

# DCP Gas Storage Cavern #3 Expansion:

## Leach Plant Rehabilitation, Cavern and Well Design and Drilling, Plant Operations and Maintenance

Texas

### Client

DCP Midstream, LLC

### Background

DCP operates three natural gas storage caverns at its Spindletop Salt Dome facility near Beaumont Texas. The leaching facilities and brine disposal wells required to develop the caverns were constructed in the early '90's. When the client decided to enlarge its cavern #3 and afterwards to begin developing additional storage caverns, the leaching facilities had been idled for over 15 years without maintenance and required major rehabilitation.

### Parsons Brinckerhoff Role

PB Energy Storage Services (PBESS) provided turnkey engineer-procure-construct (EPC) services for the overall project.

### Project Elements

PBESS provided one-stop, turnkey services for design, construction and enlargement of storage well #3. Elements of the work included:

- Leaching facilities rehabilitation and upgrade.
- Cavern and well design.
- Cavern re-watering and well workover.
- Design and drilling of an additional brine disposal well
- Leach plant operations and maintenance.



### Project Description

- Leach Plant Rehabilitation:
  - Replace inlet screens on the raw water intake pump station.
  - Rehabilitate (2) – 150 hp raw water intake pumping units.
  - Rehabilitate (10) – 500 hp raw water and brine injection pumping units.
  - Repair pump foundations and baseplates.
  - Replace all injection pump station piping.



- Replace injection pump station electrical cables and raceways.
- Replace all station instrumentation and controls.
- Redesign and replace the fresh water seal flush system.
- Pressure test existing pipelines.
- Demolish and replace brine tank and dike.
- Demolish earthen brine sludge pit and replace with in-ground concrete tanks.
- Demolish centrifugal brine separators and replace with improved equipment.
- Systems checkout and startup.
- Well workover to re-configure storage well #3 for leaching service, and final re-configuration for storage service.
- Turnkey design and drilling of supplemental brine disposal well #2A.
- Workover and cleanout of brine disposal wells #1 and #3.
- Cavern leaching design and oversight.
- Leaching systems operations and maintenance.

### Teaming

Parsons Brinckerhoff's affiliate, PBESS provided all services directly to the client.



**Staffing**

PIC, Subsurface: Klaus Buschbom  
PM, Subsurface: Mark Meece  
PIC, Facilities: Tim Reichwein  
PM/CM, Facilities: Carl Grant

**Schedule**

Leach plant rehabilitation work began in the spring of 2008 and was completed on schedule, in time to commence leaching as soon as the cavern had been re-watered. Meanwhile, the supplemental brine disposal well was drilled. Leaching began in the fall of 2008 and was completed on schedule in 2009.

**Project Numbers:** 50591C through 50591H

**Revision Date:** 05/11

**Approved By:** T. Reichwein