



Operational Review

Prepared for:

Monforte Exploration LLC

For the:

**Abandonment / Plugback for Sidetrack
South Marsh Island Block 48 #E-4
OCS-G 0786**

By:

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Offshore, Louisiana**

Overview

The South Marsh Island Block 48 #E-3 was a producing well that will be plugged back for a sidetrack. The well was drilled to 11,226' TVD / 11,542' MD. Water depth at this location is 96' and original RKB is 74'.

The casing program is 30" x 1.0" drive pipe which has been driven to 379', 20" 94.0 H-40 conductor casing set at 870' TVDMD and cemented to surface, 13-3/8" 61.0 K-55 surface casing set at 3,527' TVD/MD and cemented to surface, 9-5/8" 47.0 ppf N-80 intermediate casing set at 8,949' TVD / 9,260' MD and cemented to $\pm 4,680'$ MD, and 7" 29.0 ppf N-80 production casing set at 11,226' TVD / 11,542' MD with an estimated cement top at $\pm 4,430'$ MD. The well will be plugged back and the tubing, 7" casing, and 9-5/8" casing will be cut and pulled and a cement retainer set to prepare for a sidetrack.

The well will be plugged back by the Rowan Cecil Provine under a daywork contract with Apache Corporation who will be operating for Monforte Exploration LLC. Apache Corporation will be supervising the drilling operations.

Well Planning

The abandonment / sidetrack plugback procedure calls for the Rowan Cecil Provine to skid over the #E-4 well. The well will be checked for pressure. The SCSSV will be closed, a BPV will be installed, and the tree removed. The 13-5/8" 10M BOP and 5M annular will be nipped up and tested to 250 psi / 5,000 psi. The BPV will be removed. A slickline unit will be rigged up, the lubricator tested to 1,000 psi, and the SCSSV locked open. A gauge ring run to $\pm 9,080'$ MD will be made and the slickline unit rigged down. E-line will be rigged up and the lubricator tested to 1,000 psi. A tubing cutter will be run and the tubing cut at $\pm 9,050'$ MD. The well will be displaced to 14.0 ppg mud from the cut up and the e-line unit will be rigged down. The 2-7/8" cut tubing will be removed. A 6" bit and casing scraper will be run to the top of the cut tubing. A 7" cement retainer will be run and set at $\pm 9,030'$ MD. A stinger will be run and stung into the retainer. Injection rates will be established and 77 sacks (82 cubic feet) squeezed below the retainer (if injection rates cannot be established, a test below the retainer to 2,000 psi will be recorded on a chart for 30 minutes). The stinger will be stung out and 20 sacks (21 cubic feet) of cement will be spotted on it for a plug from 8,930' – 9,030' MD. The plug will be tested to 1,000 psi for 30 minutes on a chart. The BOPs along with the 11" 5M x 7-1/16" 10M tubing head will be removed. The 7" hanger will be tack welded to the casing and the BOPs nipped up and tested to 250 / 1,000 psi (a full BOP test to 250 psi / 5,000 psi will be performed once the bowl is clear of casing). A 7" casing cutter will be run and the casing cut at $\pm 2,850'$ MD. The annular will be

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closed and circulation attempted down the 7" casing and up the 7" x 9-5/8" annulus. The well will be displaced to 12.5 ppg water based mud. The cutter will be pulled out of the hole, a spear picked up and the 7" casing pulled. (If the 7" casing does not pull, the spear will be released, and the 7" casing will be cut and pulled in sections until reaching $\pm 2,850'$ MD.) As soon as the 7" hanger bowl is cleared, the BOPs will be tested to 250 / 5,000 psi and the annular tested to 250 / 3,500 psi on 3-1/2" and 5" drill pipe as per Bureau of Safety & Environmental Enforcement ("BSEE") requirements. An 8-1/2" bit and casing scraper BHA will be run to the casing stub, the well circulated and conditioned with 12.5 ppg mud, and the assembly pulled out of the hole. A 9-5/8" cement retainer which will be set at $\pm 2,800'$ MD and the annulus tested to 1,000 psi. Injection rates will be established (if injection can not be established at 2,000 psi, chart and record for 30 minutes), and 51 cubic feet (47 sacks) of cement will be squeezed below the retainer for an annulus plug from 2,500' – 2,700' MD. The drill string will be unstung and 42 cubic feet (39 sacks) of cement will be spotted on the retainer for a plug from 2,600' – 2,700' MD. The string will be pulled to 2,550' MD, the well reversed out two string volumes, and the drill string pulled out of the hole. The BOPs along with the 13-5/8" 3M x 11" 5M casing head will be removed. The 9-5/8" hanger will be tack welded to the casing and the BOPs nipped up and tested to 250 / 1,000 psi (a full BOP test to 250 psi / 3,000 psi will be performed once the bowl is clear of casing). A 9-5/8" casing cutter will be run and the casing cut at $\pm 2,300'$ MD. The annular will be closed and circulation attempted down the casing and up the 9-5/8" x 13-3/8" annulus. Bottoms up will be circulated and the cutter will be pulled out of the hole. A spear will be run and the 9-5/8" casing pulled. (If the casing does not pull, the spear will be released, and the casing will be cut and pulled in sections until reaching $\pm 2,300'$ MD.) As soon as the 9-5/8" hanger bowl is cleared, the BOPs will be tested to 250 / 3,000 psi and the annular tested to 250 / 3,000 psi per BSEE requirements. A 12-1/4" bit and casing scraper BHA will be run to the casing stub, the well circulated and conditioned with 9.0 ppg mud, and the assembly pulled out of the hole. E-line will be rigged up and the lubricator tested to 1,000 psi. A gauge ring CCL run will be made to the 9-5/8" casing stub. A cement retainer will be run and set 5' above the first collar above 2,300' MD and e-line will be pulled out of the hole and rigged down. A stinger will be run and stung into the retainer and the annulus tested to 1,000 psi. Injection rates will be established and 106 sacks (113 cubic feet) of cement will be squeezed below the retainer for an annulus plug from 2,250' – 2,500' MD. The drill string will be stung out, the well reversed out two string volumes, the 13-3/8" casing tested to 2,163 psi, and the drill string pulled out of the hole. The BOPs will be picked up and the 13-5/8" SOW x 13-5/8" 3M wellhead removed and a new 13-5/8" SOW x 13-5/8" 5M wellhead nipped up and the void tested. The BOPs will be nipped up and the break and wellhead tested to 5,000 psi. The 13-3/8" whipstock assembly will be picked up and the well will begin sidetrack operations.

Well Equipment Design / Barriers

The abandonment / sidetrack plugging procedure has been designed with acceptable barriers in all phases of operations with a list summarized in the table below for all operations.

Operation	Wellbore Barriers	Annular Barriers
Install BPV	-SCSSV. -Tree and Valves.	-Wellhead. -Cement & kill weight mud in annulus.

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ND Tree / NU BOPs	-SCSSV. -BPV.	-Wellhead. -Cement & kill weight mud in annulus.
Slickline Work – GR Run	-Surface BOPs. -Lubricator. -SCSSV.	-Wellhead. -Cement & kill weight mud in annulus.
E-line Work – Cut Tubing	-Surface BOPs. -Lubricator. -SCSSV.	-Wellhead. -Cement & kill weight mud in annulus.
Displace to 14.0 ppg Mud	-Surface BOPs. -Lubricator. -SCSSV.	-Wellhead. -Cement & kill weight mud in annulus.
Pull Tubing	-Surface BOPs. -Kill weight fluid in wellbore.	-Wellhead. -Cement & kill weight mud in annulus.
Run 7” Cement Retainer	-Surface BOPs. -Kill weight fluid in wellbore.	-Wellhead. -Cement & kill weight mud in annulus.
Squeeze Cement Below & Set Plug on Top	-Surface BOPs. -Kill weight fluid in wellbore. -7” cement retainer @ 9,030’.	-Wellhead. -Cement & kill weight mud in annulus.
PU BOPs, ND 11” 5M x 7-1/16” 10M Tubing Head, NU BOPs	-Kill weight fluid in wellbore. -7” cement retainer @ 9,030’. -Cement plug 8,930’ – 9,030’.	-Wellhead. -Cement & kill weight mud in annulus.
Cut and Pull 7” Casing	-Surface BOPs. -Kill weight fluid in wellbore. -7” cement retainer @ 9,030’. -Cement plug 8,930’ – 9,030’.	-Wellhead. -Cement & kill weight mud in annulus.
Make Scraper Run	-Surface BOPs. -Kill weight fluid in wellbore. -7” cement retainer @ 9,030’. -Cement plug 8,930’ – 9,030’.	-Wellhead. -Cement & kill weight mud in annulus.
Run 9-5/8” Cement Retainer and Set Cement Plug	-Surface BOPs. -Kill weight fluid in wellbore. -7” cement retainer @ 9,030’. -Cement plug 8,930’ – 9,030’.	-Wellhead. -Cement & kill weight mud in annulus.
ND BOPs / Remove 11” 5M x 13-5/8” 3M Casing Spool / NU BOPs	-Kill weight fluid in wellbore. -7” cement retainer @ 9,030’. -Cement plug 8,930’ – 9,030’. -9-5/8” cement retainer @ 2,800’. -Cement plug 2,700’ – 2,800’.	-Wellhead. -Cement & kill weight mud in annulus.
Cut and Pull 9-5/8” Casing	-Surface BOPs. -Kill weight fluid in wellbore. -7” cement retainer @ 9,030’. -Cement plug 8,930’ – 9,030’. -9-5/8” cement retainer @ 2,800’. -Cement plug 2,700’ – 2,800’.	-Wellhead. -Cement & kill weight mud in annulus.

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Make Scraper Run	-Surface BOPs. -Kill weight fluid in wellbore. -7" cement retainer @ 9,030'. -Cement plug 8,930' – 9,030'. -9-5/8" cement retainer @ 2,800'. -Cement plug 2,700' – 2,800'.	-Wellhead. -Cement & kill weight mud in annulus.
E-line Work – GR/CCL & 13-3/8" Cement Retainer	-Surface BOPs. -Kill weight fluid in wellbore. -7" cement retainer @ 9,030'. -Cement plug 8,930' – 9,030'. -9-5/8" cement retainer @ 2,800'. -Cement plug 2,700' – 2,800'. -Lubricator.	-Wellhead. -Cement & kill weight mud in annulus.
Cement Squeeze	-Surface BOPs. -Kill weight fluid in wellbore. -7" cement retainer @ 9,030'. -Cement plug 8,930' – 9,030'. -9-5/8" cement retainer @ 2,800'. -Cement plug 2,700' – 2,800'. -13-3/8" cement retainer @ 2,300'.	-Wellhead. -Cement & kill weight mud in annulus.
ND BOPs / Remove 13-3/8" SOW x 13-5/8" 3M Casing Spool / NU 13-3/8" SOW x 13-5/8" 5M Casing Spool / NU BOPs	-Kill weight fluid in wellbore. -7" cement retainer @ 9,030'. -Cement plug 8,930' – 9,030'. -9-5/8" cement retainer @ 2,800'. -Cement plug 2,700' – 2,800'. -13-3/8" cement retainer @ 2,300'.	-Wellhead. -Cement & kill weight mud in annulus.
Start Sidetrack	-Surface BOPs. -Kill weight fluid in wellbore. -7" cement retainer @ 9,030'. -Cement plug 8,930' – 9,030'. -9-5/8" cement retainer @ 2,800'. -Cement plug 2,700' – 2,800'. -13-3/8" cement retainer @ 2,300'.	-Wellhead. -Cement & kill weight mud in annulus.

Summary

The abandonment / sidetrack plugging procedure is appropriate for the purpose for which it is intended under expected wellbore conditions. The sidetrack plugging procedure complies with the guidelines of the Bureau of Safety & Environmental Enforcement (hereinafter "BSEE") regulatory requirements, as published in 30 CFR 250. Apache Corporation for Monforte Exploration LLC has conservatively designed the abandonment / sidetrack plugging procedure for the well and no exception is recommended.

This report is solely an opinion and is subject to the accuracy of data and materials furnished by Apache Corporation, and the limitations, qualifications, and comments set forth herein. Only the