

Category 1: Contribution to the Community

Contractor: Murphy Company

Project Name: CordenPharma COVID-19 Vaccine Project Phase 1 and 2

With the COVID-19 pandemic, our world was shaken with unknowns and in search for a light at the end of the tunnel. One of the companies to release a COVID-19 vaccine partnered with CordenPharma Colorado to manufacture a key ingredient needed for the vaccine. CordenPharma then hired Murphy Company to build the infrastructure to create an essential component of the vaccine, a lipid that encapsulates the messenger RNA, a key ingredient that makes the vaccine effective. We provided our pharmaceutical construction expertise to build the necessary process infrastructure and meet the critical timeline CordenPharma's customer established to manufacture and release the vaccine. Our staff was challenged with modifying the existing plant at CordenPharma, while recognizing the needs and expectations of the global community to provide relief during such a challenging year. Our efforts in getting this project done would impact our community and the global distribution of the COVID-19 vaccine.

The project consisted of two phases – Phase 1 ran from June 2020 through March 2021, and Phase 2 ran from March 2021 through July 21. The work performed in Phases 1 and 2 included modifying the existing facility to produce a high-quality product and increase production to meet the demands to help CordenPharma Support its customer to produce the lipid. While the vaccine has been released to the public, our work has not stopped. We continue to support CordenPharma projects to construct new production lines to help meet CordenPharma's future needs.

While one challenge was meeting tight customer deadlines, the Murphy Team accomplished this without shutting down the project during a near statewide lock down. Like previous successful projects, Murphy and Corden employees worked side by side, utilizing teamwork, communication, and their joint expertise that each team member brought to the project. While employees adapted and adjusted to different responsibilities and roles, we remained efficient in our work performance, always keeping in mind our primary goal – safety.

The need for the vaccine was obvious, not just in the United States, but worldwide to help protect people during the global pandemic. CordenPharma met the critical timeline defined by their customer to support production of the vaccine by ramping up supply of their needed key ingredient.

For Murphy employees, this project was unique because our employees understood the significance and importance of this project to worldwide health. Our diligence and strong work ethic allowed us to support Corden and its customer, who is active in the lipid manufacturing for the COVID-19 vaccine, to expedite vaccine manufacturing, thereby helping to increase vaccine supply for people worldwide. Murphy and CordenPharma employees embraced the heavy responsibility that came along with this challenge, and we are proud that we delivered!

For more than a year, both Murphy and CordenPharma employees have dedicated professional and personal time to contribute to an effort larger than themselves. The Murphy project team consisting of foremen (James Connell, Roger Mulloy), our superintendent (Greg Pflipsen), and project manager (Justin Rheinheimer), working 60-to-70-hour weeks to meet critical deadlines. Murphy Safety Engineer (Josh Snyder) and Operations Manager (Bradley Andrews) visited the site weekly to evaluate crew safety, installation progress, and areas of improvement to ensure that CordenPharma's expectations were adequately met.

With the fast pace of the project, open lines of communication were essential to determine accurate and efficient designs for CordenPharma plant operators, as well as designs that allowed Murphy employees to maximize fabrication. By doing so, we were able to maintain budget and reduce inaccuracies caused by the aggressive schedule of the project. In addition to work at the project site in Boulder, we relied on the capabilities of our main fabrication shop in Thornton, Colorado. CordenPharma employees were allowed access to Murphy's fabrication shop, resources, and manpower, as this project was a high Murphy priority. Our employees utilized our fabrication shop to support the schedule deadlines of the job. In our shop we successfully fabricated solvent highway piping, hanger assemblies, and custom tank support legs. Overall, Murphy employees worked over 30,000 man-hours with no lost time or recordable injuries.

Safety on our projects is Murphy's top priority with a company core value of Employee Well-Being. Safety incidents and accidents typically slow progress on a construction project. A strong and safe work approach with excellent work activity pre-planning allowed our team to

operate efficiently and accident free for the duration of the project. Murphy was able to preplan and anticipate potential hazards on the project, a key in running a fast, safe, and efficient job site.

All employees on site were required to wear masks and plan work activities to maintain social distancing. Each day, all employees completed temperature checks and health questionnaires to monitor for COVID symptoms and to help keep all workers safe. During our weekly safety meetings and daily pre-task planning meetings, we addressed frequent changes in COVID-19 guidelines and implemented safe solutions. Job site hazards were discussed daily, including required personal protective equipment, ladder safety, crane picks, etc. Cranes were an important aspect of the project for demolition of existing tanks and replaced with new large stainless-steel vessels.

A unique innovation provided by Murphy was fabrication and installation of specially designed “touchless” portable hand washing sinks for the project site. These were used by craftsmen from all trades for touchless hand washing, helping to prevent COVID breakouts.

All contractors coordinated work schedules on a daily basis. This improved communication on site between Murphy, CordenPharma, and other key subcontractors, helped the team maximize work performed daily in an efficient and safe manner.

COVID-19 is still present and a continuing global risk, Murphy continues to work with CordenPharma and their customer to increase vaccine manufacturing capacity. Our hard work and diligence have created an everlasting legacy for Murphy as we contributed our expertise and resources, helping to bring light during a troubled and challenging time. We still don't know what the future holds, but the vaccine will play a part in our history forever.



This photo shows CordenPharma's tank farm prior to the installation of new tanks and piping completed for the CordenPharma Project.



These photos show the tank farm after after completion of Phase II. The Tank Farm consisted of four new stainless steel vessels as well as one glass lined vessel for increased processing capabilities. These 5 vessels were installed in 6 days which was critical to staying on schedule for the CordenPharma Project.



This photo shows a high-pressure column installed inside one of CordenPharma's plants. This high-pressure column needed a well thought out safety and rigging plan since this column weighed in at 16 tons.



The above pictures show the before and after install of new glass lined tanks within the plant. The piping as well as the support legs for these tanks were fabricated by our Shop and installed by our Murphy craft in the field.



This is a picture of our handwashing stations created in our fabrication shops that deployed on several different sites to help implement our safety protocol.