Project Title: KOG Midway Booster Pump Station

PU-18-024

Reporting Date: June 14, 2019

1. Project Overview

Project Managers: Clay Anderson

Project Location: SOR, Keene ND

2. Project Status

- Safety: Installation of two security trailers
- Schedule: High temps on the Nord Gear reducer bearing, exceeding run parameters. Oil cooler likely be installed. Pump delivery date to fabricator potentially pushed until bearing issue resolved. Fabricator impacts unknown
- Quality: Design bust on the Nord Gear reducer bearing, oil cooler installtion for mitigation. To be tested on Monday, June 17th in the NOV shop

3. Summary of Progress

3.1. Key Accomplishments since last reporting

- 10-Jun

  Ninehawk secuirty virtual demo, approved to implement, cordination for site delivery and install. Report out to PCN on dozer incident #2. Repair of damaged pad. Welding, x-ray, sandblasting and coating of suction/discharge piping.

- 11-Jun

  Excavating trench, lowered approx. 440 of pipe for the week. Shop fabrication of above grade piping

- 12-Jun

  Welding, x-ray, sandblasting and coating of suction/discharge piping.

- 13-Jun

  Pump #1 sent to paint. VFD issues running oil cooler trial. Welding, x-ray, sandblasting and coating of suction/discharge piping.

- 14-Jun

  Available oil cooler assisted with cooling the bearing however, was sized to large (10gpm) to bring bearing temps within spec. New cooler being sourced from WI to meet design (1.8gpm). Cooler being overnighted to NOV Houston shop to be "proved out" prior to shipment. Potential delay to overall shipping pumps.

- Ninehawk security trailers (qty-2) installed on location. Notifications to be enacted June 17th.
- Welding, x-ray, sandblasting and coating of suction/discharge piping. Trench excavation.

3.2. Major Activities Planned for next reporting

- Pump Shipment (dependent upon path forward on Nord gear reducer)
- Continued welding of pipe, Start backfilling of trench, Prep for shutdown and spool installation

4. Key Risks / Issues

#	Risks	Impact	Likelihood	Mitigation Strategy
1	Tie in to Launcher/Receiver	Medium	Low	Develop execution plan with Op's and GC
2	Road Restrictions	Medium	Low	Crowley Fleck engagement to quantify risk
3	SIMOP's with accelerated county road construction & KOG construction	Medium	Low	Crowley Fleck engagement to quantify risk
4	McKenzie Electric Cooperative	Medium	Low	Transformer in MEC yard, understand MEC's execution strategy

5. Project Schedule Summary

Milestones	Planned Date	Revised Date	Actual Date	Comments
Civil construction complete	29-May-19		31-May-19	On-target
MN Limited Mobilization	3-Jun-19		3-Jun-19	Pushed due to John Crane, Moyno & 3rd party critcal parts
Pump Performance Test complete	8-Jun-19		8-Jun-19	
Pump shipment date	12-Jun-19			Nord gear reducer dependent
Pump arrival	24-May-19	20-Jun-19		Pushed due to John Crane, Moyno 3rd party critcal parts, and Nord gear reducer heating concerns.
KOG Shutdown for piping tie in complete	25-Jun-19			
Start-up	27-Sep-19	30-Sep-19		Pump delay

5.1. Schedule Comments

- NA