



Category: 2 – Meeting the Challenges of a Difficult Job – Specialty Contractor

Specialty Contractor: Weifield Group Contracting

**Project Name: City of Longmont Waste Water Treatment Plant:
Gravity Thickener & Gas Digester Project**

The City of Longmont Waste Water Treatment Plant (WWTP) Gravity Thickening & Gas Digester project was a remodel of the city’s sole waste water treatment plant, which is currently rated to treat up to 17 million gallons per day (MGD). The treated plant effluent is discharged to the St. Vrain Creek at an average daily flow of approximately 8.0 MGD. This project involved the replacement of various systems, including several pumps within two gravity thickeners, duplex sump pumps in three locations, corroded electrical conduits, and a waste gas burner, as well as modification of associated gas process instrumentation.

The project was in design for two months before our crew’s boots hit the ground in April, 2015; it completed eight months later, in December. This was an extremely complicated project for its size.

“The level of technicality was unprecedented—everything needed to be calibrated within a millionth of an inch, or gallon. There were also several areas in which we had to do classified installs,” said Mike Baltazar, Weifield Field Supervisor for the project.

Weifield was eager to deliver a successful project to the city. Because there were several missing items on the project prints, Weifield collaborated early and often with various city staff to identify exact preferences for those areas. In the end, Weifield completed this project on-time and under-budget for materials, manpower and labor.

Said Trent Martindale, Carollo Engineers Construction Manager: “It’s tough to come into an existing plant and keep everything running while adding pumps and changing out things. Weifield’s



ability to communicate and become familiar with the existing plant layout and work resulted in no glitches at all on the project.”

Solutions of Special Projects: Proactive Communication and Investigation for Seamless Performance

The entire team held three pre-project meetings as well as weekly meetings to discuss and rectify issues.

“There was always proactive communication from Weifield—weeks before something needed to be done, they would come to us and the GC to check on it,” said Joe Michalski, Senior Civil Engineer for the City of Longmont.

A critical phase involved a “do or die” situation, of sorts, when the team needed to replace the gas burner within a gas foam building. The team had to take down the building and replace the burner within a six-hour window, while simultaneously keeping the city’s sole waste water plant fully operational.

Weifield prepared with Glacier Construction weeks ahead of time to write Methods of Procedure (MOPs), and the entire team met with the city to review the plans in detail before the shutdown. The team walked through the shutdown procedures multiple times before the actual event to ensure flawless execution. Overall, we achieved the shutdown and brought the system back online in just four hours and ten minutes—a huge success for the entire team.

Nick Ehrlich, City of Longmont Control Systems Supervisor, said: “There was a lot to work ahead of time to make sure we stayed running with shutdowns. Weifield spent a lot of time doing field investigation—that helped, because it forced us to decide how we would do everything. We didn’t have had that manpower, so the time Weifield spent doing that made a big difference.”



He added, “The questions Weifield asked showed that they cared about what we wanted in the end and not just what was in the specs. They made sure we were happy and avoided pitfalls by communicating well.”

Said Michalski: “Weifield was out ahead with shutdown procedures and planning with other affected teams. They were able to come up with clear, concise drawings and procedures for the shutdowns – that was key. Their plan worked.”

“When you’re working with an existing plant, you can’t take chances,” said Martindale. “We took pre-planning to a new level with this project. Weifield did an excellent job; working with them was a real pleasure.”

Project and Management Excellence through Extensive Pre-planning and a Quality Focus

Weifield’s team leveraged their substantial industrial/water construction experience to identify and rectify potential issues quickly and safely.

Mike held daily morning huddles where he reviewed his three- and five-week schedules with the team and he pre-pulled each day’s materials for the team before they arrived onsite, expediting project execution. To reduce clutter on-site, Mike ordered rolling shelves that would move easily between buildings. These approaches helped accelerate productivity.

Weifield’s pre-planning resulted in the highest degree of cost savings and quality. We had a few weeks to plan the project and during that time, Field Supervisor Mike Baltazar bought 95% of the materials he needed for the entire project—so only piecemeal ordering was needed after that.

Weifield’s prefabrication team shaved time off the schedule by pre-building many of the racks and putting each system’s wire on its own spool (e.g., for controls, power). When it came time to use the wire, it took just an hour to pull in each system.



Weifield had to demo old systems before swapping in the new, so we extensively tested our ability to turn off one system and bring a new system online before executing the task. Expectations for this project were high; therefore, Weifield ensured that our team performed internal quality control through daily “competitions” to see who could do a better job on certain tasks—this resulted in increased project quality.

“The project quality was excellent – everything was discussed beforehand, so if there was a question as to what we should do, we always took the high road,” said Martindale.

Construction Excellence through Carefully Coordinated Procedures + Innovative Technology

The area where the plant is located experienced a flood some years ago. The plant’s control panels and sump pumps were located in the same building—and during the flood, they malfunctioned. During this project, Weifield moved the panels to another building on a second floor to eliminate flood risk, and made them remote-controlled. This relocation required Weifield to do hundreds of feet of wire pulls in order to move the panels successfully.

The project’s new flood-proofing requirements required Weifield to perform some very custom prefabrication at the plant—such as stainless steel welding for certain racks, etc. Weifield executed careful coordination with the city and all partners through detailed MOPs, which resulted in us sailing through all inspections.

Weifield replaced most of the outdated hard-start pumps with Variable Frequency Drive (VFD) and Reduced Voltage Solid State (RVSS) pumps, which were much more efficient. We also implemented a LEED leg system for the controls that ensured the pumps would activate only when needed. Additionally, Mike Baltazar maintained a paperless environment; he did pre-layouts of each project phase for order accuracy—drawing each layout by hand and finalizing everything in Blue Beam—the layouts were then viewed on iPads and mobile devices.



Environmental/Safety: Flawless Safety Performance

There were continuous gas exposures within classified areas where Weifield worked; therefore, our team ventilated the area approximately 24 hours before going in, kept ventilation going continuously, and ensured all risks (e.g., potential explosions/sparks) were mitigated in advance.

Another project phase required Weifield to re-pipe some conduit over one of the plant's large gravity thickener tanks, which contained raw sewage. Weifield's work encompassed the bottom side of the tank, so we brought in custom tie-off points and plasma-cut grates out of the way to work underneath it. Obviously, any dropped tools would be irretrievable in the sewage stream, below—so the team tied tools to their bodies and worked cautiously to mitigate risk. To reduce the Hepatitis D risk associated with working near sewage, Weifield ensured gallons of antibacterial soap were on-site and the team executed frequent hygiene practices.

Weifield followed our stringent Project Safety Plan (PSP) and dedicated more than 270 hours to safety—and experienced no incidents during the project.

Exceeding Client Expectations by Mitigating Risk and Planning for the Future

Since we knew the city's sole water treatment plant would need modifications, later, Weifield ensured our work facilitated future add-ons at a minimal cost. We fed all wires—for 480V feeds, analogs and controls—to giant distribution boxes at each building; we also oversized the boxes and put extra boxes inside to accommodate future additions. We poured concrete pads for these custom stainless steel boxes—which were organized efficiently and elegantly for future use. We also built our pipes simply to accommodate future needs.

Weifield put labels/tags on every wire and conduit that listed where each was fed from and where it goes to, which facilitates easy future troubleshooting and operations.



“The most important piece of Weifield’s equation was the pride that they took in their work,” said Ehrlich. “Weifield would redo things proactively if we hesitated or made comments—and thought outside of the box. They were amazing.”

“I had not worked with Weifield before this project,” said Martindale. “I’ve done this for a lot of years and worked with a lot of electricians, but Weifield asks the right questions and knows what they are doing. 99% of the issues were worked out with discussions before execution; we were successful mainly due to communication.”





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