



Department of Energy

Washington, DC 20585

November 20, 2019

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Deputy Director
Mail Stop T8-F5
Washington, DC 20555-0001

Subject: U.S. Department of Energy, Office of Legacy Management update to U.S. Nuclear Regulatory Commission Staff on Mexican Hat, Utah, Disposal Site, Radiological Monitoring Summary, Second Quarter 2019 (Docket No. WM-63)

To Whom it May Concern:

On April 8, radon detectors and environmental thermoluminescent dosimeters (TLDs) were placed at the Mexican Hat, Utah, Disposal Site in accordance with the *Radiological Monitoring Plan for the Mexican Hat, Utah, Disposal Site* (LMS/HAT/S18816).

On July 10, the deployed radon detectors and TLDs were collected from the site and sent to an accredited vendor for processing and analysis. Replacement radon cups and TLDs were deployed for the current quarter of monitoring at the time of collection.

This is the third monitoring quarter of data collected since October 24, 2018.

The radon detectors and TLD results were evaluated for the current quarter and showed:

1. No regulatory limits¹ have been exceeded for the current quarter.
2. The variances between monitoring quarters could have been due to the following factors:
 - a. Environmental factors such as barometric pressure, temperature, wind, and so on.
 - b. TLD sensitivity and accuracy when monitoring results are at this low of level (less than 10 millirems).
3. Calculating the average radon concentration or cumulative environmental dose for all monitoring periods did not result in any exceedance of regulatory limits.
4. All radiological monitoring results were below regulatory limits, which further supports the determination that residual radioactive material has not been exposed at the depression areas and the disposal cell remains protective of human health and the environment.

¹ Radon concentration limit is 3 picocuries per liter annual average and environmental dose limit is 100 millirems per year (Title 10 *Code of Federal Regulations* Section 835 and DOE Order 458.1, *Radiation Protection of the Public and the Environment*) as described in *Radiological Monitoring Plan for the Mexican Hat, Utah, Disposal Site*.

NMSS01



Supporting data included with this letter are the following:

- Figure 1, "Radiological Monitoring Results for Mexican Hat, Utah, Disposal Site"
- Figure 2, "Radon Detector and TLD Placement Locations at the Mexican Hat, Utah, Disposal Site"

Raw data is available upon request.

Please contact me at (970) 248-6621 or Angelita.Denny@lm.doe.gov, if you have any questions. Please address any correspondence to:

U.S. Department of Energy
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Sincerely,

ARTHUR

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Digitally signed by
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Angelita Denny
Mexican Hat Site Manager

Enclosures

cc w/enclosures:

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File: HAT 3500-04



Figure 1. Radiological Monitoring Results for Mexican Hat, Utah, Disposal Site

Result Metrics	4 th Qtr. 2018 ¹	1 st Qtr. 2019 ²	2 nd Qtr. 2019 ³	Avg. Radon Concentration
Mean on-site radon concentration (pCi/L)	0.53	0.25	0.14	0.31
Mean off-site radon concentration (pCi/L)	0.41	0.24	0.16	0.27
On-site minus off-site radon concentration (pCi/L)	0.12	0.01	-0.02	0.04
Radon concentration limit at boundary (pCi/L, avg annual)	3.0	3.0	3.0	Cumulative Enviro. Dose
Mean on-site environmental dose (mrem per qtr)	0.44	6.44	1.11	7.99
Mean off-site environmental dose (mrem per qtr)	2.22	7.00	2.44	11.66
On-site minus off-site dose (mrem per qtr)	-1.78	-0.56	-1.33	-3.67
Environmental dose limit at boundary (mrem per yr)	100.0	100.0	100.0	

Footnotes:

¹ 4th Quarter 2018 – October 24, 2018 to January 02, 2019

² 1st Quarter 2019 – January 02, 2019 to April 08, 2019

³ 2nd Quarter 2019 – April 08, 2019 to July 10, 2019

Figure 2. Radon Detector and TLD Placement Locations at the Mexican Hat, Utah, Disposal Site

