

**HALLIBURTON**  
Global Radiation Safety  
3000 N. Sam Houston Parkway East - Building M, Room M1F21  
Houston, Texas 77032-3219

March 24, 2014

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. 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 Mr. Steve Woods (Halliburton) and Mr. Vasquez (NRC Region IV) on March 1, 2014, in which permission to proceed with the abandonment was granted. The abandonment procedure was completed on March 5, 2014.

Date of Occurrence: 5 March 2014

Company Name: Anadarko  
PO BOX 4995  
The Woodlands, TX 77387-4995

Well Name & Registration No.: OCS-G-20725 011 ST00 BP00  
60-804-40275-00

Well Location: Offshore - Gulf of Mexico  
East Breaks 646 #11

Sources Abandoned: One 2.0 Curie Cs-137 doubly-encapsulated radioactive sealed source, solid, special form.  
QSA Global, Inc. Model CDC.CY13.  
Source Serial Number 39372B.

One 15.0 Curie Am-241/Be doubly-encapsulated radioactive sealed source, solid, special form.  
QSA Global, Inc. Model AMN.CY19.  
Source Serial Number 59455B.

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:

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One 112.1 nanoCurie Cs-137 ECS source, Eckert & Ziegler Model IND1402. Source serial number H4-402.

One 97.68 nanoCurie Cs-137 ECS source, Eckert & Ziegler Model IND1402. Source serial number H6-122.

Immobilization method:

A 1,014 foot cement plug was used to immobilize the tool string containing the sources in place. The drill pipe was severed at a depth of 9,766 feet and serves as a deflection device. Four additional cement plugs were placed in the well bore above the lower cement plug.

Results of Efforts to Immobilize and set sources in place:

Abandonment procedure completed on 5 March 2014. Cement plugs were successfully pressure tested.

Depth of Well:

10,876 ft. MD / 10,137 ft TVD

Depth of Bottom of Fish:

10,855 ft. MD / 10,117 ft TVD

Depth of Sources:

Am-241/Be source located at 10,767 ft MD / 10,037 ft TVD

Cs-137 sources located at 10,752 ft MD / 10,024 ft TVD

Depth of Top of Fish:

9,766 ft MD / 9,162 ft. TVD

Depth of Bottom of Cement Plug #1:

10,876 ft MD / 10, 137 ft TVD

Depth of Top of Cement Plug #1:

9,862 ft MD / 9,240 ft TVD

**NOTE: Logging tools containing radioactive sources were encapsulated within Cement Plug #1.**

Depth of Bottom of Cement Plug #2:

9,750 ft MD

Depth of Top of Cement Plug #2:

9,550 ft MD

Depth of Bottom of Cement Plug #3:

8,275 ft MD

Depth of Top of Cement Plug #3:

7,975 ft MD

Depth of Bottom of Cement Plug #4:

7400 ft MD

Depth of Top of Cement Plug #4:

7100 ft MD

Depth of Bottom of Cement Plug #4:

4230 ft MD

Depth of Top of Cement Plug #4:

3700 ft MD

Description of Recovery Attempts: No attempts were made to retrieve the stuck logging tools and sources because of well control issues.

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

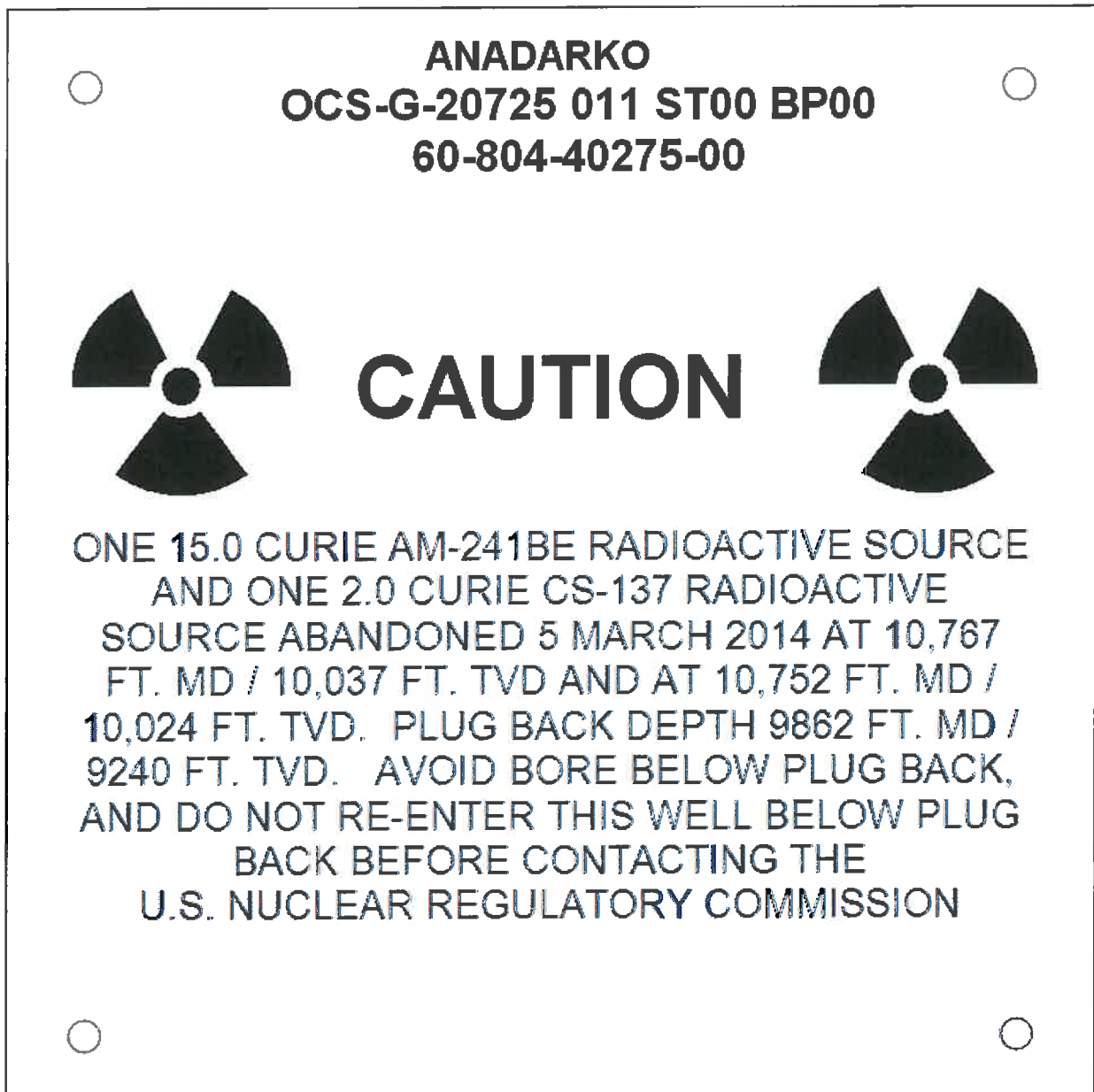
Sincerely,



Elizabeth A. Foltz  
Global Radiation Safety Officer  
Halliburton Energy Services, Inc.  
Email: [Elizabeth.Foltz@Halliburton.com](mailto:Elizabeth.Foltz@Halliburton.com)

Attachment: (1) Representation of Warning Plaque

ATTACHMENT 1



*Representation of Permanent Warning Plaque*