U.S. Department of Homeland Security

United States Coast Guard

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OCT 2 3 2018

Administrative Order Number 19-001

Taylor Energy Company, LLC
Attn: William Pecue
1615 Poydras Street, Suite 500
New Orleans, LA 70112

Subj: TAYLOR ENERGY COMPANY, MISSISSIPPI CANYON BLOCK 20 (MC20)

Mr. William Pecue,

Recently developed information related to source location and conditions at the MC20 site, combined with a review of previously existing information, warrant issuance of this new administrative order. Administrative Order 12-001 is rescinded and replaced with the requirements described below.

With the primary source location and known site condition information, it is the federal position that:

1. One or more wells are actively discharging oil and gas from the erosional pit near the former Dome C location.
2. The worst-case estimate of the daily volume of release far exceed previous estimates and is in the order of hundreds of barrels per day.
3. Temporary containment and recovery of oil being discharged at the erosional pit near the former Dome C location is needed and feasible while a more permanent solution to stopping the source is developed.

The supporting documentation for these positions can be found within the enclosed "Summary of Scientific Study Results Supporting the Federal Position on MC-20 Site" paper as well as the video and image files contained in the CD titled "2018 NOAA/BSEE MC20 Erosion Pit Survey Non-Interpretive Information," which is presented to you with this Administrative Order.

Provided what we now know, and under the authority referred to below, you are ordered to institute a containment system to capture, contain, and remove oil from the erosional pit near the former Dome C location. In addition, you are directed to comply with the following terms of this Administrative Order:

1. A Unified Command Meeting will be held from 06-09 November 2018 for the purpose of evaluating containment and recovery systems and developing an implementation plan and timeline.

EXHIBIT
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2. A workshop will be held during the Unified Command meeting from 07 to 08 November, 2018 to evaluate proposals from potential contractors on the design of an effective containment system.

3. You are directed to conduct new market research prior to the November Unified Command meeting and make arrangements with potential contractors to provide an overview of potential designs and service based on the attached documentation. Attached to this letter I have also provided you with the known site conditions and market research questions to assist you with the evaluation process prior to and during the UC meeting.

4. The containment system must eliminate the surface sheen and avoid the deficiencies associated with prior containment systems. Design of the containment system shall take into consideration the site conditions provided to you. The containment system shall be designed to contain an amount with a worst case daily discharge between 250 barrels and 700 barrels per day. A design of a minimum of 250 barrels per day is acceptable at this time.

5. You are directed to choose at least two companies to present their most effective proposed containment system designs during the November Unified Command workshop.

6. By the conclusion of the Unified Command meeting, 06-09 November, we will select one of the proposals presented during the workshop.

7. The containment system must be inspected and approved by the Operations Section and Environmental Unit prior to installation.

The 06-09 November 2018 Unified Command meeting will be held at BSEE Gulf of Mexico Regional Headquarters in Harahan, LA. At this meeting we will evaluate the containment proposals for feasibility and sustainability at MC-20 and a timeline will be set for implementation.

Under the Oil Pollution Act of 1990 (OPA), each responsible party for a vessel or facility from which oil is discharged, or which poses a substantial threat of a discharge of oil, into or upon the navigable waters or adjoining shorelines or the exclusive economic zone is liable for the removal costs and damages specified in 33 U.S.C. § 2702(b). 33 U.S.C. §2702(a). OPA defenses or limitations on liability are not applicable for failure or refusal to comply with this Administrative Order.33 U.S.C. §§ 2703 and 2704.

Further, failure to properly carry out the removal actions as ordered to protect the environment, public health, and welfare may subject the responsible party to a civil penalty of up to $40,000 per day of violation or up to three (3) times the cost incurred by the Oil Spill Liability Trust Fund. Failure to comply with the requirements of this Administrative Order may result in the federal government assuming full or partial control of the activities described in this Administrative Order and subsequent removal actions deemed necessary by the Federal On Scene Coordinator.

This Administrative Order becomes effective upon receipt and remains in effect until rescinded by my office. You may submit written requests to me requesting a review and reconsideration of this Administrative Order within 24 hours of issuance. If you choose to do so, you shall identify those factors to be considered by me in making a decision on your request. The act of requesting reconsideration or making an appeal does not stay this Order. My decision upon reconsideration is a final agency action.

This order is given under the authority of 33 U.S.C. § 1321(c) and (e)(1)(B), and 33 C.F.R. § 1.01-80.

Please contact me directly or through CAPT Mark Shepard, at 252-267-4722 or mark.j.shepard@uscg.mil, if you have any questions concerning this matter.

K. M. Luttrell

K. M. Luttrell
Captain, U. S. Coast Guard
Federal On-Scene Coordinator

Options if not delivered via certified mail:
Hand delivered/affidavit
Received by: _____ Date: _____

SUMMARY OF SCIENTIFIC STUDY RESULTS SUPPORTING THE FEDERAL POSITION ON MC-20 SITE
10-23-2018

The united Federal position on the MC-20 site is as follows, with summaries of the studies relied upon to reach this position.

1. <u>One or more wells are actively leaking oil and gas from the erosional pit near the former Dome C location</u>.

   a. Multiple side-scan surveys beginning in 2012 and continuing into 2018 have documented that the source of the oil reaching the surface at the MC-20 site are plumes being released from an erosional pit on the northeastern side of the jacket.
      - The NOAA R/V *Okeanos Explorer* conducted a vessel-of-opportunity multibeam sonar survey over the MC-20 site in June 2012 and detected a plume emanating from a pit on the northeastern side of the jacket (Exhibit 1A).[1]
      - The Camilli (2017) Acoustics Report to the SSLWG included data from sonar surveys collected from 8 March to 8 April 2017 that consistently showed two plumes (most of the time) being released from a pit on the northeastern side of the jacket (Exhibits 1B, 1C).
      - The Norbit/BSEE survey conducted 10-16 September 2017 detected two plumes over the pit on the northeastern side of the jacket (Exhibit 1D).
      - The NOAA/BSEE survey in August-September 2018 detected four plumes emanating from the pit on the northeastern side of the jacket (described in more detail below).

   b. Scott Stout, Ph.D., Expert Report to USDOJ (11 September 2018) concluded that "all evidence is consistent with the viable scenario that multiple wells are actively leaking". Further, Dr. Stout refuted the statement by Camilli and Reddy (2018) in their "rum punch" memo that: *All evidence suggests that the sheen is being generated by remnant oil sparged from the sediments within the Dome C&D erosional pit.*

      According to Dr. Stout:
      - Sheens are variably biodegraded crude oils; this doesn't indicate they are "old".
      - Sheens are not a single "genetic" type of oil; must be derived from multiple wells.
      - Oils collected from the ROV deployed during the September 2017 Norbit survey funded by BSEE are heterogeneous indicating short-term variability in oil exiting the seafloor near the erosional pit.
      - The Camilli and Reddy "Rum-Punch" hypothesis was based on two flawed premises and cannot therefore:
        - Suggest sheens are due to sparged remnant oil
        - Preclude that multiple wells are actively leaking

[1] This first detection of a water-column anomaly of oil and gas was controversial because the RP had the raw data re-analyzed by Dr. Rich Camilli who argued that the anomaly was coming from the top of the Subsea Containment Collector/Separator where collected gas would be vented into the water column, rather from the seabed. A subsequent Fugro sonar survey contracted by the RP in July 2012 did not detect any water-column anomalies near the jacket. Therefore, the source of the sheens was uncertain. This uncertainty led to the designation of the Sheen Source Location Working Group (SSLWG) in 2016. However, recent (2018) review of the NOAA R/V *Okeanos Explorer* data confirmed that the anomaly did originate from the seabed.

c. Overton and Reddy (2017) Forensics Report to the SSLWG. Concluded that the 2017 sheens are slightly to moderately weathered, heterogeneous, do not appear to be from a single well, and have the greatest similarity to the oiled sediments near Dome C and not those near the former well bay area.

d. USGS May 2017 sub-bottom profile (Exhibit 2):

Shows no shallow-gas disturbances in the mudflow deposit below the erosional pit, which discounts the RP's claims that the release of biogenic gas is the mechanism of oil release from the sediments, and could provide evidence that the buried conductor bundle is the likely anomaly that can be seen below the surface and terminating in the pit near the Dome C location.

e. Fugro seafloor analyses (FFMG 2006) detected the buried conductor bundle extending to the northeastern side of the jacket, indicating that it could be the source of continued oil releases after well intervention was complete in March 2011 (Exhibit 3).

f. Norbit/BSEE Survey, September 2017. During this survey, a camera-mounted mid-range ROV, sonar system, and a laser induced fluorescence unit were deployed. Two large plumes were detected coming from the erosional pit near the downed jacket, near the former Dome C location (Exhibit 1C). The droplets were confirmed to be oil by the laser fluorometer. Samples were collected and sent to the USCG Marine Safety Laboratory which also determined that the samples were crude oil.

g. NOAA/BSEE 2018 Survey. Key points from the preliminary results (final report expected in May 2019) briefed during the 5 October 2018 Federal Strategy Meeting include:

- Sonar surveys identified four plumes being released from the pit near Dome C, each with their own "mini-pit" at the seafloor (Exhibit 4). These plumes were stationary over the 8-day period of survey. The plume complex in the lower right, closest to the 4.0 m marking line, consisted of two closely spaced plumes and was composed of oil only. The single plume immediately adjacent to these was composed of oil only. Another plume, closer to the 8.0 m marking line and at 0.0^0 was composed of both oil and gas. A plume between the 12.0m-16.0 m marking lines and at ~355^0 was composed of only gas. These results indicate multiple and differing source of oil and gas release from the seafloor.
- The plumes were coming from the pit adjacent to the jacket, not from within the jacket.
- The bubbleometer video shows that the oil droplets being released from the oil-only plumes emanating from the erosional pit near the former Dome C location are abundant and large, often >1 cm (see representative screen shot of the video in Exhibit 5).
- The ROV video (Exhibit 6) in the oil-only plumes did not contain any significant amount of gas, further disputing biogenic gas as the release mechanism.

2. <u>The worst-case estimate of the daily volume of release far exceed previous estimates and is in the order of hundreds of barrels per day</u>.

- Oscar Pineda-Garcia, Ph.D., Expert Report to USDOJ (11 September 2018), conducted an independent analysis of the amount of oil being released at the MC-20 site based on detailed analysis of 258 satellite images since 2004, combined with field work conducted on-site where he estimated surface volumes of oil based in situ measurements and Bonn agreement thickness categories. He measured the residence time of the surface slicks using drifter

studies. The results of his work indicate that the estimated minimum daily volume discharge is 249 barrels with an estimated maximum of 697 barrels per day.

b. In a July 2018 analysis, NOAA and BSEE estimated the amount of residual oil present in the sediments in the erosional pit near the former Dome C location, based on the four sediment cores (depth = 4 feet) collected by divers in 2013 and the oil content as reported in the Overton and Reddy (2017) oil forensics report to the SSLWG. Using conservative estimates of the diameter of the oiled sediments and a uniform oil content in the sediments to a depth of 69 feet, they calculated the oil content in the sediments to be 2,306- 8,236 barrels (considering oil contents in sediments ranging from 2.8-10%). These volumes are insufficient to be a source of the oil releases since well intervention was completed in March 2011.[2] As of 15 October 2018, it has been 2,763 days since the last well intervention was completed. If all the oil in the sediments was released over this period, the average daily release would be 0.83 barrels (35 gallons). Therefore, it is not feasible that the source of the oil sheens could be only remnant oil being released from the sediments only.

3. Temporary containment and recovery of oil being released at the site is needed and feasible while options are evaluated and selected for additional well intervention to stop the oil leakage.

- The Camilli (2017) Acoustics Report to the SSLWG stated that the erosional pit near Dome C is the most likely source of the MC20 sheen. Sonar surveys from 8 March to 8 April 2017 indicates these plumes (usually 2) occur as highly frequent episodic eruptions of multiphase fluids (gas, oil-covered bubbles, and oil droplets).
- The area covered by the plumes actively releasing oil is approximately 400 square feet (Exhibit 4), based on sonar data and images during the NOAA/BSEE survey in August-September 2018, making it feasible to deploy a containment system that could capture all the oil being released at the seafloor.
- Current thinking is that the jacket would not have to be removed in order to effectively deploy containment and recovery equipment over the pit on the northeast side of the jacket. In fact, the jacket could be used to support the equipment.

[2] Camilli and Reddy (2018), in their "rum punch" memo estimated that the average oil content in the sediments was 2.8% by weight; thus, the sediments would contain, at the most, 2,306 barrels of oil

List of Exhibits

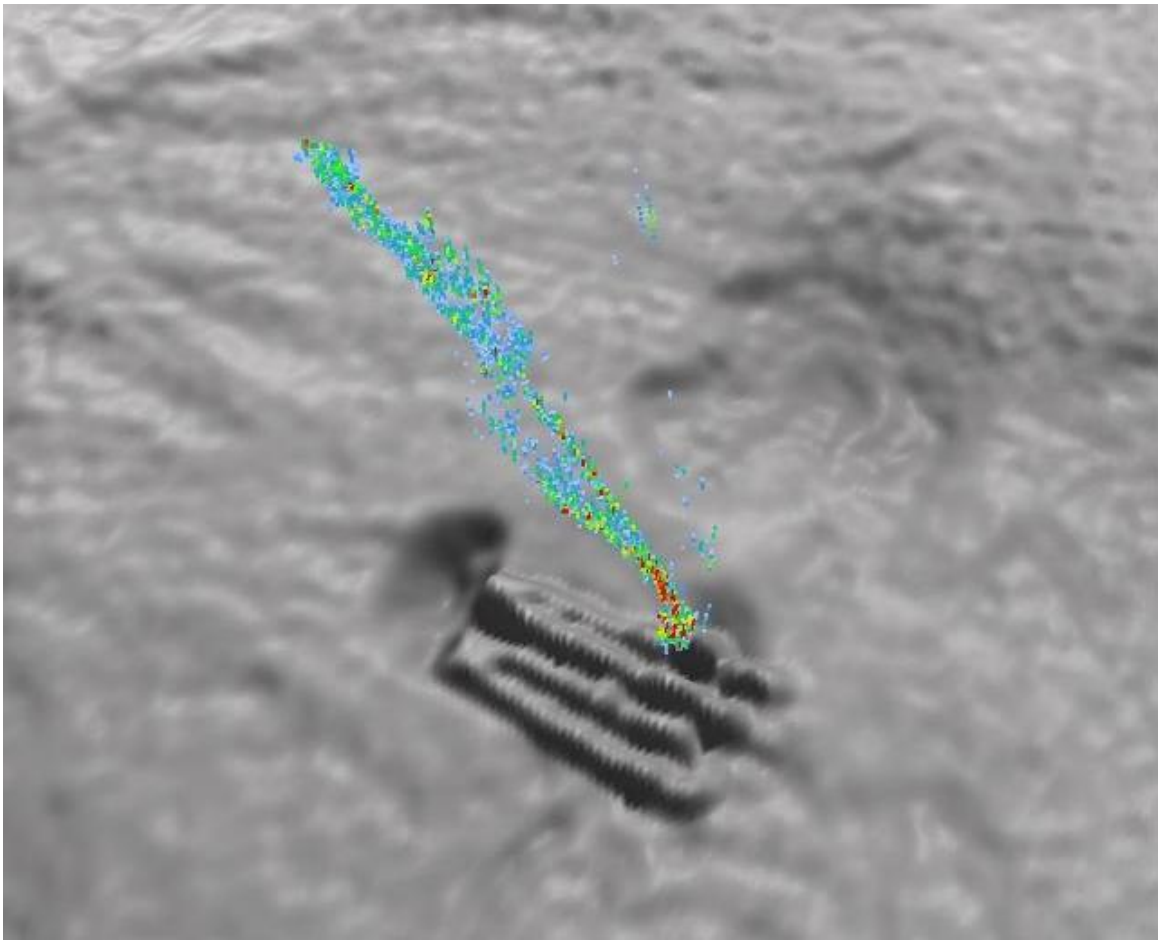

Exhibit 1A: Image from the NOAA R/V *Okeanos Explorer* vessel-of-opportunity multibeam sonar survey over the MC-20 site in June 2012, showing an oil and gas water-column anomaly over the northeastern side of the jacket.

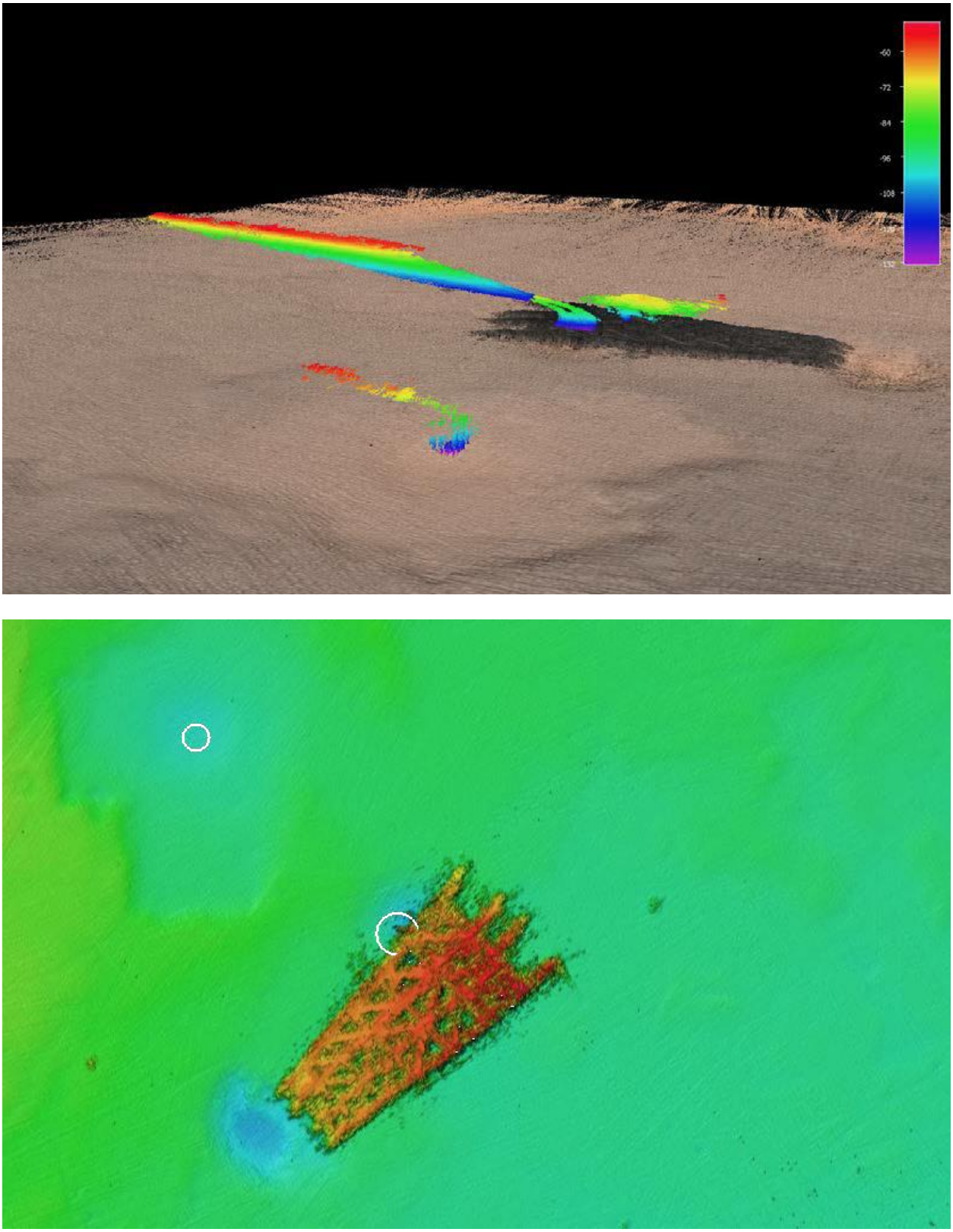

Exhibit 1B. (Top) Perspective view of water column anomalies (color bar describes water column anomaly depth in meters) on 21 March 2017. Bottom: Extrapolated water column anomaly source locations for the same date. From Camilli (2017).

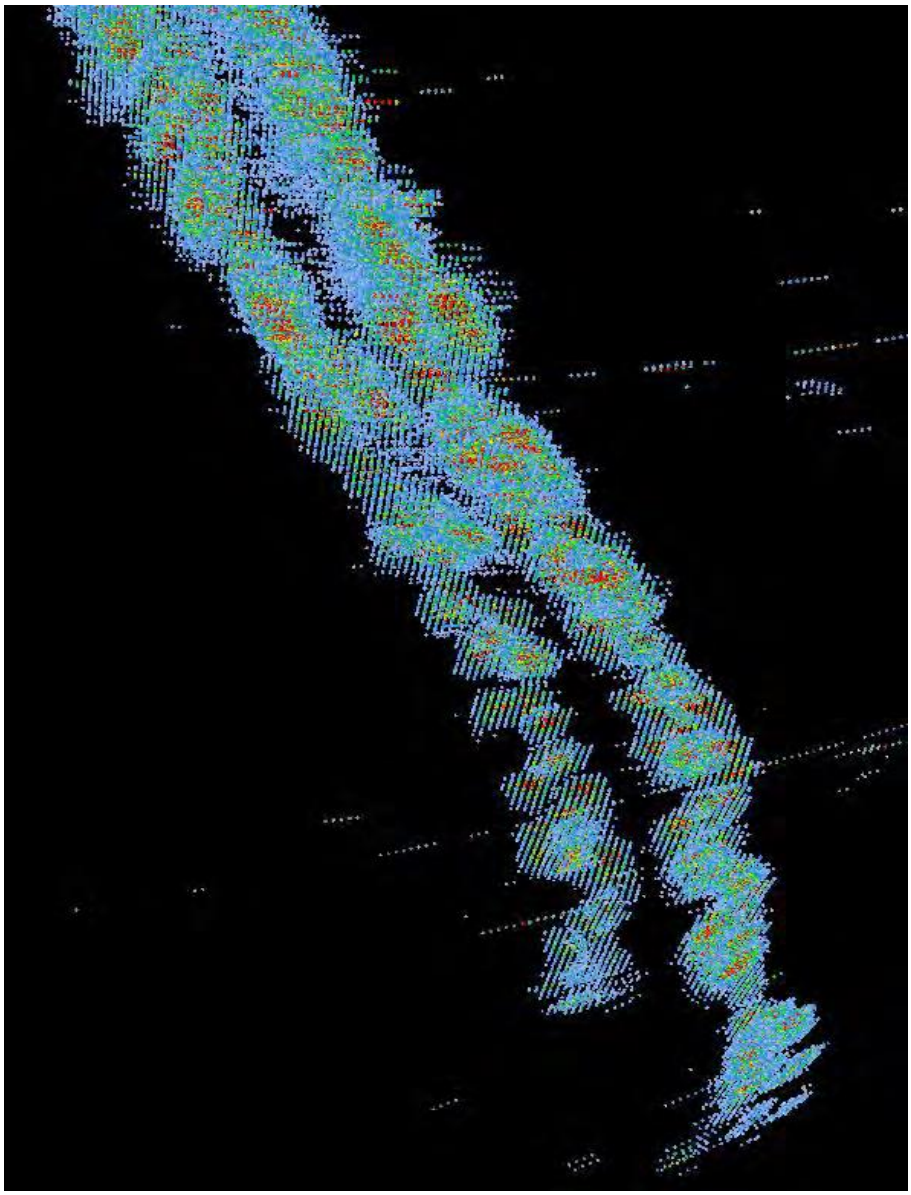

Exhibit 1C: 3D sonar reconstruction of two distinct acoustic anomaly plumes observed emanating from the vicinity of the containment dome C erosional pit area on March 16, 2017. These plumes each appear to be less than 20ft in diameter at their base and are separated from each other by approximately 30 ft. From Camilli (2017).

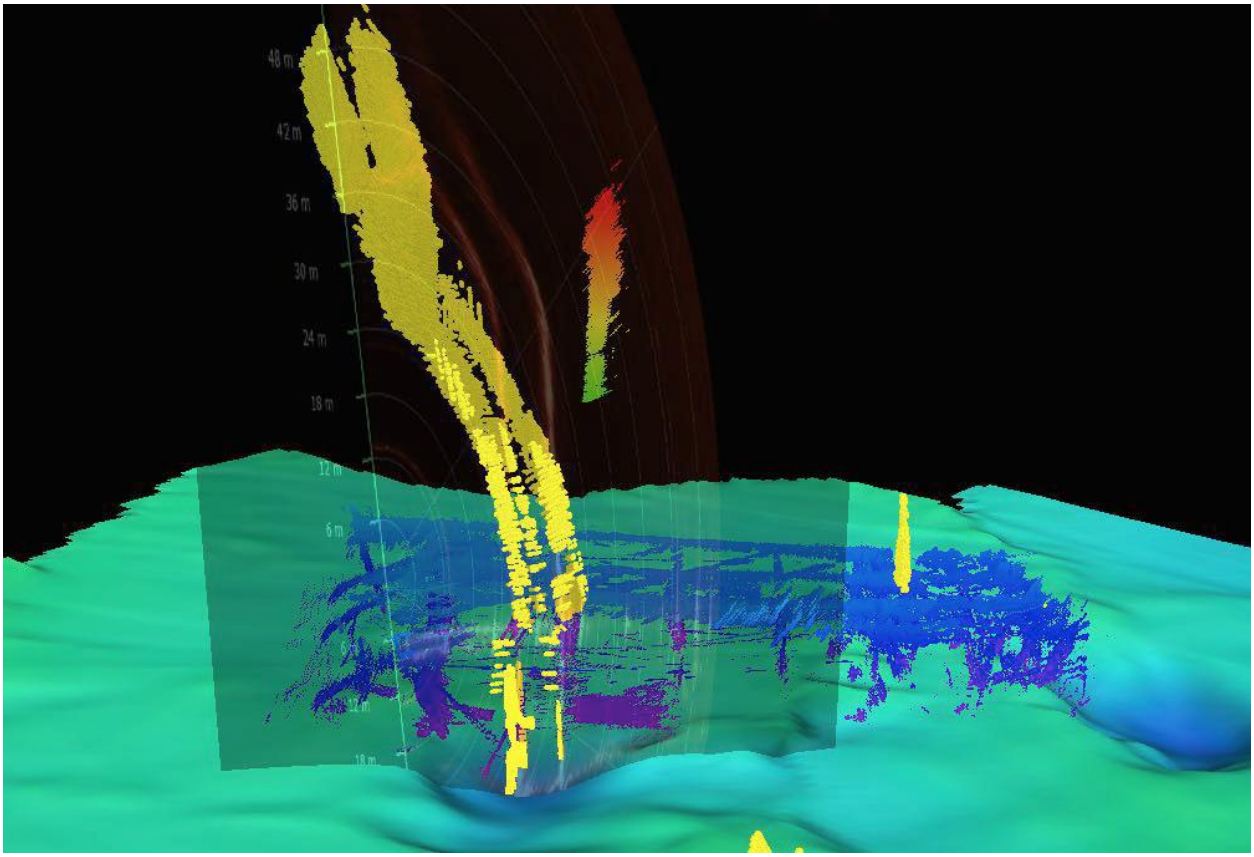

Exhibit 1D: Sonar image from the Norbit/BSEE survey conducted 10-16 September 2017 showing two plumes emanating from within the erosional pit on the northeastern side of the jacket. The droplets were confirmed to be oil by the laser fluorometer.

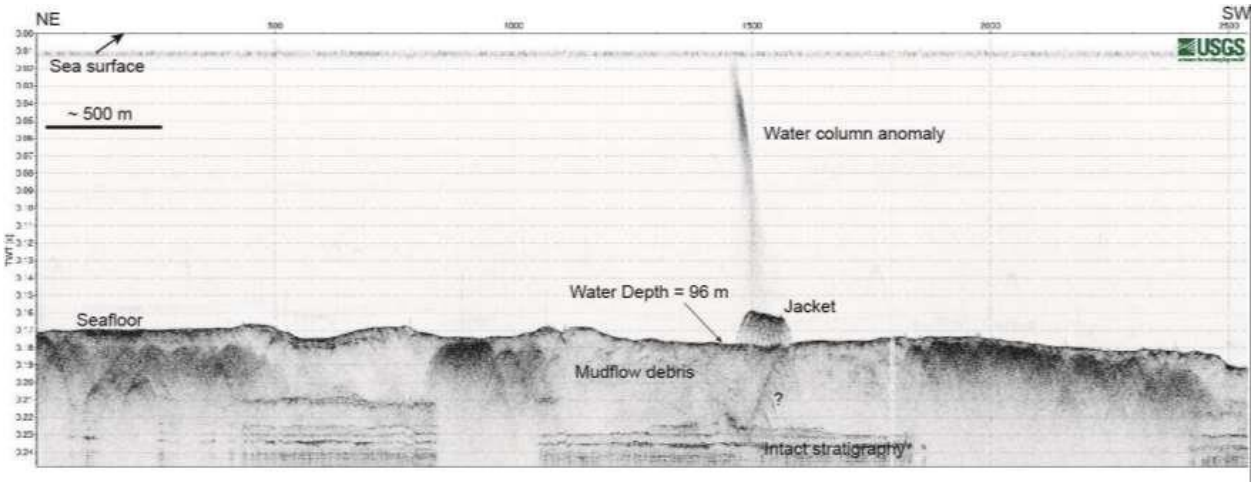

Exhibit 2: USGS May 2017 sub-bottom profile across the MC-20 site.

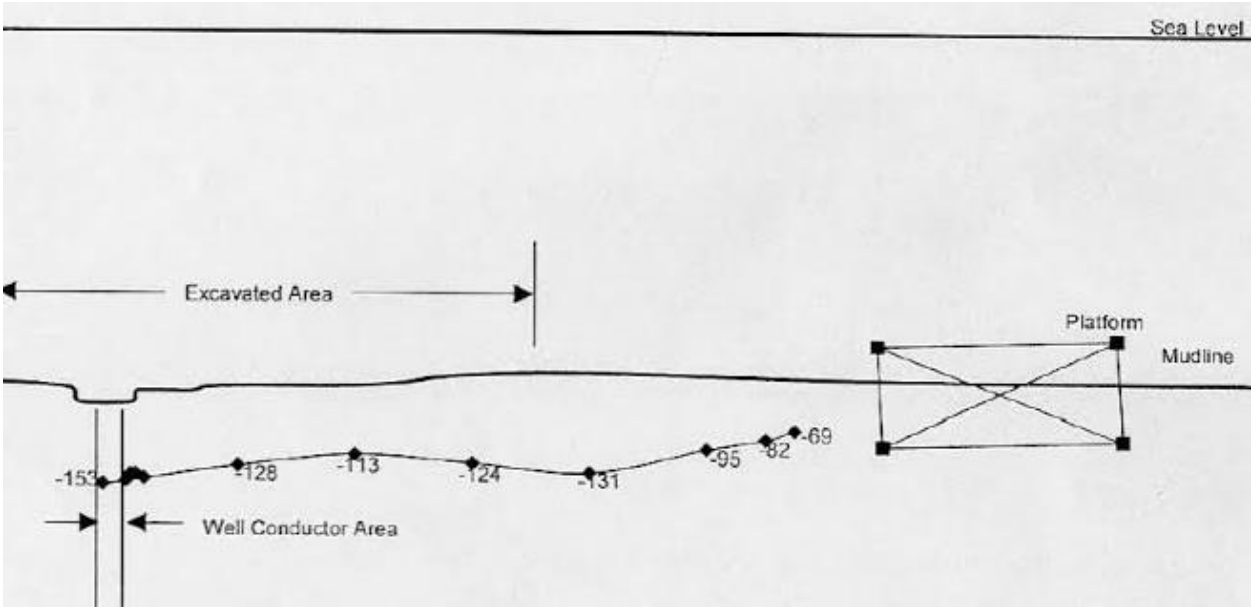

Exhibit 3: Figure from the Fugro Seafloor Analyses Report (FFMG 2006) showing the buried conductor bundle extending to the northeastern side of the jacket.

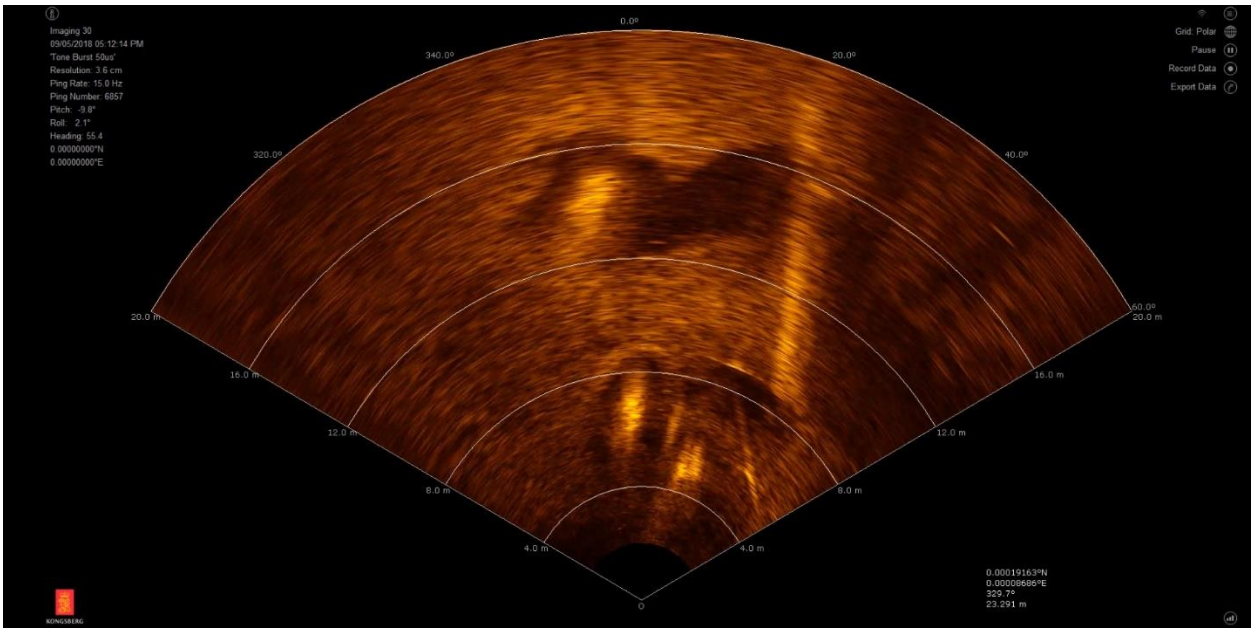

Exhibit 4: Sonar image from the NOAA/BSEE 2018 Cruise showing four plumes emanating from individual mini-pits within the pit on the northeastern side of the jacket. The number and location of plumes are detected in higher detail and spatial accuracy because the sonar system was on a ROV that was deployed very close to the seafloor.

Exhibit 5: Screen shot from the NOAA/BSEE 2018 bubbleometer video showing the oil droplets being released from the oil-only plumes emanating from the pit near Dome C. For reference, the pan-head machine screws shown in this figure were 1/4" (6.35 mm), and have 7/16" (11.11 mm) lock nuts on the inside of the housing. A video clip is attached separately.

Exhibit 6: Screen shot from the NOAA/BSEE 2018 ROV video in the oil-only plume. A video clip is attached separately.

References Cited

Camilli. R. 2017. Final report describing spring 2017 acoustic survey operations, results, and interpretations. Final Report to the MC-20 Sheen Source Location Working Group. 89 pp.

Camilli, R. and C. Reddy. 2018. Rum-Punch: Time series petroleum biomarker testing of the scenario that an actively leaking oil well is contributing to the MC20 sea surface sheen. Report Prepared for Unified Command. 10 pp.

FFMG, 2006. FUGRO-McClelland Marine Geosciences, INC (FMMG). Seafloor Failure Analyses - MC 20-A Platform Block 20, Mississippi Canyon Area; Gulf of Mexico. FMMG Report No. 0201-5381-7 February 21, 2006

Norbit. 2017. Final Report for BSEE Contract E117PC00013. Submitted to BSEE, New Orleans, LA. 26 pp.

Overton, E.B. and C.M. Reddy. 2017. Forensic Analysis of Surface Sheens from the Sheen Source Location Working Group Field Acquisition Operations and a Comparison to Historical Samples at the MC20 site. Final Report to the MC-20 Sheen Source Location Working Group. 180 pp.

Pineda-Garcia, O. 2018. Expert Report. Taylor Energy Company LLC v The United States of America, The United States Court of Federal Claims, Case No. 16-12C. 91 pp.

Stout, S.A. 2018. Expert Report. Taylor Energy Company LLC v The United States of America, The United States Court of Federal Claims, Case No. 16-12C. 57 pp.

Site Conditions at MC-20 are as follows:

- Water depth is approximately 470 feet.
- Water temperature at the site can be in the range of 32-40 degree F. As such, there may be potential for hydrate formation at this depth.
- Seafloor sediment near plumes is unconsolidated.
- Location of the primary plumes of interest incorporates an area approximately 40'x30'
- The primary plumes originate from a spot ~7' from the fallen jacket pilings.
- The plumes are believed to originate from the end of the conductor bundle, which is believed to be roughly parallel to the surface buried in ~60' of mud.
- There are significant currents which vary with depth in the water column, but virtually none at the sea floor. There are virtually no currents within the erosion pit.
- Visibility is nearly zero for the first 5 feet above the sea floor
- Oil flow at the source is estimated at hundreds of bbls of oil per day. The current federal position is the system needs to be capable of collecting a minimum of 250 bbls per day.
- API Gravity of source oil is ~21-38.

Any response proposal will be evaluated for its feasibility and sustainability in the above listed conditions. Additionally all vendors should consider the questions below:

1. What type of containment system would you design to capture the oil in the plumes? How long would it take to design, fabricate, and deploy this system?

2. Using this containment system, what type of storage system would you design to capture, temporarily store, dewater, and recover the oil recovered from the plume? How long would it take to design, fabricate, and deploy this system?

3. What type of system would you design to capture and destroy the oil collected on site? How long would it take to design, fabricate, and deploy this system?

4. What type of system would you design to contain and top-kill the oil and gas plumes emanating from the conductor bundles under the erosion pit? How long would it take to design, fabricate, and deploy this system?

5. Provide history of previous and successful application of each of the four proposed concept technologies listed above during past projects, and if applicable, testing/industry certification on proposed equipment.