



August 31, 2017

Engineering Review

Prepared by,

Mark Weems, P. E. - Regional Engineer - SW Colorado

Questar Exploration and Production - Operator #10343
McClean Basin #2 SWD
SWNE 15 37N 19W
API # 083-06087

10-3/4 surface casing set at 494' and cemented to surface with 380 sacks
5-1/2 production/injection casing set at 6016 and cemented to 49' with 350 sacks
2-7/8 tubing
5-1/2 injection packer set at 5767'
Perforations: 5910'-5935'

Injection packer original reported setting depth was 5848' on 8/28/1989 (doc #579235)
First injection commenced in Oct 1989 with injection packer reported being set at 5768'
Subsequent MIT's up to date report injection packer being set anywhere from 5756' to 5767'

8/16/2013
Last MIT conducted and passed on with packer depth being reported at 5757' (doc #2021130)

8/11/2017
The operator reports a casing leak and requests authorization to TA the well and make repairs in the next couple of weeks.

8/30/2017
Operator reports work done over a couple of weeks to repair the well and is summarized as follows:

There were unable to unseat the injection packer and cut the tubing off 7' feet above the packer. A retrievable bridge plug was set at 628' with two sacks of sand spotted on top.

5-1/2 casing found parted at 48' with noted considerable corrosion only on the outside of the casing. The explanation provided for this condition is due to pumping

salt water down the surface casing to test the Murphy-Hi Lo pressure kill switch attached to the Braden head access pipe and fittings. This practice was initiated in 1989 due to concerns for the mechanical integrity of the well at the time.

The cement top on the outside of the 5-1/2 casing was determined to be at 49.5' via a wash over pipe and a mill tooth collar. Because there was an attempt to cut and pull the casing at a depth of 110' and 111', the operator chose to wash and drill down to 198'. New 5-1/2 casing and a casing patch were run to 111' and the casing pressured tested okay.

The injection packer was fished and recovered from a depth of 5767'. Replacement tubing and inject packer were run with an attempt to set the packer at 5831' or within the required 100' from the top perforation. The packer did not pressure test successfully. A subsequent attempt was made to set the packer at 5766' and it did not pressure test either. A final attempt was made to set the packer at 5739' and it did pressure test. The operator called me to explain the situation. We both concluded that due to years of injecting salt water beneath a packer set at 5767' the casing was corroded enough not to allow a sufficient packer seat. Verbal authorization was granted to return the well to injection pending the successful MIT to be witnessed by a COGCC inspector.

8/31/2017

The operator reports a passing MIT with a COGCC inspector present. I verbally authorized the resumption of salt water disposal at that point in time on condition the operator would submit a sundry notice summarizing the repair work and a passing MIT.

Both the sundry notice and the MITI have been submitted. Approval for the MIT is pending the review of the inspector's, Chuck Browning, Field Inspection Report (FIR). The sundry notice has been approved by me and the UIT lead, Bob Koehler, and the Engineering Manager, Stuart Ellsworth, have been added to the review and final approval process.