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Alaska Oil and Gas
Conservation Commission

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November 12, 2015

**CERTIFIED MAIL –
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7015 0640 0006 0779 5982**

Mr. David Wilkins
Senior Vice President
Hilcorp Alaska, LLC
3800 Centerpoint Drive, Suite 1400
Anchorage, AK 99503

Re: Docket No. OTH-15-025
Failure to Notify of Changes to an Approved Permit
Failure to Maintain a Safe Work Environment
Hilcorp Rig ASR1
MPU J-08A (PTD 1991170)

Dear Mr. Wilkins:

Pursuant to 20 AAC 25.535, the Alaska Oil and Gas Conservation Commission (AOGCC) hereby notifies Hilcorp Alaska, LLC (Hilcorp) of a proposed enforcement action.

Nature of the Apparent Violation or Noncompliance (20 AAC 25.535(b)(1)).

Hilcorp has violated the provisions of 20 AAC 25.507 (“Change of an approved program”) while performing workover operations with Automated Service Rig #1 (ASR1) at Milne Point Unit (MPU) well J-08A. Hilcorp has also violated the provisions of 20 AAC 25.526 (“Conduct of operations”) by failing to follow “good oilfield engineering practices” during those workover operations. In addition, Hilcorp has violated the provisions of 20 AAC 25.285 (“Secondary well control for tubing workover operations: blowout prevention equipment requirements”) by failing to report blowout prevention equipment test results within five days.

Basis for Finding the Violation or Noncompliance (20 AAC 25.535(b)(2)).

Hilcorp ASR1 commenced workover operations at MPU J-08A on September 24, 2015. Sundry approval 315-527 dated August 31, 2015 authorized Hilcorp to pull a failed electric submersible pump (ESP) and rerun a new ESP completion. As part of the workover procedure, a fill cleanout step was included prior to running the new ESP and 2-7/8-inch production tubing. Only seawater was referenced in the sundry work procedure for the planned fill cleanout. Daily

reports for September 24-25, 2015 show the following well work was completed in preparation for the fill cleanout: ESP completion had been removed; a fill cleanout string was run in the well to 6535 feet measured depth consisting of 3395 feet of 2-3/8-inch workstring and 3140 feet of 2-7/8-inch tubing; the annular preventer was closed on the 2-7/8-inch tubing; equipment was rigged up to perform the fill cleanout. The fill cleanout began pumping operations at 2:30 am on September 25, 2015.

Hilcorp notified AOGCC on September 25, 2015 of an incident at MPU J-08A which occurred earlier that day while performing a well cleanout with nitrogen. The incident was described as follows:

- three ASR1 personnel were reported to have been “overcome by something” in the enclosed mud trailer¹ and were evacuated from the rig;
- well status is shut-in;
- a safety shut down has been imposed on the rig;
- fluid returns from the well cleanout operation were designed to flow to outside tanks staged near the well;
- investigation is underway.

An AOGCC Inspector was sent to the location on September 25, 2015 to gather information about the workover operation and incident. Upon arrival he interviewed Hilcorp’s Wellsite Manager and others, checked records, observed how equipment was staged at the location, noted the position of choke manifold and blowout preventer stack valve positions, and attempted to determine the flowback piping arrangement from the well to the storage tanks (external and inside the mud trailer). The intended fill clean out approach was described to the AOGCC Inspector as pumping nitrogen and seawater to displace the well followed by 100 barrels of seawater pumped in two 50-barrel increments.² The Inspector’s review of the ASR1 rig files confirmed that the work procedure was the same as was attached to the AOGCC’s approved sundry. There was no written procedure available at the location that detailed the fill cleanout operation. Reports show that Halliburton finished pumping the nitrogen at 6:30 am September 25, 2015 and was released from the location before the AOGCC Inspector arrived. The AOGCC Inspector was also told the three injured workers had been evacuated from the location for further medical evaluation and had been released to go back to work.

¹ ASR1 mud trailer is a fully enclosed module consisting of mud tanks, fluid management equipment, and mud pumps. Mud tanks are housed in a separate from the choke and kill manifolds. A gas buster was also located inside the mud trailer with gas vent piped through the roof to outside.

² The well cleanout was designed to pump down the tubing-casing annulus with return flow to surface up the tubing (workstring) to an external flow back tank. Records of the cleanout operations indicate 200,000 standard cubic feet of nitrogen were pumped on 9/25/2015 (Halliburton Job Log #902780922) and that was mixed with 207 barrels of 8.5 pounds per gallon seawater (Hilcorp’s *Comprehensive List of Causes; Incident Investigation Events Sequencing Chart*). Hilcorp reports that the first 50-barrel seawater pill was successfully pumped (Hilcorp’s *Internal Incident Investigation*). Unexpected pressure was encountered after pumping approximately 4 barrels of the second 50-barrel seawater pill causing rig personnel to shut down the pumping operation, and realign the flow path to bleed pressure from tubing-casing annulus of MPU J-08A. Records show the flow path was adjusted to allow the returning well bore fluids to flow through the choke manifold valves, gas buster and finally to tanks all within the enclosed mud trailer (instead of bleeding to the exterior tank).

AOGCC notified Hilcorp by letter dated October 2, 2015 that it was investigating whether rig workover operations at MPU J-08A comported with the regulations. Information requested in the AOGCC letter was provided by Hilcorp on October 6, 2015. A second AOGCC request for information dated October 8, 2015 was responded to by Hilcorp on October 9, 2015. Hilcorp initially provided process and instrumentation diagrams for the fill cleanout of MPU J-08A on October 2, 2015. Diagrams that more accurately show the flow path for fluids pumped into and fluids returned from the well were provided on October 26, 2015.

Hilcorp ASR1 was equipped with a gas buster located in the enclosed mud trailer above the mud tanks. A gas buster is a simple separator vessel used to remove free or entrained gas from fluids circulated in the wellbore, such as mud used during drilling operations. The gas buster typically comprises a vessel containing a series of baffles with a liquid exit on the bottom and a gas-vent line at the top of the vessel.³ Investigation revealed that the gas buster dump valve was left open during the MPU J-08A workover. The open valve provided a flow path for the nitrogen in the return fluids to enter the enclosed mud trailer and displace oxygen to a deadly level.^{4,5}

Changes to an Approved Permit. Per 20 AAC 25.507 an operator may not undertake a change to an approved program or activity without AOGCC approval. Paragraph (a) of 20 AAC 25.507 further describes the information that must be submitted to AOGCC. To make a change, the well's current condition and proposed change must be provided to AOGCC for review and approval. Sundry 315-527 did not authorize the use of nitrogen for a cleanout out of MPU J-08A. As part of AOGCC's information gathering related to MPU J-08A, Hilcorp states that the use of nitrogen for a fill cleanout is a contingent plan executed only if well conditions warrant.⁶

Good Oilfield Practices. The hazards associated with the commercial uses of nitrogen are well documented and readily available.⁷ Safety training programs and standardized safety procedures required for working in North Slope oilfield operations emphasize not only the hazards represented by nitrogen but also the good oilfield operating practices that should be employed when nitrogen is part of a work activity.^{8,9} Hilcorp failed adequately to identify the hazards, to assess the hazards, and to implement actions to mitigate the hazards, and in doing so failed to maintain a safe work environment during the fill cleanout operations. AOGCC notes the following deficiencies to good oilfield practices:

- failure to engage in the formal hazards identification (process facilitated by hazards/risk experts) integral to the work planning process, including assessing the risks of using nitrogen in a fill cleanout on ASR1;

³ Schlumberger Oilfield Glossary; <http://glossary.oilfield.slb.com>; device is also commonly referred to as a "mud gas separator" or a "poor boy degasser"

⁴ U.S. Chemical Safety and Hazard Investigation Board, Safety Bulletin No.2001-10-B, *Hazards of Nitrogen Asphyxiation*; June 2003

⁵ North Slope Training Cooperative, *Range of O₂ Levels*

⁶ Hilcorp correspondence dated October 9, 2015

⁷ U.S. Chemical Safety and Hazard Investigation Board, Safety Bulletin No.2001-10-B, *Hazards of Nitrogen Asphyxiation*; June 2003

⁸ North Slope Training Cooperative, *Range of O₂ Levels*

⁹ 2014 Alaska Safety Handbook; adopted by Hilcorp for North Slope operations (October 6, 2015 letter from Hilcorp to AOGCC)

- failure to identify and implement safeguards to ensure personnel safety in the event of a nitrogen release for the fill cleanout operation;
- failure to provide and make available at the rig a detailed procedure for performing a fill cleanout with nitrogen including requirements for verification of the integrity of all barriers in the flow paths for wellbore fluids returning to surface during the fill cleanout operations;
- failure to have in place a robust “Stop Work Authority” that was clearly understood and readily implemented by ASR1;
- failure to provide a documented process for assessing and managing changes to approved sundries that potentially introduce new hazards or increase risk of existing hazards during a rig workover.

Documentation of the job safety analyses reference the potential for an oxygen-deficient environment; the only mitigation identified was avoidance (“stay away from lines”; “stay away from nitrogen clouds”; “keep out of N2 areas”). Job safety assessments conducted on ASR1 were not comprehensive enough to address the entire fill cleanout process (pumping nitrogen and seawater, and flowing back the wellbore fluids). The near deaths of three rig personnel indicate the job safety analyses and Hilcorp’s oilfield practices were woefully inadequate to address nitrogen-related hazards and the controls necessary to prevent an exposure incident.

The deficiencies noted above led to decisions based on assumptions rather than facts. The lack of audible gas alarms was interpreted by those assigned to work in the enclosed tank trailer as establishing the absence of any gas hazard (gas detection system capability was not understood). Despite symptoms from the initial exposure to the oxygen deficient atmosphere in the enclosed mud trailer, the same affected personnel returned to the trailer without taking appropriate precautions (testing the space with appropriate gas monitoring equipment). Exposure to the oxygen-deficient environment – which occurred because of the release of nitrogen from the open gas buster dump valve (valve position unknown) – resulted in three rig personnel losing consciousness. The events associated with subsequent entry into the oxygen-deficient space would have been fatal for three ASR1 personnel except for one worker’s good fortune to collapse into the fresh air environment outside of the enclosed trailer. Exposure could have been prevented.

The job safety analysis is just one component of the larger commitment of a safety and health management system that are part of good oilfield practices.¹⁰ Responsibility for assuring rig operations comply with good oilfield practices rests with Hilcorp management and engineering staff.

Blowout Prevention Equipment Testing. Hilcorp ASR1 blowout prevention equipment was tested on September 24, 2015 representing the initial test after rigging up on MPU J-08A. AOGCC witness of the blowout prevention equipment test was waived. By regulation, blowout prevention equipment test reports must be provided to AOGCC within five days after completing the test. AOGCC received the required test report three days past due on October 2, 2015.

¹⁰ OSHA 3071, *Job Hazard Analysis*; U.S. Department of Labor, Occupational Safety & Health Administration (2002 Revised)

The MPU J-08A violations are neither isolated nor innocent and are emblematic of ongoing compliance problems with Hilcorp rig workover operations. Hilcorp's compliance history in conducting hydrocarbon development activities in Alaska includes ongoing failures to obtain necessary approvals; failures to install, maintain, and test required well control safety systems; failures to perform required tests; and use of equipment that is unsuitable for the operating environment. Recent examples of noncompliant activities include:

- 1) Rig Operations with Failed Gas Detection System – On September 4, 2015 AOGCC sent a notice of investigation to Hilcorp questioning the decision to pull the tubing hanger off its seat in MPU F-96. Activities leading up to this were marked by operational problems and system faults in the gas detection equipment, culminating in the system failing to operate properly during performance testing of the blowout prevention equipment on August 4, 2015. Hilcorp notified AOGCC and stated the rig – Hilcorp ASR1 – would not pull the completion until the gas system was operational”. Less than one hour after providing that notice to AOGCC, Hilcorp made the decision to test if it was possible for ASR1 to pull the completion. Hilcorp's unapproved experiment successfully lifted the tubing hanger off seat and confirmed the rig's inability to pull the completion to surface. This was done in violation of AOGCC regulations (operating without approval; compromising a barrier that is in place to prevent the release of wellbore fluids from the well).
- 2) Other Hilcorp Rig Workovers Employing Nitrogen Well Cleanouts – A review of well workovers performed at MPU by Hilcorp-operated rigs reveal three wells that have performed fill cleanout operations using nitrogen without AOGCC approval. The disregard for regulatory compliance is endemic to Hilcorp's approach to its Alaska operations and virtually assured the occurrence of the incident at MPU J-08A. Hilcorp's conduct is inexcusable.¹¹
- 3) Failure to Report Use of Blowout Prevention Equipment – A rig workover performed with Nordic 3 in early May 2015 encountered the well flowing after running a packer in MPU I-03. The Weekly Operations Summary reports that the well was shut in and well pressures were monitored while waiting on additional fluid to kill the well. No report was filed with AOGCC describing the use of blowout prevention equipment to prevent the flow of fluids from the well. No record exists of Hilcorp testing the blowout prevention equipment that was used.¹²

Proposed Action (20 AAC 25.535(b)(3)).

On October 1, 2015 AOGCC ordered Hilcorp to suspend all rig workover operations until further notice. AOGCC developed a list of corrective actions imposed on Hilcorp prior to recommencing rig workover operations. The list was provided to Hilcorp on October 21, 2015 and followed up with a meeting on October 26, 2015. Hilcorp acceptance of the conditions was documented in responses dated October 27 and 28, 2015. Hilcorp was released to restart rig workover operations by email dated October 29, 2015 and reminded that AOGCC is performing a detailed review of

¹¹ Other Order 80

¹² 20 AAC 25.285(f)(2) and (f)(8)

existing approved well workover sundry applications. Hilcorp has been instructed to contact AOGCC before commencing workover operations on any well – regardless of a past approval.

For violating 20 AAC 25.507, 20 AAC 25.526, and 20 AAC 25.285 the AOGCC intends to impose civil penalties on Hilcorp under AS 31.05.150(a) as follows:

- **\$100,000** for changing the work procedure in Sundry approval 315-527 - performing the cleanout of MPU J-08A using an unapproved contingent plan (nitrogen);
- **\$600,000** for failure to maintain a safe work environment in accordance with good oilfield engineering practices. Included are:
 - o **\$100,000** for failure to engage in the formal hazards identification;
 - o **\$100,000** for failure to identify and implement safeguards to ensure personnel safety in the event of a nitrogen release;
 - o **\$100,000** for failure to provide and make available at the rig a detailed procedure for performing a fill cleanout with nitrogen, including requirements for verification of the integrity of all barriers in the flow paths for wellbore fluids returning to surface during the fill cleanout operations;
 - o **\$100,000** for failure to have in place a robust “Stop Work Authority” that was clearly understood and readily implemented by ASR1;
 - o **\$100,000** for failure to assess and manage changes that potentially introduce new hazards or unknowingly increase risk of existing hazards during a rig workover, and
 - o **\$100,000** for inadequate training of personnel on ASR1.
- **\$20,000** for failing to provide the results of a blowout prevention test to AOGCC within five days after completing the test on September 24, 2015. Included is \$10,000 for the initial event and \$5,000 per day for the remaining two days that elapsed until the test report was received.

The total proposed civil penalty is \$720,000. In addition to the potential severity of the outcome of Hilcorp’s actions, Hilcorp’s ongoing history of performing work outside of approved permits or management-of-change protocols, its history of compliance issues and the need to deter are factors in the AOGCC’s analysis.¹³ In imposing this penalty, the AOGCC notes a prior penalty of \$115,000 (Other Order 80) imposed upon Hilcorp for violations of essentially the same nature has had no significant impact on Hilcorp’s conduct.

Rights and Liabilities (20 AAC 25.535(b)(4))

Within 15 days after receipt of this notification – unless the AOGCC, in its discretion, grants an extension for good cause shown – Hilcorp may file with the AOGCC a written response that concurs in whole or in part with the proposed action described herein, requests informal review, or requests a hearing under 20 AAC 25.540. If a timely response is not filed, the proposed action will be deemed accepted by default. If informal review is requested, the AOGCC will provide Hilcorp an opportunity to submit documentary material and make a written or oral statement. If Hilcorp disagrees with the AOGCC’s proposed decision or order after that review, it may file a

¹³ AS 31.05.150(g) requires AOGCC to consider nine criteria in setting the amount of a civil penalty.

written request for a hearing within 10 days after the proposed decision or order is issued. If such a request is not filed within that 10-day period, the proposed decision or order will become final on the 11th day after it was issued. If such a request is timely filed, the AOGCC will hold its decision in abeyance and schedule a hearing.

If Hilcorp does not concur in the proposed action described herein, and the AOGCC finds that Hilcorp violated a provision of AS 31.05, 20 AAC 25, or an AOGCC order, permit or other approval, then the AOGCC may take any action authorized by the applicable law including ordering one or more of the following: (i) corrective action; (ii) suspension or revocation of a permit or other approval; and (iii) imposition of penalties under AS 31.05.150. In taking action after an informal review or hearing, the AOGCC is not limited to ordering the proposed action described herein, as long as Hilcorp received reasonable notice and opportunity to be heard with respect to the AOGCC's action. Any action described herein or taken after an informal review or hearing does not limit the action the AOGCC may take under AS 31.05.160.

Sincerely,

A handwritten signature in black ink, appearing to read "Cathy P. Foerster". The signature is fluid and cursive, with a long horizontal stroke at the end.

Cathy P. Foerster
Chair, Commissioner

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Mr. David Wilkins
Senior Vice President
Hilcorp Alaska, LLC
3800 Centerpoint Dr., Ste. 1400
Anchorage, AK 99503

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Mr. David Wilkins
Senior Vice President
Hilcorp Alaska, LLC
3800 Centerpoint Dr., Ste. 1400
Anchorage, AK 99503



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Cc: Foerster, Catherine P (DOA); Seamount, Dan T (DOA); Regg, James B (DOA)
Subject: OTH-15-025, Notice of Proposed Enforcement
Attachments: Hilcorp OTH-15-025, Notice of Proposed Enforcement.pdf

Importance: High

Dear Mr. Wilkins,

Please see the attached regarding Docket Number: OTH-15-025, Notice of Proposed Enforcement.

Thank you,

Samantha Carlisle
Executive Secretary II
Alaska Oil and Gas Conservation Commission
333 West 7th Avenue
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