



ADU #210 P&A Supplemental Procedure
December 6, 2010



Affected Well / API # / AFE #:

ADU #210

30-015-24653

XP.2010.47139

History and General Discussion:

The well currently has a nipple welded onto the 13-3/8" surface casing with 11" BOP's connected. Well still has gas migration from the surface/intermediate casing annulus and builds to 15-20 psig. Rig is currently on well and on stand-by. The objective is to plug and abandon the wellbore according to NMCD standards (stopping gas migration).

Pending Work Summary:

- a) Perform pre-mob work and planning
- b) RU WS and bit to DO cement to 204'
- c) Attempt to establish an injection rate into previous cuts at 170', 140', and 100'
- d) MIRU necessary equipment for cutting casing with sand cutter
- e) RIH with Sand Jetting Tool
- f) Jet through Intermediate and Surface casing strings at ~ 50'
- g) Circulate fluids through WS until returns show low sand concentration
- h) Shut in casing valves and establish injection rate from pump truck at surface
- i) POOH with Sand Jetting Tools
- j) RU casing spears and casing jacks to pull casing from 50' (if possible)
- k) Clean out well to cut and isolate gas entry to squeeze with cement
- l) If unable to pull casing RIH with cement retainer to 40' and squeeze cement into cut at 50'
- m) WOC and determine if gas migration still exists
- n) Finish P&A as per NOMCD

Wellbore Construction Details				ID (in)	Drift (in)	Cap. bbl/ft	Annular bbl/ft	100% Burst	1.25 SF Burst	100% Collapse	1.33 SF Collapse
Workstring	2-7/8"	6.5#	L-80	2.441	2.347	.0058	.0557	10,567	8,454	11,170	8,398
Intermediate Casing	8-5/8"	24#	J-55	8.097	7.972	.0637		2,950	2,360	1,370	1,030
Surface Casing	13-3/8"	68#	J-55	12.415	12.289	.1497		3,450	2,760	1,950	1,466
Conductor	20"	94#	H-40	19.125				1,530	1,224	520	391

MECHANICAL CONSIDERATION AND NOTES

- Follow published guidelines per the Wellwork Execution Manual, ExxonMobil Safety Manual, and the NOMCD.
- Every day, prior to beginning any operation, complete JSA and JSC, and hold safety meeting to outline procedures and scope of upcoming well work. During the meeting review the role of all personnel on location, and alert all hands to possible hazards and their role in conducting the activities safely. Discuss communications and emergency response. All operations should be performed according to guidelines in the Wellwork Execution Manual, and the Production Department Safety Manual (PDSM).

Updated as of 12/6/10

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**ADU #210 P&A Supplemental Procedure**
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Safety and protection of the environment are top priorities with ExxonMobil Corp. All work shall be done in accordance with company standards and policies as written in the USP Safety and Workover Manuals. Tailgate safety meetings are required daily and recorded on the drillers report. The scope, daily work plan, and potential hazards shall be discussed by all personnel on location. This procedure is a guide for the work to be done and should be followed. If different working conditions arise such that significant deviations from this procedure are necessary, then the ExxonMobil Workover Supervisor must be notified and approve of the changes. If the changes significantly increase the risks or scope of the job, then Management of Change procedures are to be followed and documented as soon as working conditions permit.

ExxonMobil Engineering Contacts

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ExxonMobil Field Contacts

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Risk Assessment:

Injection well, no flow potential. Producing wells in the area have been known to have ± 9000 ppm H₂S concentration in their flow stream. Caution should be taken to prevent unexpected H₂S exposure. All personnel on location should be aware of the H₂S content and equipped with proper PPE.

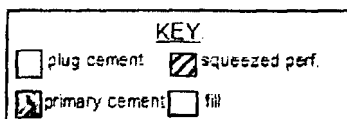
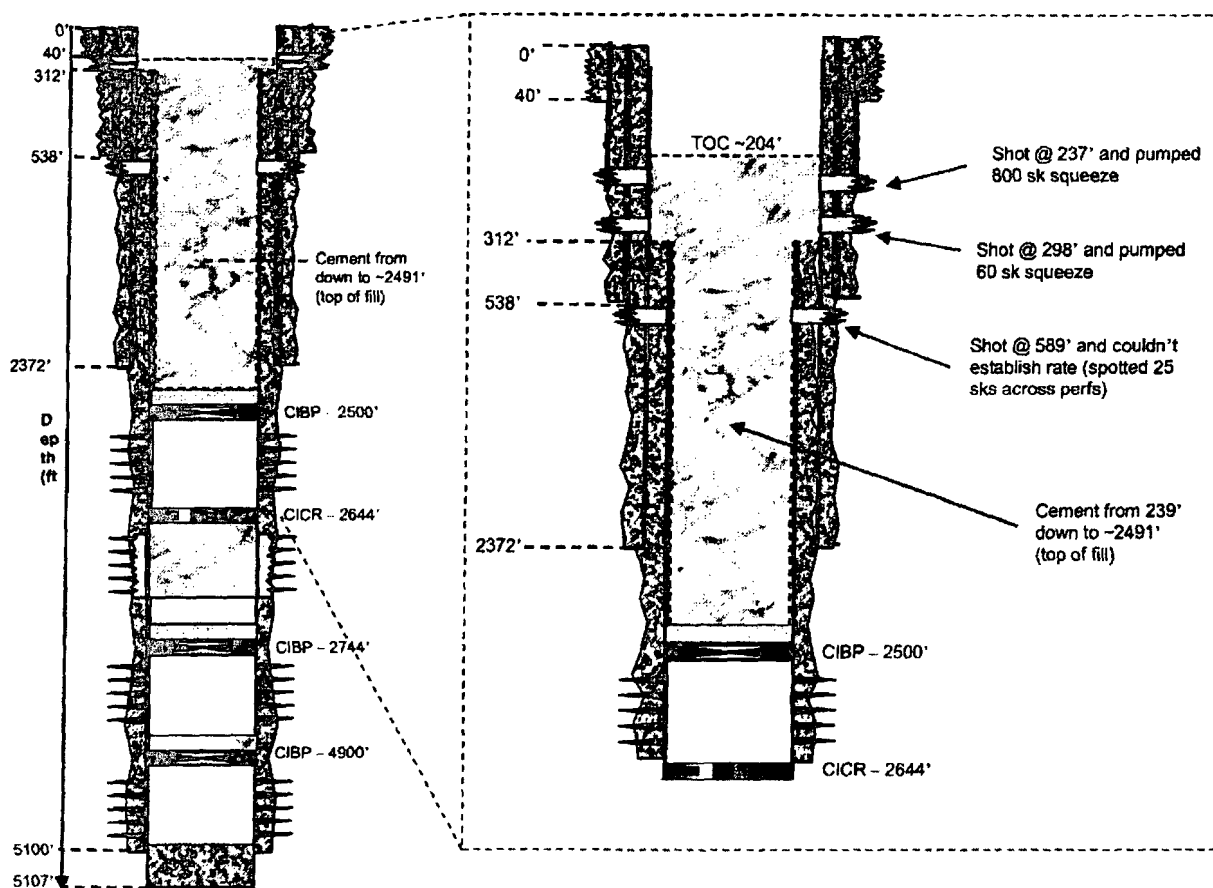
***NOTE:** Please confirm approval from NMOCD (either with email or written consent) regarding the plugging method described in the steps outlined in this procedure



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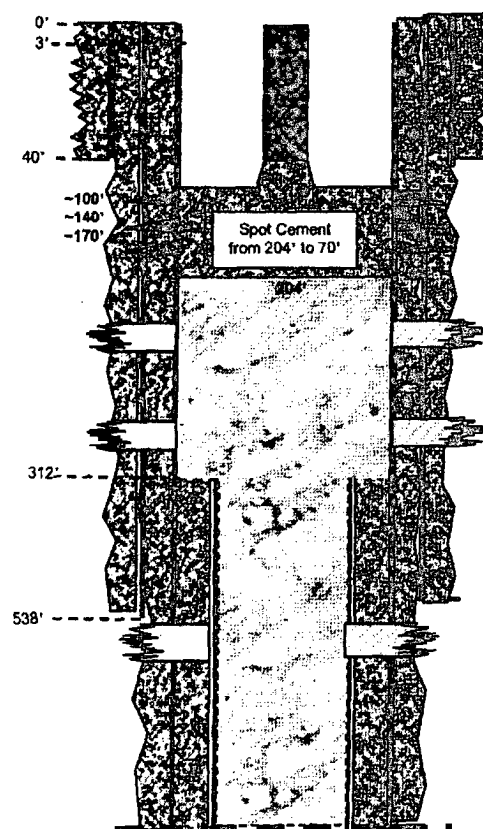


PAST WELLBORE STATE



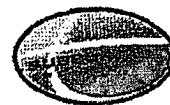


Sand Jet Tool Cuts



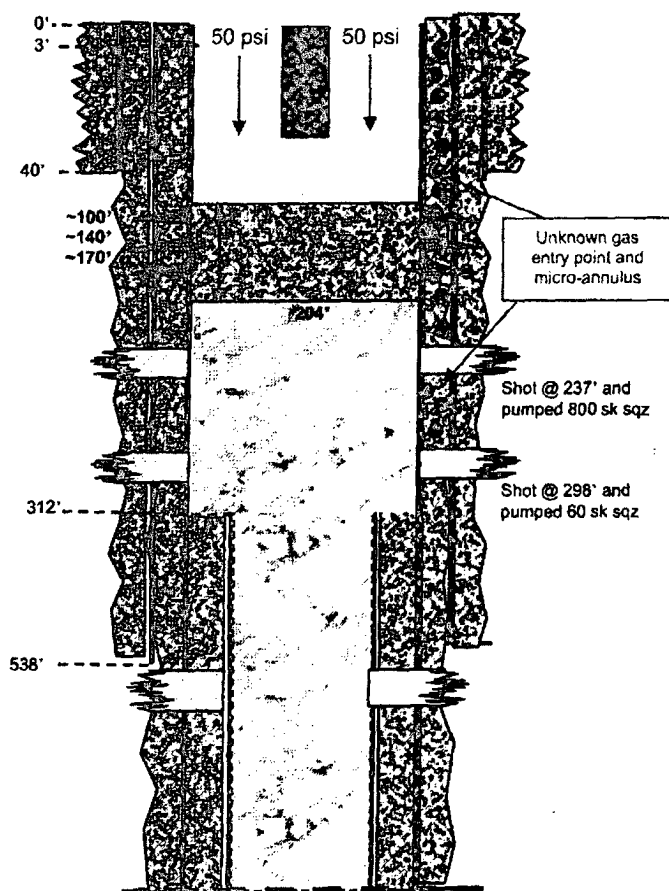


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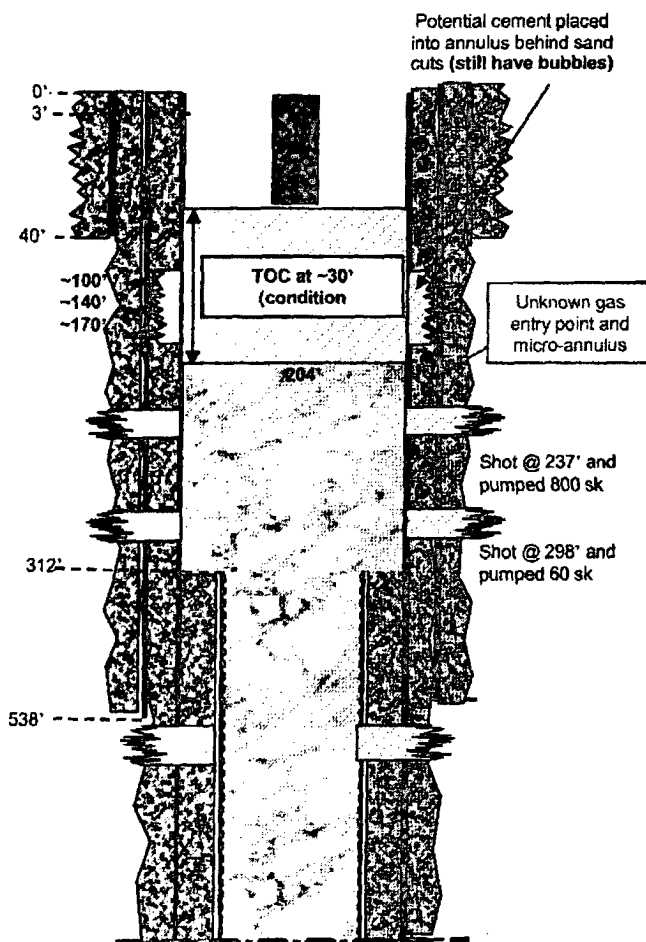


KNOWN INFORMATION AS OF 12/6 SKETCHES

Expected Wellbore Condition 12/4

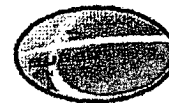


Known Condition of Well 12/6

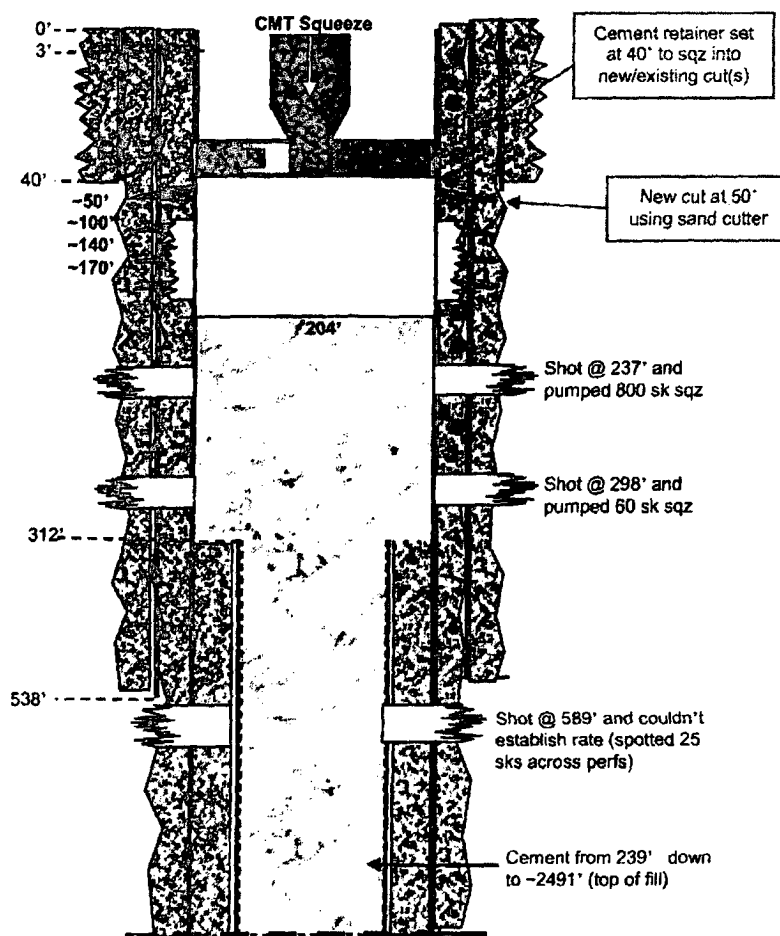




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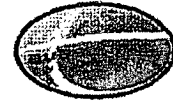


CEMENT RETAINER AND SQUEEZE SKETCH





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RECOMMENDED PROCEDURES

DO Cement, Jet Sand Cut Casing, & Pull Casing

Steps 1-18 in the previous procedure were completed. The following procedure outlines the work to take place from 12/6 forward to finish the P&A.

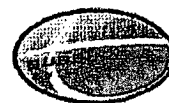
- 1) Review procedures and safety evaluations. Verify that the following equipment and operating personnel have been scheduled:
 - Workover rig, cement pumper, pressure testing equipment, jet cutting tool and associated equipment, frac tanks, and safety personnel
- 2) Check wellhead pressure and flow down accordingly, well has built to 15 – 20 psig over night (if the pressure exceeds this range please contact SSE for additional discussion)
- 3) RU reverse swivel unit on WO rig
- 4) PU bit to drill out cement from ~ 30' to 204' inside of intermediate casing
- 5) Circulate well clean of cement cuttings
- 6) Establish an injection rate into the cuts made at 170', 140', and 100' if possible (record and report)
- 7) Set up sand hopper and frac tanks to mix sand jetting slurry at the surface
 - 3 frac tanks: 2 full of brine (1 tank contingency) and 1 empty tank to take returns
- 8) PU jet cutting tool assembly, rotary sub, and 2-7/8" WS
- 9) RIH to a depth of 50' (record actual depth)
- 10) Jet through 8-5/8" intermediate casing and 13-3/8" surface casing while turning power swivel as per instruction from Thru Tubing Solutions representative on location
 - Circulating fluid should be gelled water with .75-1 ppg slurry with 100 mesh sand
 - Pump a total of 80 to 100 bbls of slurry (based on previous cuts)
 - Ideal pump rate to perform jetting is 2-3 bpm



If the casing falls or has significant movement after any cuts notify SSE.
Continue with steps in procedure to pull casing from well.



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- 11) POOH with jet cutting tools and WS
- 12) RU spear and casing jacks to pull 8-5/8" intermediate casing from well
- 13) RIH and spear the cut 8-5/8" intermediate casing and attempt to remove it from the wellbore (if unable to pull with casing jacks notify SSE and follow steps in "Cement Retainer Squeeze Procedure". If a rate was not easily established into the cut at 50' determine possibility of executing procedure)

Depending on the length of intermediate casing, it may be necessary to rest it in the slips and cut it in order to safely lay it down (If the length of cut casing is in excess of approximately 65' have rig pull doubles)

- 14) PU and RIH with 12-1/4" bit and clean-out to the top of the intermediate casing
- 15) RIH with retrievable packer on WS and attempt to isolate the gas entry point (if possible)
- 16) Engage the packer half way between the gas entry depth and the surface
- 17) Pump a cement slurry below the packer followed by a 1.5 bbl spacer (10' displacement inside of 13-3/8" surface casing)
- 18) WOC a minimum of 24 hrs and monitor any pressure build-up at surface
- 19) Observe any pressure build-up at surface and record
 - If gas migration continues notify SSE and NMOCD to determine forward plans (RDMO)
- 20) If no gas migration is observed notify NMOCD to set cement on top of the plug to surface
- 21) Once NMOCD has approved of P&A completion RDMO
- 22) Call out welder to install cap and well marker as required by NMOCD



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Cement Retainer Squeeze

If unable to pull casing from well from cut at 50' follow the steps outlined below.

- 1) LD tools for pulling casing from well
- 2) PU cement retainer and RIH to set at 40' and test
- 3) PU stinger and 2-7/8" WS
- 4) Sting into retainer and establish an injection rate (record rate and notify SSE)
- 5) Pump 10 bbl squeeze hesitating on final 2 bbls in 1/2 bbl increments
 - Pump 8 bbls and shut-down pump for 2-5 minutes
 - Pump 1/2 bbls increments with 2-5 minute hesitation between them
 - WOC for at least 12 hours before re-attempting
- 6) Pump up to two additional 10 bbl squeezes following the hesitation schedule outlined in the previous step (if unable to continue squeezing for a second and third attempt notify SSE)
 - If gas migration ceases between squeezes notify SSE and finish P&A
- 7) Sting out of retainer and WOC
- 8) Monitor for gas migration at surface
 - If migration has ended fill well with cement from top of retainer to surface
 - If migration persists notify NMOCD and discuss future options
- 9) RDMO

Approved
[Signature]
NMOCD
12/7/2010