companies
- 2 – Private water services were located/traced
- 280 – Water services were turned on/off at the request of the customer service office
- 10,569 - Locates were performed that had been requested through Digger's Hotline of Nebraska

Backflow Program

2023 Backflow Prevention Device Testing Statistics:

- 4,955 – First Notice reminders mailed
- 955 – Certified letters delivered
- 237 – 48 hour notices left at the door
- 34 – Water services shut off for failure to test

Transmission – Phelps Control Center

- Due to the inability to obtain replacement parts, the main DC panel that provided control power to Substation H and G breakers was replaced. This added redundant panels and a second battery bank separating DC circuits to keep the Substations and control center completely redundant and flexible for maintenance.
- A NERC GAP analysis was performed by a consultant to identify any issues with our compliance program.
- Nearly all protective relays on the 115 kV transmission system were tested to NERC standards.
- A project to segment the secure control network began and is approximately 50% completed.
- The new wall around Substation B is complete.
- Due to reliability concerns, a project to inspect and operate all feeder breakers was started. Substations A, H and C were completed in 2023.
- Feeder relays were replaced at Substations H, G and A.
- The demolition of Burdick Station was completed.
- The networking multiplexer system was replaced with an SEL ICON system.
- New transmission relays have been purchased for 1063A, 1064A and Sub H 115kV Bus Differential schemes.
- In June of 2023, Jeff Mead retired from Senior Electrical Engineer. In October, Pat Dinnel retired from Power Dispatcher II and Travis Burdett resigned from Assistant Utilities Director.
- In January of 2023, Zach Slevin was hired as a Substation Technician. In October, Zach Brittain was hired as a Power Dispatcher I.
- Modern substation security measures have been installed at Substations C and F. These include new beam detectors, thermal cameras, and additional lighting.

Underground Division

- **New businesses or expanded Subdivisions requiring installation of Underground conduit and related cable and transformers**
 - Orchard 2nd Subdivision (additional residential lot development) – east side of Apple
 - Nikodym Subdivision (additional residential lot development) – previous Super Bowl area
 - Ellington Pointe Subdivision (additional residential lot development) – SW of 13th and North
 - Highland 2nd Subdivision (first section of residential lots) – Independence and Highway 2
 - Stuhr Acres (large lot residential) – 2815 S. Stuhr Rd
 - Trinity Heights Subdivision (first section of residential lots)
 - Sterling Estates (additional residential lot development) – 3920 Majestic Ave

- JBA Ventures Subdivision (2 four-plexes) – 1703 and 1707 Ada
 - Crane Valley Subdivision (new residential complex)
 - Legacy 34 (additional residential/business development) – Husker Highway
 - Five Points roundabout area street lighting
 - Pump and Pantry #3 – Capital and Highway 281
 - Conestoga Mall rebuild – 13th and Webb
 - Hasselman Office Building – 1915 N. Webb
 - Start system installation for the new casino in the Fonner Park area
 - Husker Storage (additional storage buildings) – 829 Bronze Rd
 - Wish Cell Tower – 1515 E. 4th St
 - Denver Mattress – 2341 Diers Ave
 - Parachute Plasma Center – 2240 Webb Rd
 - Springhill Suites (construction temporaries) – 3604 Prairieview St
 - Old Verizon Cellular Building (redevelopment) – 3644 W. 13th
- **Upsize transformers to meet the needs of customers increasing load to existing service(s):**
 - Kingswood Estates
 - West Park Plaza
 - Hornady Manufacturing – west side transformer
 - Sterling Estates – 2117 Ebony Lane (residence)
- **Replaced transformers and cables due to degradation of the transformer cabinets or component failure:**
 - Lineage Freezer Co (failed transformer core) – 205 E. Roberts St
 - Freedom Acres (gasket issue) – 1704 Freedom Dr
 - Five Points Car Wash (gasket issue) – 1815 N. Eddy
 - Island Landhandlers pit (failed transformer core) – 3812 S. Blaine
 - McLaughlin Subdivision (vehicle damage) – 4925 Merrick Ave
 - Jeffrey Oaks Subdivision (rust-through) – areas of Hartford, Manchester and Topeka
 - Pleasant View Subdivision (termination upgrade) – 831 Delaware and 928 E. Sunset
 - Westwood Park Subdivision (rust-through) – 4007 W. Faidley
 - Imperial Village (termination upgrade) – 1316, 1332 Sherman Pl
 - Indianhead Subdivision (rust-through) – 4155 Indianhead Dr
- **Equipment and Building and Grounds Maintenance**
 - Received, located and followed up electronically as needed, 10,563 locates that had been requested through Digger's Hotline of Nebraska per Nebraska Statutes 76-2301 through 76-2332.
 - Installed streetlighting in the Claude Road area from Faidley to , and including, the new section of Concord Ave
 - Crews rebuilt highway lighting conduit and wire systems along the Tom Osborn Expressway at the Platte River crossings.
 - Streetlight reference extension of Tech Drive on the CCC/College Park campus
 - Gaskets and seals of various in-stock transformers were replaced and was normally followed by repainting.
 - Snow and ice abatement was provided at various Utility parking lots and related areas.
- **Assisted other Departments or Divisions**
 - Crews assisted with the lifting of various pumps, motors and screens at Platte Generating Station
 - Crews assisted Sub Tech/Phelps Control with the lifting and installation of conduit as part of the Substation Security plan at Sub B and F.
 - Crews installed conduit for and the pulling of fiber lines in various location as we expand the needs of monitoring or communication related needs.

- Assisted with the annual off-site generation of the Mobile Generating Station (MGS)
- Assisted the Street Department with the tightening of signal light arms in seven locations
- **Overhead to Underground Conversion Projects:**
 - Riverside Golf Course – underground section of overhead line and additional load for pool area
 - JBS Plant Fabrication area (555 S. Stuhr Rd) – install new transformers for undergrounding of overhead line in the center area of the plant

Overhead Division

- In 2023, the Overhead Division maintained and upgraded the overhead distribution lines which entailed 5,180 linear feet of single-phase line, and 500 linear feet of 3-phase line being rebuilt. These upgrades eliminated old primary lines and secondary service wires to provide safer and more reliable service to utility customers and kept the interruption indices (SAIDI) and (SAIFI) well below national averages.
- In addition to normal line maintenance, crews verified and corrected phasing designation on feeder lines, switches, and transformers feeders to improve reliability and power quality.
- 700 linear feet of single phase was relocated at 4th and D Road to get clearance from trees and property buildings.
- Crews removed 2,450 linear feet of primary 3-phase line along Husker Highway for the new Legacy Subdivision and 250 linear feet of 3-phase primary at JBS as the result of converting the area to underground.
- 400 linear feet of single phase was converted to 3-phase to allow for the construction of the Five Points roundabout.
- Two spans of primary were removed at Five Points for the construction of the new roundabout.
- During 2023, crews installed 4 temporary power supplies for dewatering wells and construction sites.
- Eight new primary fused disconnects were installed to serve new businesses.
- Four poles were replaced and new riser switches were installed at 13th and Claude to allow for removal of primary lines to install the roundabout.
- Eleven poles were replaced along with the addition of secondary pedestals for service upgrades.
- Seven secondary pedestals were installed for service upgrades.
- Crews installed 13,500 linear feet of ADSS fiber at the Platte River well field to monitor and control wells.
- 7,500 linear feet of ADSS fiber was installed from the 911 Center to Sub F to increase reliability for the 911 Center.
- Crews replaced 40 primary poles that were determined by the Osmose Inspection to be decayed and in need of replacement.
- In addition to the inspected poles, 6 deteriorated primary poles, 2 deteriorated streetlight poles and 5 service poles were replaced.
- In an ongoing effort to maintain reliability with primary feeders, eight switches/fuse disconnects were installed or upgraded.
- Fifteen primary poles and 8 streetlight poles were replaced that had been damaged by motor vehicles.
- The Overhead Division continued its vegetation management program to keep power lines clear of all vegetation. This was accomplished with the division's own tree trimming crew and the use of a contractor in clearing eight sections of lines and removing approximately 214 trees.

- In 2023, 238 high pressure sodium lights were converted to LED lights in our service area. In addition to the conversions, 17 new LED fixtures and poles were installed in Nikodym Sub, Copper Creek, Trinity Heights Sub and Orchard Sub and 4 new poles and lights were installed for the extension of Tech Dr.
- Three fiberglass poles were removed and relocated for the addition of 18th St between Diers and Aspen Cir.
- Crews installed 9 poles with LED lights as part of the Claude Rd expansion.
- Six decorative poles and lights were installed at the Stolley Park Garden.
- Twelve poles were installed at Substations B, C and F for the installation of security lights and cameras.
- Six crew members assisted with Hurricane Idalia in Florida.
- A crew performed a live line safety demonstration at the Nebraska State Fair.
- During the Christmas season, crews assisted with the installation and removal of Christmas decorations downtown along with setting the Christmas tree for downtown.
- The tree trimming crew mulched 90 Christmas trees that were left at mulch sites.
- Line crews installed or replaced 187 transformers. This has improved system reliability and power quality for utility customers as load continues to increase.
- The automated meter infrastructure project continues to be a success. There are currently 18,913 electric AMI meters in the system. The daily read percentage has been 99.4%. The system has been useful for meter readings, performing disconnects, and troubleshooting for both water and electric service.
- In 2023, 2,863 AMI meters were installed, of which 209 were installed on delinquent accounts. In the process, 4,025 disconnect/connect commands were performed without rolling a truck.

Utility Warehouse Division

- In 2023, the Utility Storeroom quoted, purchased, received, and stocked \$4,880,200.57 worth of materials. This represents only the material that is on the inventory system.
- The Storeroom issued \$3,421,339.00 worth of materials while salvaging, cleaning, and restocking \$435,629.54.
- During the past year the Storeroom purchased and received \$1,866,981.02 worth of items that are not on the inventory system for the Overhead, Underground and Storeroom divisions.
- The Storeroom processed, sorted and sold 91,004 pounds of copper, aluminum, cast aluminum and electrical brass for a total of \$125,424.35
- There were no issues with the 2023 audit.

Utilities Engineering Division

The Utilities Engineering Division provided full engineering services for the department's electrical and water infrastructure projects. The work involves research, design, plans and specifications, construction surveys, inspection, observation, and maintaining accurate maps and data records of the related infrastructure activities. Over the past year, work consisted of the following:

- Over 50 separate overhead and underground power line projects, easement verifications, and research for service for upgrades, additions, new residential and commercial developments
- Fifteen public water main projects were placed in service after being inspected and tested for compliance by the division's staff. These projects totaled approximately 14,400 linear feet of new public water mains. The projects abandoned over 2,070 linear feet of existing public water mains which needed to be replaced. The Engineering Division also assisted the Building Department with valve operation and flushing for 22 water services installations.
- Prepared seven easements, easement vacates or permit documents for department projects.
- Prepared six contracts and/or requests for proposals.

- Reviewed and approved plans for 15 public water main projects.
- Performed project related construction surveys using high-accuracy GPS.
- Drafted, edited, and revised CAD files and GIS related database files.
- Maintained mobile technology resources for the Electric Overhead and Underground Divisions, and the Water Division.
- Continued development of the internal Electric/Streetlight/Water combined base GIS map.



2023 Electrical Feeder Summary

Transformers

Polemount Not in service	528
Polemount in Service	6,083
Padmount Not in Service	362
Padmount in Service	2,876
Total	9,849

Capacitor Banks

Fixed	60
Switched	65
Total	125

Total Cable

Underground Primary Single Phase	109	Miles
Undergrounds Primary 3 phase	88	Miles
Total Under Ground	197	Miles

Over Head Primary 3 Phase	294	Miles
Over Head Primary Single Phase	87	Miles
Total over head	381	Miles

Total Poles

Total Poles	18,644
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