OCCIDENTAL PETROLEUM CORPORATION
Please contact your area engineer with any questions concerning this procedure.
9/25/2024
PLUG and ABANDONMENT PROCEDURE
EUGENE D MUSE GAS UNIT 1 API: 05-123-08120

Step	Description
1	Review Previous Open Wells Reports/Well History. If you have questions or concerns, contact Foreman/Engineer.
2	**COA: Provide 48 hour notice to Colorado ECMC prior to rig up per request on approved Form 6 (e.g. call field coordinator, submit Form 42, etc.).**
3	Prepare location for base beam equipped rig. Install perimeter fence as needed.
4	**COA: Verify Form 17 (State Bradenhead Test) has been run within 60 days of RU.**
5	**Refer to the Rockies Well Services Guidelines document whenever rigging up BOP and WL, or whenever tripping in or out of the well. Consult with Foreman/Engineer before deviating from these guidelines. All cement jobs (excluding injections squeezes) must be pumped at 4-6 BPM. All cement plugs pumped through tubing must use the Diverter tool. Final top-out can be pumped between 2-4 BPM.**
6	Upon RU, check and record bradenhead pressure. If bradenhead valve is not accessible, re-plumb so that valve is above GL. Blow down bradenhead and leave open during working hours. Re-check pressure each day and input value in the "Casing press." box in Open Wells.
7	MIRU WO rig. Spot a min of 215 jts of 2-3/8", 4.7#, J-55, EUE tbg. Verify BOP and wellhead rating, inspect for appropriate API standards, pressure test BOP. Kill well as necessary using biocide treated fresh water. ND WH. NU BOP. Unland tbg. **Barrier Management** Fluid will be the only barrier while NU BOP. Stop and review JSA.
8	TIH with 3-7/8" bit on 2-3/8" tubing.
9	Communicate with foreman and engineer on use of drill collars and change of tubing string.
10	Drill through plug from surface to 43'. Communicate with engineer and foreman on depth intervals drilled. Continue to depth of 6950' and tag CICR. Communicate with engineer if tag not at this depth.
11	Circulate 2 bottoms up to clean well of debris and cuttings.
12	TOOH and SB 6800' of 2-3/8" tubing, LD drill bit and any collars used.
13	TIH with 2-3/8" tubing to 6800'.
14	MIRU slickline. Run gyro from 6800' to surface making stops every 100'. RDMO slickline.
15	TOOH and SB 6460' 2-3/8" tubing. LD remaining.
16	MIRU WL. PU and RIH with (4-1/2", 11.6#) gauge ring to 6910'. POOH.
17	Ensure hole has been circulated clean to remove gas interference. Run CCL/GR/CBL/VDL log from +/- 6900' to surface to confirm squeeze location. Future operations may change depending on CBL results.
18	Forward logs to engineering and in addition to the normal handling of logs/job summaries, email copies of all cement job logs/job summaries and invoices to DJVendors@oxy.com within 24 hours of job completion. Note that squeeze hole locations and cement volumes may vary depending on CBL results.
19	PU and RIH with two 4', 3-1/8'' perf guns with 4 spf. Shoot 16 squeeze holes at 6900' and 16 squeeze holes at 6400'. RDMO WL.
20	PU and TIH with (4-1/2", 11.6#) packer on 2-3/8" tbg. Set packer at 6460'.
21	Initiate circulation at low rate monitoring returns for fluid. Add mud thinner to hydrate/clean mud. Slowly increase circulation rate to 4-6 BPM using mud thinner and gel polymer sweeps as needed.
22	Pump 45 bbls of 160F HSF (0.5 gals/bbl or 1.5 lbs/bbl) and let soak for ~2 hours. Continue circulating at 4-6 BPM if possible. Circulate clean fluid before pumping cement.
23	Release packer. TOOH, SB 2-3/8" tbg. LD packer.
24	PU and TIH with (4-1/2", 11.6#) CICR on 2-3/8" tbg. Set CICR at 6460'.
25	MIRU cementers. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water spacer. Pump Niobrara Squeeze: 165 sx (44.7 bbl or 251 cf) of the Niobrara Cement blend: Class G with 0.4% B547 Gas Block (Latex) and 0.4% D255 FLA (Fluid Loss) and 35% D066 Silica Flour and 0.2% D800 (Retardant) and 0.3% D065 (Dispersant). Underdisplace by 3 bbls. Volume is based on 440' in the casing below the CICR, 500' in the casing-hole annulus with 100% excess, and 190' on top of the CICR. Collect wet and dry samples of cement to be left on rig. RDMO cementers.

26	Pull out of cement. TOOH, SB 3830' of 2-3/8" tbg. LD remaining tbg.
27	MIRU WL. PU and RIH with two 4', 3-1/8'' perf guns with 4 spf. Shoot 16 squeeze holes at 4270' and 16 squeeze holes at 3770'. RDMO WL.
28	PU and TIH with (4-1/2", 11.6#) packer on 2-3/8" tbg. Set packer at 3830'.
29	Initiate circulation at low rate monitoring returns for fluid. Add mud thinner to hydrate/clean mud. Slowly increase circulation rate to 4-6 BPM using mud thinner and gel polymer sweeps as needed.
30	Pump 45 bbls of 160F HSF (0.5 gals/bbl or 1.5 lbs/bbl) and let soak for ~2 hours. Continue circulating at 4-6 BPM if possible. If returns show hydrocarbons or a 1 hr build-up shows pressure, swab and vent well and clean open tank. Circulate clean fluid before pumping cement.
31	Release packer. TOOH, SB 2-3/8" tbg. LD packer.
32	PU and TIH with (4-1/2", 11.6#) CICR on 2-3/8" tbg. Set CICR at 3830'.
33	MIRU cementers. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water spacer. Pump Sussex Squeeze: 210 sx (44.6 bbl or 250 cf) of the Sussex AGM: Class G with 0.4% B547 Gas Block (Latex) and 2% D053 Expansion (Gyp) and 0.25% D255 FLA (Fluid Loss)0.3% D065 (Dispersant). Underdisplace by 3 bbls. Volume is based on 440' in the casing below the CICR, 500' in the casing-hole annulus with 100% excess, and 190' on top of the CICR. Collect wet and dry samples of cement to be left on rig. RDMO Cementers.
34	Pull out of cement. TOOH to 3140'. Reverse circulate a minimum of 2 hole volume after cementing to ensure no cement is left in the tbg or annulus.
35	TOOH and SB 1360' of 2-3/8" tbg. LD stinger, and remaining tbg.
36	MIRU WL. PU and RIH with two 4', 3-1/8'' perf guns with 4 spf. Shoot 16 squeeze holes at 2000' and 16 squeeze holes at 1300'. RDMO WL.
37	PU and TIH with (4-1/2", 11.6#) packer on 2-3/8" tbg. Set packer at 1360'.
38	Initiate circulation at low rate monitoring returns for fluid. Add mud thinner to hydrate/clean mud. Slowly increase circulation rate to 4-6 BPM using mud thinner and gel polymer sweeps as needed.
39	Pump 49 bbls of 160F HSF (0.5 gals/bbl or 1.5 lbs/bbl) and let soak for ~2 hours.
40	Continue circulating at 4-6 BPM if possible. If returns show hydrocarbons or a 1 hr build-up shows pressure, swab and vent well and clean open tank. Circulate clean fluid before pumping cement.
41	Release packer. TOOH, SB 2-3/8" tbg. LD packer.
42	PU and TIH with (4-1/2", 11.6#) CICR on 2-3/8" tbg. Set CICR at 1360'.
43	MIRU cementers. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water spacer. Pump Squeeze: 225 sx (48.5 bbl or 273 cf) of the Lower AGM blend: Class G with 0.4% B547 Gas Block (Latex) and 1% S001 CC (Calcium Chloride) and 4% D053 Expansion (Gyp). Underdisplace by 3 bbls. Volume is based on 640' in the casing below the CICR, 700' in the casing-hole annulus with 25% excess, and 190' on top of the CICR. Collect wet and dry samples of cement to be left on rig. RDMO Cementers.
44	Pull out of cement. TOOH to 1070'. Reverse circulate a minimum of 2 hole volume after cementing to ensure no cement is left in the tbg or annulus.
45	TOOH and SB 950' of 2-3/8" tbg. LD stinger, and remaining tbg.
46	**COA: WOC 8 hours. If there is evidence of pressure or fluid migration, contact Engineering as there will need to be additional remediation attempts before the SC shoe plug.**
47	MIRU WL. PU and RIH with one 4', 3-1/8'' deep penetrating perf gun wth 4 spf. Shoot squeeze holes at 600'. POOH. RDMO WL.
48	PU and TIH with (4-1/2", 10.5#) packer on 2-3/8" tbg. Set packer at 500'.
49	Establish an injection rate with treated water. Record rate and pressure results and report them to the Foreman/Engineer. Plugging orders may change based on results. When 1 bpm is achieved, record pressure and successful test has been completed.
50	Release packer. TOOH, SB 2-3/8" tbg. LD packer.
51	If gas is present, consider swabbing and venting before pumping injection squeeze.
52	PU and TIH with (4-1/2", 10.5#) CICR on 2-3/8" tbg. Set CICR at 500'.
53	Note: Do not exceed 40 bbls of cement on injection squeezes.

54	MIRU cementers. Pump Squeeze: 130 sx (28.1 bbl or 158 cf) of the Surface AGM blend: Class G with 0.4% B547 Gas Block (Latex) and 2% S001 CC (Calcium Chloride) and 4% D053 Expansion (Gyp). Underdisplace by 7 bbls. Volume is based on 30' in the casing below the CICR, cement squeezed into formation, and 435' on top of the CICR. Collect wet and dry samples of cement to be left on rig. RDMO Cementers.
55	Pull out of cement. TOOH to 110'. Reverse circulate a minimum of 2 hole volume after cementing to ensure no cement is left in the tbg or annulus.
56	TOOH and SB 110' of 2-3/8" tbg. LD stinger, and remaining tbg.
57	**COA: If cement was not circulated to surface, then WOC 4 hours. Tag TOC. TOC must be 159' or shallower. If tag is too deep or there is evidence of pressure or fluid migration, contact Engineering.**
58	Note: Plug can be tagged after a 4 hour WOC, but must have a 6 hour WOC prior to pressure testing.
59	MIRU WL. PU and RIH with (4.5) CIBP and set at 105'. POOH. RDMO WL.
60	TIH with diverter tool on 2-3/8" tubing to 105'. Either swab well down or use rig air to remove water from well. (Note: Do not exceed 175 psi if using rig air). If either methods cannot be performed, contact engineering to discuss excess cement volume for top out plug.
61	DO NOT PUMP WATER AHEAD OF CEMENT. MIRU Cementers. Pump Surface Plug: Pump 10 sx (2.2 bbl or 13 cf) of the Surface AGM blend: Class G with 0.4% B547 Gas Block (Latex) and 2% S001 CC (Calcium Chloride) and 4% D053 Expansion (Gyp). Volume based on 105' inside 4-1/2", 11.6# production casing with no excess. Cement will be from 105' to surface. Verify and document cement to surface. Collect wet and dry samples of cement to be left on rig.
62	TOOH and remove diverter tool. Insert ~5' of 2-3/8" Tbg. Circulate FW to clean Csg & Csg Valves. LD final joint of 2-3/8" Tbg. RDMO cementers. ND BOP. Install night cap. RDMO WO rig.
63	Instruct cementing, tools and wireline contractors to e-mail copies of all job logs/job summaries to rscDJVendors@oxy.com within 24 hours of completion of the job.
64	Supervisor submit paper copies of all invoices, logs, and reports to Well Services Engineering Specialist.
65	Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
66	Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
67	Welder cut casing minimum 5' below ground level.
68	Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
69	Obtain GPS location data as per ECMC Rule 215 and provide to GPS Teams page and Oxy GIS database.
70	Properly abandon flow lines per Rule 1105. File electronic Form 42 and/or Form 44 once abandonment is complete.
71	Back fill hole with fill. Clean location, and level.
72	Submit Form 6 Subsequent Report to ECMC ensuring to provide 'As performed' WBD identifying operations completed.