

Republic Industrial and Energy Solutions, LLC
Well EGT #2-12 (API No. 21-163-M453)
Wayne County; Romulus, Michigan
Workover to Restore Injectivity and Mechanical Integrity

Chronology of Field Activities

(February 25 – March 20, 2020)

Day	Date	Description of Activity
T	02/25/20	Prepared site for workover operation.
W	02/26/20	Prepared site for workover operation.
T	02/27/20	Moved in and rigged up workover rig.
F	02/28/20	Removed 4-1/16" companion flange from 6.5', 4-1/2" Hastelloy landing joint. Removed 7-1/16" seal flange from the 7-1/16" x 11" casing spool. Speared landing and picked up on tubing to remove slips from casing spool bowl. Picked up on tubing and had 2,000 lbs weight which was about 25% of the complete tubing string weight. Slacked off tubing weight on fish and released spear. Replaced casing spool and nipped up 7-1/16" blind ram and 7-1/16" annular BOP. Secured well for night.
S	02/29/20	Pulled out of hole with partial tubing string. Laid down 6.5' landing joint and 3 FRP pup joints – 10', 8' and 4' (total length of 4 pieces = 27.0'). Pulled 37 joints of 4-1/2" FRP tubing. Estimated depth of fish in well at 1,138' KB. Tripped in hole with 2-7/8" drill pipe and could not engage fish with spear. Tripped out to replace spear with a larger size. Secured well for night.
S	03/01/20	Tripped in well with new spear and engaged fish. Pulled out and recovered 5 joints (148') of FRP tubing. Tripped in well with 2-7/8" drill pipe and engaged fish with spear. Tripped out and recovered 6 joints (179') of FRP tubing. Tripped in well with 2-7/8" drill pipe and engaged fish with spear. Pulled 12,000 lbs over string weight and rotated seal assembly out of packer PBR. Started out of hole but lost most of the fish with only 4 stands of drill pipe in well. Secured well for night.
M	03/02/20	Pulled 4 stands of drill pipe and laid down 6 joints (178') of FRP tubing. Tripped in well with drill pipe and engaged fish with spear. Pulled out of hole and recovered 2 joints (59') of FRP tubing. Tripped in well with

		drill pipe and engaged fish with spear. Pulled tension on tubing string and released seal assembly from injection packer by rotating pipe to the right. Pulled fish to the surface and shut in well one stand of drill pipe in well. Secured well for night.
T	03/03/20	Pulled first joint of FRP tubing out of hole and released spear. While removing first FRP joint, it was full of fluid due to plugged tubing below. Called out a wireline unit to perforate circulation holes in the tubing. Rigged up wireline unit and ran in hole with perforating gun. Sat down at 1,821' which was 396' above the bottom of the FRP tubing fish. Perforated 4 circulation hole in tubing at 1,820', and tripped out of hole to rig down wireline unit. Circulated brine water through circulation holes at 3 bpm with rig pump. Secured well for night.
W	03/04/20	Pulled remaining FRP tubing from well. Made up a test seal assembly and tripped in well on 2-7/8" drill pipe. Secured well for night.
T	03/05/20	Continued tripping in hole with drill pipe. Engaged test seal assembly in injection packer and pressurized well to 1,017 psi. After pressure stabilized, pressure dropped 5.59 psi (0.6%) from 991.43 psi at 16:00 to 985.84 psi at 17:00. Secured well for night.
F	03/06/20	Pulled test seal assembly out of well and tripped in well with packer retrieving tool. Engaged injection packer and released with 16,000 lbs overpull. Tripped out of well with packer. Laid down packer and secured well for night.
S	03/07/20	No Activity
S	03/08/20	No Activity
M	03/09/20	Tripped in well with 6-1/8" mill and 5 drill collars on 2-7/8" drill pipe. Tagged fill at 3,993'. Secured well for night.
T	03/10/20	Rigged up power swivel and started circulating 9.3 lb/gal brine. Milled fill down to 4,433'. Pumped a gel sweep and racked back power swivel. Pulled 8 stands of drill pipe. Secured well for night.
W	03/11/20	Rigged up power swivel and tagged fill at 4,429'. Milled fill down to 4,542'. Circulated hole clean with 10 lb/gal brine water. Tripped out of well until mill was inside casing. Secured well for night.
T	03/12/20	Tripped out of hole with drill pipe and laid down mill. Picked up a casing scraper and tripped in well to 3,960'. Pulled out of hole and laid down casing scraper. Picked up a 9-1/2" under-reamer and tripped in well to 1,500'. Secured well for night.

F	03/13/20	Picked up power swivel and under-reamed open hole from 4,010' to 4,288'. Pulled into casing with under-reamer. Secured well for night.
S	03/14/20	Picked up power swivel and under-reamed open hole from 4,288' to 4,410'. Tripped out of hole. Laid down 5 drill collars and under-reamer. Secured well for night.
S	03/15/20	Rigged up wireline unit. Tripped in hole and ran 6-arm caliper in open hole section. Laid down open hole caliper and picked up multi-finger caliper. Logged 7" protection casing from the shoe to the surface. Rigged down and moved out wireline unit. Secured well for night.
M	03/16/20	Tripped in well with 6-1/8" mill and tagged fill at 4,430'. Picked up power swivel and washed to bottom at 4,548'. Circulated well and pumped multiple sweeps of polymer gel. Tripped out of well laying down drill pipe to 3,900'. Secured well for night.
T	03/17/20	Tripped out of hole with drill pipe and laid down mill. Picked up test packer and tripped in hole to 3,950'. Set packer and rigged up pump truck and acid transports. Pumped 6,000 gallons of 15% HCl and 6,000 gallons of 12% HCl/3% HF acid. Flushed drill pipe and well with 63 bbl of fresh water. Rigged down and moved out pump truck and acid transports. Secured well for night.
W	03/18/20	Conducted an annulus pressure test on drill pipe at an initial pressure of 1,002 psi with packer set at 3,950'. Released packer and pulled up to 2,100 feet. Re-set packer and conducted a 1-hour annulus pressure test with an initial pressure of 1,157 psi. Secured well for night.
T	03/19/20	Released packer and pulled up to 1,288'. Re-set packer and conducted an annulus pressure test. Released packer and pulled up to 1,155'. Re-set packer and conducted an annulus pressure test. Release packer and tripped out of hole. Laid down packer and started rigging down workover rig. Secured well for night.
F	03/20/20	Finished rigging down workover rig and moving to Well 1-12. Shut down operations for the weekend.