



BioSqueeze
SEALED WELL

Case Study 056



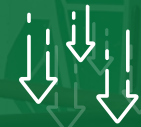
Eagle Ford Abandonment

Location



DeWitt County, TX

Results



Leaks Sealed

Cement healed enabling permanent abandonment without drillout and re-entry

Challenge

Plugged Well Leaking Gas to Surface

BioSqueeze Inc. was contracted by an operator to eliminate annular gas on a plugged to surface well in DeWitt County, TX.

- Drilled & completed in 2016 as a horizontal Eagle Ford producer.
- All required wellbore plugs installed inside production casing.
- 5-1/2 in x 9-5/8 in annulus leaking at 25 bubbles/minute and building to 18 psi.

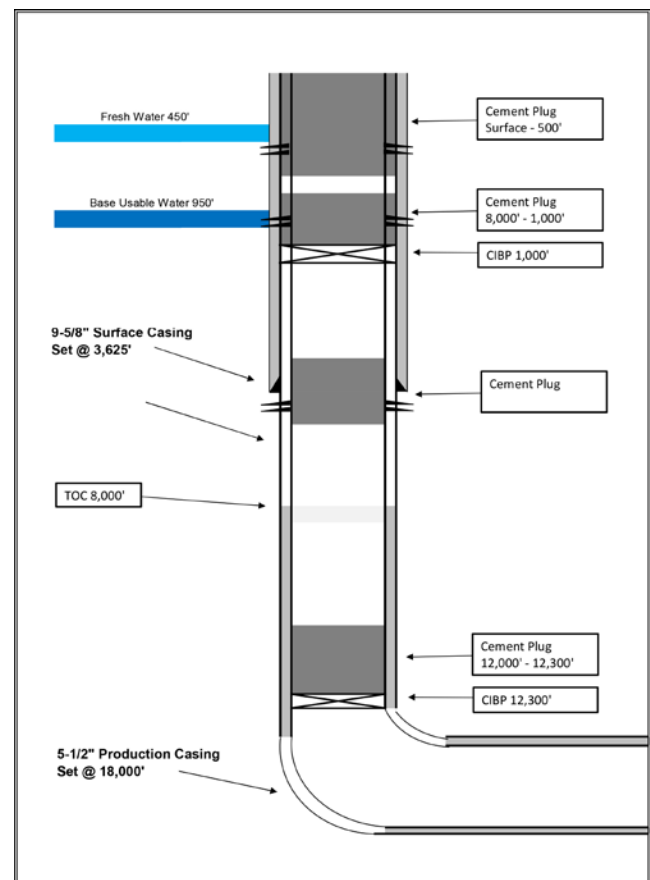
Solution

Deep Penetrating Annular Surface (DPAS™) BioSqueeze®

With all necessary plugs already set downhole including over 1,500 ft of cement, a DPAS™ BioSqueeze® was selected to avoid drillout, downhole intervention, and re-plugging.

In preparation of treatment, top of cement was identified 1.5 in from surface, injection manifold was attached to 2 in NPT connection on the leaking string. An initial stage of acid was then used to conduct an injection test and the annulus was subsequently flushed clean with freshwater.

MacroSeal™ and NanoSeal™ fluids were then pumped from surface deep (+1,000 ft) into leakage pathways in the cemented annulus where they formed limestone, creating a permanent gas-tight barrier.

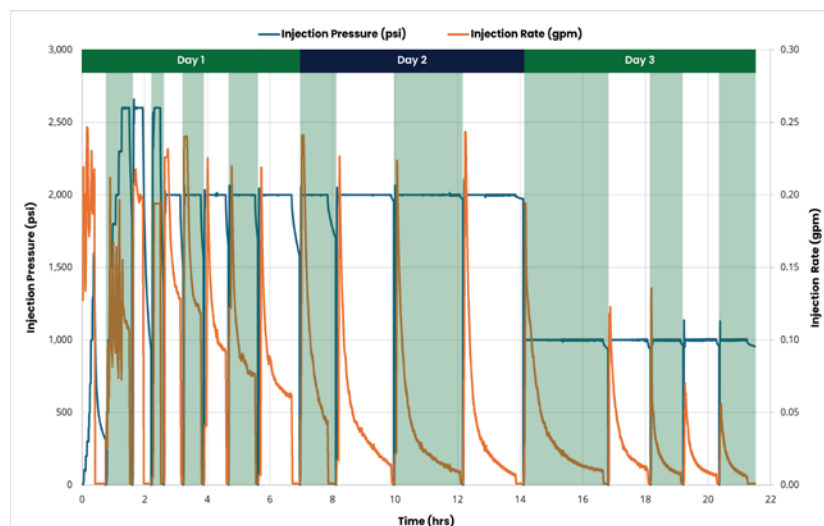


Solution

Deep Penetrating Annular Surface (DPAS™) BioSqueeze®

17 stages and 76 gallons of low-viscosity biomineralizing fluids were injected over the course of 3 days. Injection was reduced from 0.240 gpm to 0.006 gpm (a 99% reduction).

Pressure falloff prior to treatment was 82 psi/min and was reduced to less than 3 psi/min at the conclusion of treatment.



Stage	Constant Pressure	Pump Time	Injection Rate	Volume Injected
1	1,600 psi	24 min	0.240 gpm	5.5 gal
2	2,600 psi	45 min	0.105 gpm	5.5 gal
3	2,600 psi	20 min	0.190 gpm	5.0 gal
4	2,600 psi	16 min	0.270 gpm	5.8 gal
5	2,600 psi	32 min	0.127 gpm	5.3 gal
6	2,000 psi	34 min	0.120 gpm	5.8 gal
7	2,000 psi	43 min	0.091 gpm	5.9 gal
8	2,000 psi	52 min	0.076 gpm	6.2 gal
9	2,000 psi	65 min	0.060 gpm	6.6 gal
10	2,000 psi	54 min	0.043 gpm	5.9 gal
11	2,000 psi	106 min	0.014 gpm	5.2 gal
12	2,000 psi	127 min	0.009 gpm	4.8 gal
13	2,000 psi	100 min	0.007 gpm	3.1 gal
14	2,000 psi	152 min	0.010 gpm	5.9 gal
15	2,000 psi	75 min	0.011 gpm	2.6 gal
16	2,000 psi	58 min	0.008 gpm	1.2 gal
17	2,000 psi	64 min	0.007 gpm	0.7 gal
18	2,000 psi	53 min	0.006 gpm	0.8 gal

Results

Existing Barriers Sealed, Re-Entry Avoided, & Well Permanently Abandoned

- ✓ At the conclusion of treatment the well passed a 30 minute bubble test (0 bubbles) and read 0% gas when tested with a sniffer.
- ✓ The integrity of the cemented annulus was restored and gas flow was permanently eliminated enabling cut and cap.

"Contact BioSqueeze today to permanently eliminate leaks more efficiently and cost effectively."



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