Unites States Department of the Interior
Bureau of Safety and Environmental Enforcement
Gulf of Mexico OCS Region
Pipelines Section (GE1035A)
1201 Elmwood Park Boulevard
New Orleans, LA 70123-2394
Attn: Mr. Phillip Smith

Friday, August 18, 2017

Pipeline Right of Way Modification
From: Mississippi Canyon 934 (SSManifold) OCS-G07975
To: Mississippi Canyon 807A OCS-G07963
Segment Number 12129-8- 5/8” Bulk Oil Flowline
Right of Way G21013

In accordance with 30 CFR 250.1753, Shell Offshore Inc. hereby notifies the Regional Supervisor the modification of ROW segment 12129 by removal of a 91.89-foot flowline jumper and decommissioning in place was completed on August 9, 2017. All decommissioning activities were completed in accordance with the procedures provided in the decommissioning application and approved by your office on July 7, 2017. No mitigation measures were needed during the decommissioning operations.

Should you have any questions going forward, please contact Jarrett Hawkins, Regulatory Affairs Technician at (504) 425-3022.

Regards,

W.D. Terrebonne, Jr.
Shell Offshore Inc.
Attorney-in-Fact

Enclosures

Gulf of Mexico OCS Region Pipeline Modification Approval – Pipeline Segment 12129

Shell Offshore Inc.
One Shell Square
P. O. Box 61933
New Orleans, LA 70161-1933
United States of America
Tel +1 504 425 7281
Email: william.terrebonne@shell.com

Bureau of Safety and Environmental Enforcement (BSEE)
RECEIVED
AUG 23 2017
Office of Field Operations
Pipeline Section

Your report is hereby accepted pursuant to 30 CFR 250.1753.
Date: 9/5/2017

Bryan A. Domangue
Acting Regional Supervisor
Bureau of Safety and Environmental Enforcement
Mr. W.D. Terrebonne, Jr.
Shell Offshore Inc.
Post Office Box 61933
New Orleans, Louisiana 70161

Dear Mr. Terrebonne:

Reference is made to your request dated April 14, 2017, received by this office on April 18, 2017, with supplemental information submitted on May 2, 2017, to modify Pipeline Right-of-way (ROW) OCS-G21013. Specifically, Shell Offshore Inc. requests to decommission in place a manifold to SLED jumper and a cessation of operations until April 30, 2018 to perform coil tubing operations to remediate a plugged pipeline. The pipeline associated with Pipeline ROW OCS-G21013 is PSN 12129.

For ease of reference, PSN 12129 is described as follows:

<table>
<thead>
<tr>
<th>Segment Number</th>
<th>Size (Inches)</th>
<th>Length (feet)</th>
<th>Service</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>12129</td>
<td>8</td>
<td>91.568</td>
<td>Bulk Oil</td>
<td>SS Manifold</td>
<td>Platform A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mississippi Canyon Area</td>
<td>Mississippi Canyon Area</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Block 934</td>
<td>Block 807</td>
</tr>
</tbody>
</table>

Pursuant to 30 CFR 250.1000(b), your application to modify Pipeline ROW OCS-G21013 is hereby approved.

You shall submit written notification to this office within 30 days of the completion of the pipeline modification. This notification shall include the date the modification was completed and an indication that the modification was completed as approved.

The description of Pipeline ROW OCS-G21013 was found to be out of date and is updated as follows:

Pipeline Right-of-way (ROW) OCS-G21013 is a 200-foot wide and approximately 17.34 miles (91,568') long corridor associated with the 8-inch Pipeline Segment Number (PSN) 12129 and a 12-inch casing (PSN 12130). The purpose of the pipeline ROW OCS-G21013 is to maintain and operate PSNs 12129 and 12130 and to transport bulk oil originating at a subsea manifold in block 934, through blocks 890, 891, 847, 848, 804, 805, 806, and terminating at Platform A in Block 807, all located in the Mississippi Canyon Area.
Please be reminded of the testing requirements in 30 CFR 250.1003(b)(1) when applying to install the manifold to SLED jumper after the remediation has been performed.

Sincerely,

PHILLIP SMITH
Date: 2017.07.10
07:55:15-05'00'

Bryan A. Domangue
Acting Regional Supervisor
Regional Field Operations
Friday, April 14, 2017

Request — Extension of Temporary Cessation of Operations
Pipeline Right of Way Modification Request
From: Mississippi Canyon 934 (SSManifold) OCS-G07975
To: Mississippi Canyon 807A OCS-G07963
Segment Number 12129 – 8 – 5/8” Bulk Oil Flowline
Right of Way G21013

Shell Offshore Inc. (SOI) requests a one-year extension until April 30, 2018 for the temporary cessation of operations specific to Pipeline Segment No. 12129, Right of Way No. G21013 (8-5/8” Bulk Oil Flowline from Mississippi Canyon 934 (SS Manifold) to Mississippi Canyon 807A.) The current temporary cessation of operations expires on April 30, 2017. Segment 12129 was plugged during a restart of the Mississippi Canyon 934 Europa Field in March of 2010. Attached, you will find a detailed chronology of remediation efforts to date.

To date, there have been innovations in coil tubing operations for use in remediation of plugged subsea pipelines. Below you will find a high level overview discussions and lessons learned over the last 12 months:

In June 2016 Marathon Oil request Shell to provide TLP support to attempt to unplug and decommission a 6-inch by 5.4-mile (28,737 feet) pipe-in-pipe subsea pipeline, segment 16212 & 16267 which is tied back to Shell’s Auger TLP. This remediation effort will use a conventional coiled tubing system and a WWT coiled tubing tractor to extend the limitations of the coiled tubing once it is in the horizontal section of the pipeline. This concept is approved by BSEE Pipeline Section and was used for the first time in the GOM to attempt to unplug a subsea pipeline.

In August 2016 Marathon Oil executes operations using the new coiled tubing concept and achieves 23,000+ feet of remediation of the plugged subsea pipeline. Although Marathon Oil does not reach the overall target distance, the distance achieved is a dramatic improvement over conventional coiled tubing limitations from the time Shell reviewed this option in 2011.

Based off the distance achieved by Marathon, which exceeds the estimated 7,000 to 8,000 feet needed to remediate the plug in Shell’s segment 12129, Shell delays deployment of the bulkhead tap and circulate tooling to reevaluate a coiled tubing solution. In September 2016 Shell contacted WWT Coiled Tubing Services for a demonstration and a lessons learned discussion concerning the coiled tubing and tractor system used in the Marathon operation. Following this demonstration and discussion Shell begins front end engineering for deployment of a coiled tubing based remediation as a primary solution, while maintaining the bulkhead tap and circulate as a contingency.
Based upon the innovations with coiled tubing to remediate plugged subsea pipelines, Shell Offshore Inc. is requesting a one-year extension to complete the following:

1. Submit Right-of-Way modification application to BSEE Pipeline Section to remove the manifold to flowline jumper of segment 12129. (April 2017)
2. Remove manifold to flowline jumper. (July 2017)
3. Deploy coiled tubing to remediate plug and return pipeline to service. (2017 - 2018)

Please find here within a pipeline modification request addressed to the Regional Supervisor for review and approval. Additionally, you will also find payment in the amount of **$84,169.00**

Pay.gov Tracking ID: 261S73MN  
Agency Tracking ID: 75225085920

Should you have any questions or concerns, please contact Jarrett L. Hawkins at (504) 425-3022 or jarrett.hawkins@shell.com

Sincerely,

W.D. Terrebonne, Jr.  
Attorney-in-Fact  
Deepwater Regulatory Affairs – Surface Team Leader

Attachments
Request for Extension of Temporary Cessation of Operations
Segment 12129, ROW G21013
8 -5/8" Bulk oil from Mississippi Canyon Block 934
To Mississippi Canyon Block 807

Shell Offshore Inc. requests a one-year extension until April 30, 2018 for the temporary cessation of operations for Segment 12129, ROW G21013 (8 -5/8" bulk oil from MC 934 to MC 809.) The current temporary cessation of operations expires on April 30, 2017. Segment 12129 was plugged during a restart of the Mississippi Canyon 934 Europa field in March 2010.

The following is a summary of the remediation efforts to date.

* Continued solvent treatment of the pipeline using the umbilical system. (April 2011 -present)
* Conducted Asphaltene and solvent treatment from the riser. (April 2011 - present)
* Conducted front end engineering study for a coiled-tubing cleanout and determined that more detailed data was needed to progress. (April 2011 -present)
* Shell contracted Tracerco to build a ROV-controlled deep water discovery tool capable of providing high resolution computed tomography (CT) scan data to enable Shell to determine the condition of the pipeline. (April 2011)
* Shell deployed a gamma ray survey tool to determine the size and density of the plug, but the scan failed to provide the necessary data. (December 2012)
* Tracerco Discovery™ Tool Development and Qualification Testing (2012- 2014)
* Tracerco Discovery™ Tool mobilized to the MC 934 Europa field and began gathering high resolution images of the pipeline contents. (November 2014)
* Tracerco Discovery™ Tool data was provided to Shell. (January 2015)
  o Starting at 300ft. from the PLET out to 4663 feet, the pipelines filled /plugged with a material of uniform density, likely Asphaltene.
  o From 4697 feet to 7672 feet, the pipeline is filled /plugged with a mixture of gas, liquids, and solids.
  o Pressure communication was seen between the PLET and the upstream plug boundary when pressure changes were initiated at the subsea end of the pipeline.
  o No pressure communication was seen at the downstream plug boundary when pressure changes were initiated at the platform. This could be caused by other blockages that were not revealed in the discrete locations that were surveyed, or because there is enough cumulative liquid hold-up in the pipeline undulations to block the amount of pressure that was supplied from the platform.
* Shell post-processing of the Tracerco data throughout 2015 and adjustments to subsea flow assurance modeling software determined the material of uniform density, likely Asphaltene does not start until ~1,000ft from the PLET further narrowing the target area for remediation.
* Shell evaluated CoiTAC™ Flow Assurance Solution extended reach coiled tubing process to remediate plug. Determined to not be an appropriate solution for returning the pipeline to service. (March 2015)
* Shell issues design concept and purchase order to Oceaneering® to build prototype intervention tools and components to allow circulation to be established through a bulkhead tap and circulate process and return the pipeline to service. (August 2015)
* Idea Energy Solutions, LLC & Shells Westhollow Technology Center conducted chemical performance studies on WellRenew™ an advanced chemical product designed to remediate
paraffin and asphaltene plugs. Study determined WellRenew™ would not work in this 
application (October 2015).
• Shell starts adding high pressure greater than the liquid hold-up head to the pipeline while 
monitoring the volume introduced to determine if there are any additional plugged areas not 
identified by the Tracerco Discovery™ Tool. (February 2016)
• Oceaneering® completes first prototype intervention tool ready for testing and qualification for 
bulkhead tap and circulate operation. (March 2016)
• Oceaneering® completes qualification testing of bulkhead tap and circulate tooling (June 2016)

Innovations in coiled tubing operations for use in remediation of plugged subsea pipelines:

In June 2016 Marathon Oil request Shell to provide TLP support to attempt to unplug and 
decommission a 6-inch by 5.4-mile (28,737 feet) pipe-in-pipe subsea pipeline, segment 16212 & 
16267 which is tied back to Shell's Auger TLP. This remediation effort will use a conventional coiled 
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needed to remediate the plug in Shell's segment 12129, Shell delays deployment of the bulkhead tap and circulate tooling to reevaluate a coiled tubing solution. In September 2016 Shell contacts 
WWT for a demonstration and a lessons learned discussion concerning the coiled tubing and tractor 
system used in the Marathon operation. Following this demonstration and discussion Shell begins 
front end engineering for deployment of a coiled tubing based remediation as a primary solution, 
while maintaining the bulkhead tap and circulate as a contingency.

Based off the innovations with coiled tubing to remediate plugged subsea pipelines that would not 
require the pipeline to be drilled and tapped as a primary solution, Shell Offshore Inc. is requesting a 
one-year extension to complete the following:

1. Submit Right-of-Way modification application to BSEE Pipeline Section to remove the manifold 
to flowline jumper of segment 12129. (April 2017)
2. Remove manifold to flowline jumper. (July 2017)
3. Deploy coiled tubing to remediate plug and return pipeline to service. (2017 - 2018)

Attachments:

1. As Built - 2 Pages
2. BSEE Approval_Shell_12129_ROW_Cess_PK5 – Page 1 of 1