

# HALLIBURTON

Global Radiation Safety  
3000 N. Sam Houston Parkway East - Plaza 1, Office 5320J  
Houston, Texas 77032-3219

December 12, 2016

U.S. Nuclear Regulatory Commission – Region IV  
612 East Lamar Blvd., Suite 400  
Arlington, TX 76011-4125

Attn: Division Director - DNMS

Re: **Notification of Well Logging Sealed Source Abandonment**  
**Halliburton Energy Services, Inc.**  
**USNRC License No. ~~41-01068-07~~ 42-01068-07**

This letter comprises the required 30-day written notification of source abandonment as required by 10 CFR 39.77(d). This is a follow-up to the communications between Jillian Mead (Halliburton) and Mr. Michael Vasquez (NRC Region IV) on November 28, 2016 at 7:19 pm, in which permission to proceed with the abandonment was granted.

Date of Occurrence: 22 November 2016

Company Name: Anadarko  
P.O.Box 4995  
The Woodlands, Texas 77387-4995

Well Name & Registration No.: OCS-G 24194 005 ST01BP00  
608114066901

Well Location: Green Canyon 859  
Offshore Gulf of Mexico  
USA

Sources Abandoned: One 15.0 Curie Am-241/Be doubly- encapsulated radioactive sealed source, solid, special form. QSA Global Inc. Model AMN.CY19. Source Serial Number 59452B.

One 2.0 Curie Cs-137 doubly-encapsulated radioactive sealed source, solid, special form. AEA Technology QSA, Inc. Model CDC.CY13. Source Serial Number 22838B.

Logging sources held within the source ports contained within the sidewalls of heavy pipe wall Measurement While Drilling (MWD) logging tools.  
Sources threaded into the source ports and torqued down.

Two Energy Compensation Sources (ECS) were contained within the detector assembly installed in the density logging tool:

One 97.18 nanoCurie Cs-137 ECS source, North American Scientific, Model IND1402. Source serial number 124772.

One 109.2 nanoCurie Cs-137 ECS source, Eckert & Ziegler, Model IND1402. Source serial number F5-629.

Immobilization method:

Cement plug on top of the fish. The cement plug also serves as the kickoff device.

Results of Efforts to Immobilize and set sources in place:

Abandonment procedure successfully completed on 29-November 2016

Depth of Well:

29,912 MD / 27,693 TVD

Depth of Bottom of Fish:

29,584 MD / 27,731 TVD

Depth of Sources:

Am-241/Be source located at 29,498 ft. MD  
Cs-137 source located at 29,511 ft. MD

Depth of Top of Fish:

27,811 ft. MD / 26,487 TVD

Depth of Bottom of Cement Plug:

28,357 ft. MD / 26,871 TVD

Depth of Top of Cement Plug:

27,811 ft. MD / 26,487 TVD

Description of Recovery Attempts:

11/22/16 19:25 - While back reaming out of the hole the tool string became stuck at 29,850'. The jars were unable to be cocked. 22:30 - Pump base oil pill 23:00 - Rig radiation survey conducted - results normal 11/23/16 00:00 - Continue to work pipe to break BHA free 02:00 - still stuck, Rig radiation survey conducted - results normal 04:00 - still stuck, Rig radiation survey conducted - results normal 04:25 - began flowing at 441 gpm while working pipe 06:00 - flowing at 440 gpm, still stuck, survey conducted- results normal 08:00 - flowing at 440 gpm, still stuck, survey conducted- results normal, no jarring up to this point 10:00 - flowing at 440 gpm, still stuck, survey conducted- results normal, no jarring up to this point 12:00 - Turned off mud pumps to rig up a side entry sub. 12:50 - Drop explosive dart to shear White WIPR sub. Successful but pipe remains stuck above. 15:00 - Used cement unit to increase SPP, to activate Dart. Conducted Radiation survey on rig floor and flow

line. No jarring up to this point. 16:30 – Drop explosive dart to shear Red WIPR sub. Successful but pipe remains stuck above. 19:00 – Circulate. Wait on wireline three point. 20:00 - Conducted Radiation survey on rig floor and flow line. No jarring up to this point. 11/24/16 00:15 – Circulate. Engineer conducted radiation survey on flow line and mud pits. No jarring up to this point. 02:00 - Circulate. Engineer conducted radiation survey on rig floor, flow line, and mud pits. No jarring up to this point. 04:00 - Circulate. Engineer conducted radiation survey on rig floor, flow line, and mud pits. No jarring up to this point. 07:30 - Circulate. Engineer conducted radiation survey on rig floor, flow line, and mud pits. No jarring up to this point. 09:50 – Stop Circulation. Rig up wireline for Free Point Log. 12:00 – Engineer conducted radiation survey on flow line and mud pits. No jarring up to this point. 14:00 – Engineer conducted radiation survey on flow line and mud pits. No jarring up to this point. Continued to Rig up wireline equipment. 16:00 – Engineer conducted radiation survey on flow line and mud pits. No jarring up to this point. Continued to Rig up wireline equipment. 18:30 – TIH with wireline. 21:00 – Logged areas of 00 15 interest applying torque and tension to drillstring. 22:30 – Engineer conducted radiation survey on flow line and mud pits. Torque and tension applied to drill string while performing free point. 11/25/16 00:15 – POOH with free point. 04:30 – TIH with explosive charge to attempt back off ~ 22772'. Determined string is 60% free at 27804'. 06:00 – Engineer conducted radiation survey on flow line and mud pits. 08:00 – Engineer conducted radiation survey on flow line and mud pits. Torque and tension applied to drill string while getting ready to fire charge. 08:15 – Charge fired to shear drill string. POOH with wireline. (Pipe was broken 1400' higher than expected. Make up stand and try to screw back into pipe down hole. Then attempt free point charge again.) 10:20: Engineer conducted radiation survey on flow line and mud pits. 11:30: - Lay down side wall entry sub and make up joint of drill pipe to screw back into string. 12:20 – Attempt to make up drill pipe down hole. Successful. 14:30 – TIH with explosive charge for attempt #2. 16:45 – Successfully freed pipe ~ 25772'. 19:00 – LD wireline equipment. 20:30 – Circulate @ 335 gpm. Engineer conducted radiation survey on flow line and mud pits. 11/26/16 04:00 – Circulate and work pipe. 05:00 – POOH. 05:30 – Function test BOP's. 07:00 – Engineer conducted radiation survey on flow line and mud pits. 12:00 – POOH. 14:00 – Engineer conducted radiation

survey on flow line and mud pits. 20:15 – Out of hole with drill pipe. Performing rig inspection and maintenance.  
21:00 – Engineer conducted radiation survey on flow line and mud pits. 23:30 – PU Fishing BHA. 11/27/16 01:30 – TIH with Fishing BHA.  
11/27/16 01:30 – TIH with Fishing BHA. 04:00 – Continue TIH. Engineer conducted radiation survey on flow line and mud pits. 06:30 – Continue TIH. Engineer conducted radiation survey on flow line and mud pits. 13:45 – Drill string getting hung up before reaching the top of fish #1. Circulate bottoms up. Engineer conducted radiation survey on flow line and mud pits. 16:00 – Circulating BU. 19:30 – Attempting to make connection with fish #1. 20:00 – Attempting to retrieve fish. Jarring. 11/28/16 01:00 – Cont'd jarring and working pipe.

Warning Plaque:

A permanent identification warning plaque will be fabricated and provided to Anadarko for mounting at the wellhead as practicable. See Attachment 1 for a representation of the plaque to be provided.

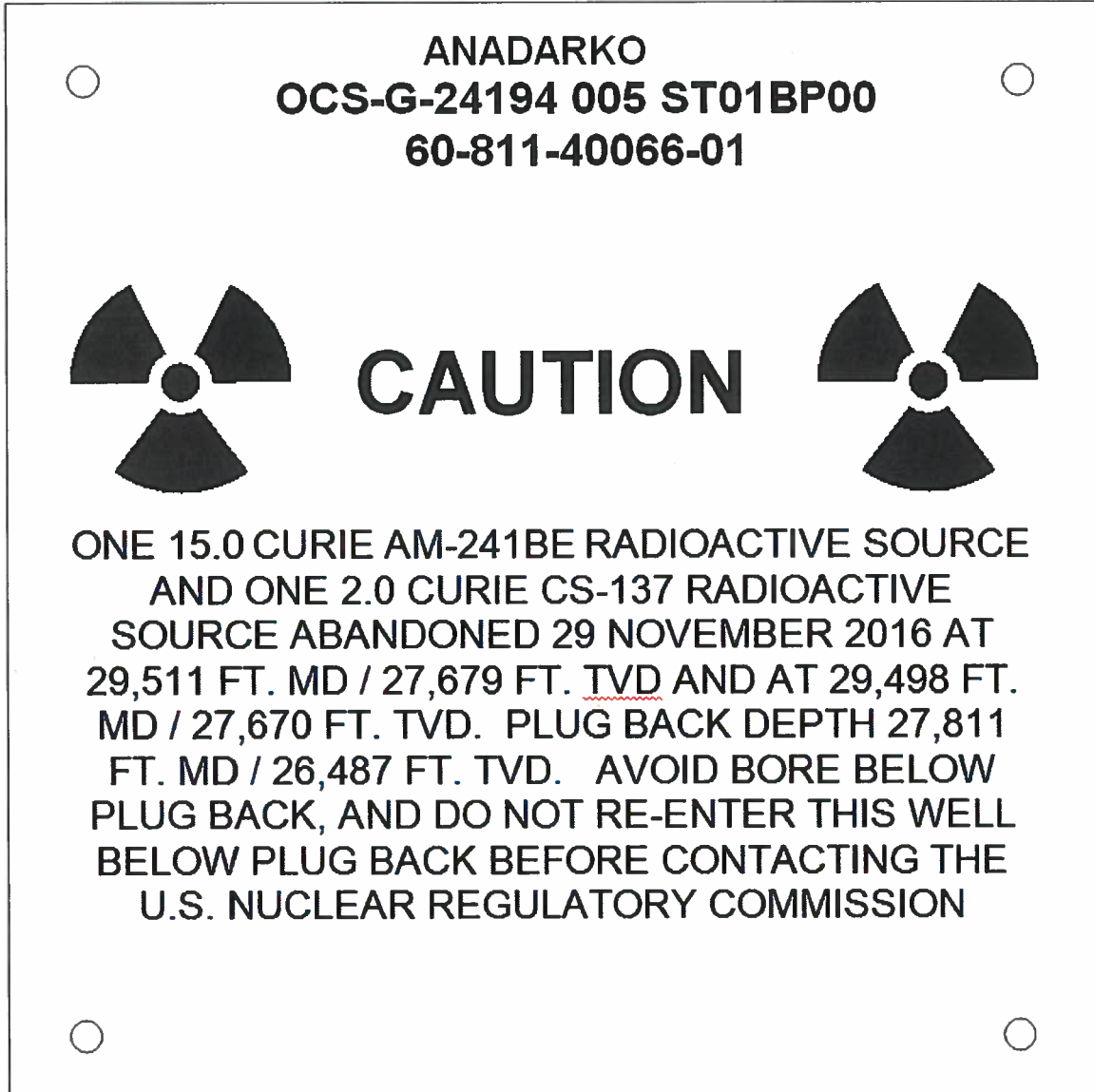
Sincerely,



Jillian Mead  
Sr. Radiation Safety Officer  
Halliburton Energy Services, Inc.  
Email: [Jillian.Mead@Halliburton.com](mailto:Jillian.Mead@Halliburton.com)

Attachment: (1) Representation of Warning Plaque

ATTACHMENT 1  
*Representation of Permanent Warning Plaque*



## VonEhr, Jason

---

**From:** Jill Mead <Jillian.Mead@halliburton.com>  
**Sent:** Friday, December 16, 2016 9:36 AM  
**To:** VonEhr, Jason  
**Subject:** [External\_Sender] RE: NRC Abandonment Report in GOM Nov 22, 2016

**Categories:** Licensee Correspondence

Good Moring Mr. VonEhr,  
Please see below:

- 1) The shearing of the drill string on 11/26/2016 (0815), where the pipe break was established 1400 ft off from the expected height. Can you discuss how the charge was off by that much? Anadarko thought the tools would have sheared at a certain depth but they actually sheared 1,000 feet higher than expected. This could have been caused by several factors, the pipe was free at that depth, the pipe had become loose at a tool joint due to previous jarring or back torque applied at the string or even a weakened section of the pipe.
- 2) Although it's not stated except for the first survey, were the results of the surveys conducted throughout the period form 11/22/2016 through 11/28/2016 all negative for indications of radiation or contamination? All radiation rig site surveys were normal.
- 3) The recovery narrative stops abruptly at 0100 on 11/28/2016. The NRC gave permission to initiate your abandonment procedures at 19:19 on 11/28/2016. Were there any additional recovery efforts or other activities conducted between these? Please see the time line below.

### 11/28/16

- 01:00 – Cont'd jarring and working pipe.
- 03:00 – Engineer conducted radiation survey on flow line and mud pits.
- 14:30 – Stopped jarring and continued circulating.
- 16:30 – Engineer conducted radiation survey on flow line and mud pits.
- 24:00 – Circulate and wait on APC.

### 11/29/16

- 02:30 – RU cement equipment.
- 03:00 – Start cement job.
- 03:30 – Pump 60 bbl spacer.
- 03:58 – Drop ball to pump cement.
- 04:05 – Pump spacer.
- 04:20 – Displace cement.
- 05:05 – Complete cement job.
- 05:30 – Break out of cement head. RU wireline severing tool.

- 4) Was the well permanently abandoned? Or did you/the well owner kick off and drill around? The section on Immobilization suggests that the sources/drill pipe/obstruction was drilled around. The exact depth of the sidetrack was 22,302 MD / 22,182TVD

Please feel free to contact me if you have any questions.

Thank you,

---

**Jillian Mead**  
Senior Global Radiation Safety Officer

3000 N Sam Houston Pkwy E  
Plaza 1, 5320J  
Houston, TX 77032 United States  
Email: [Jillian.Mead@Halliburton.com](mailto:Jillian.Mead@Halliburton.com)  
Office: +1 281-871-5007  
Mobile: +1 713-294-6360

Follow Halliburton: [LinkedIn](#) | [Facebook](#) | [Twitter](#) | [YouTube](#) | [Blog](#)

---

**HALLIBURTON**

---

**From:** VonEhr, Jason [mailto:Jason.VonEhr@nrc.gov]  
**Sent:** Thursday, December 15, 2016 10:20 AM  
**To:** Jill Mead  
**Subject:** [EXTERNAL] NRC Abandonment Report in GOM Nov 22, 2016

**External Sender: Use caution with links/attachments.**

Ms. Jillian Mead,

I have been tasked with the review of Halliburton's abandonment of a Cesium and Americium source inside a logging tool on November 22, 2016. After reading through the report, dated December 12, 2016, I had some additional questions/clarifications I wished to ask.

- 1) The shearing of the drill string on 11/26/2016 (0815), where the pipe break was established 1400 ft off from the expected height. Can you discuss how the charge was off by that much?
- 2) Although it's not stated except for the first survey, were the results of the surveys conducted throughout the period from 11/22/2016 through 11/28/2016 all negative for indications of radiation or contamination?
- 3) The recovery narrative stops abruptly at 0100 on 11/28/2016. The NRC gave permission to initiate your abandonment procedures at 19:19 on 11/28/2016. Were there any additional recovery efforts or other activities conducted between these?
- 4) Was the well permanently abandoned? Or did you/the well owner kick off and drill around? The section on Immobilization suggests that the sources/drill pipe/obstruction was drilled around.

Regards,

--

**Jason vonEhr**  
**Nuclear Materials Inspector**  
**U.S. Nuclear Regulatory Commission, Region-IV**  
**1600 East Lamar Boulevard**  
**Arlington, Texas 76011-4511**

**Office: (817) 200-1186**  
**Fax: (817) 200-1083**  
**Email: [jason.vonehr@nrc.gov](mailto:jason.vonehr@nrc.gov)**

