Energy Fuels Resources

March 23, 2012

Ms. Deborah Lebow Aal
USEPA Region 8, Indoor Air Program
1595 Wynkoop St.
Denver, CO 80202-1129

Re: 2011 Radon Emissions Modeling for the Whirlwind Mine

Dear Ms. Lebow Aal:

The Whirlwind Mine is an underground uranium and vanadium mine located at 30100 5/10 Road in Gateway, Colorado. No ore has been produced from the mine to date. The Whirlwind Mine has been on stand-by since November 2008 with only maintenance activities being performed since that time. In December 2009, Energy Fuels discontinued dewatering operations and allowed the lower portion of the mine, which contains the ore zone, to flood. At the same time ventilation tubing was disconnected in the decline, so as to ventilate only above the flooded area.

Energy Fuels also discontinued monitoring of radon levels in the exhaust portal at the end of 2009 given that the ore zone was no longer being ventilated. Radtraks (i.e., alpha-track radon detectors) were placed within the mine after receiving notification from the U.S. EPA that the intermittent ventilation of the decline required monitoring. Active ventilation is limited to the decline and non-mineralized drifts above the flooded ore zone and was only conducted for maintenance and environmental activities in 2011.

Radtrak monitors placed in the mine in the second and third quarters of 2011 were found to be deployed incorrectly. See Attachment A for a detailed summary of the issue and the actions taken to correct it. The Radtrak data collected in the fourth quarter was used to estimate concentrations for the first three quarters. As explained in Attachment A, use of Radtrak data for intermittent operations is conservative as it overestimates radon levels.

Calculation of the effective annual dose equivalent of radon exposure to the nearest resident, school or office resulting from an underground uranium mine ventilation system is required under 40 CFR 61 Subpart B. The radon effective dose equivalent was calculated using the COMPLY-R program with the following input parameters.

- The exhaust flow rate at the portal was determined by measurements conducted throughout 2011.
- The nearest public receptor is a part-time resident, located approximately 835 meters northwest of the mine portal. Full-time residency was assumed for the COMPLY-R modeling.
- The average wind speed was assumed to be 2.0 m/s (COMPLY-R default value).

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- The actual measured radon concentration for the fourth quarter of 2011 was used for all four quarters.
- Emissions of 0.01 Ci of radon from the mine portal were calculated as shown in the attached 2011 Radon Emission Calculation Sheet. The calculations are based on ventilation flow rates, hours of operation, and the radon concentrations described above.

Radon modeling for 2011 was conducted based on the calculated emissions, distance to the nearest receptor, and a mean wind speed of 2.0 m/s. The effective dose equivalent to the nearest resident calculated by COMPLY-R was 0.00056 mrem for 2011, which is substantially below the regulatory limit of 10 mrem/year. The output print out from the COMPLY-R program is provided as Attachment B.

The Whirlwind Mine is operated by Mr. Dick White, General Manager and this report was prepared by Ryan Ellis, Environmental Engineer. Energy Fuels has ordered a continuous radon monitor and it will be installed within the mine in the spring of 2012 when the road access to the mine is available.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment. See, 18 U.S.C. 1001."

Stephen Antony
President/Chief Executive Officer
Energy Fuels Resources Corporation

Please feel free to contact me at (303) 974-2151 if you need any additional information.

Sincerely,

Ryan Ellis, EIT
Environmental Engineer

Attachment
Attachment A - Radon Monitoring Data
Attachment B - COMPLY-R Report

Cc: Dick White, Frank Filas (Energy Fuels)
Scott Gerwe (BLM, Grand Junction)
Russ Means (DRMS, Grand Junction Field Office)

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WHIRLWIND MINE

2011 Radon Emission Calculation Sheet

Month/Year	Air Circulation Rate (cfm)	Hours of Operation (hours)	Ventilated Air Volume (Liter)	Average Radon Concentration (pCi/L)	Radon Emission (Ci)
January 2011	2,450	38.2	159,000,000	15.9	0.0025
February 2011	0	0.0	0	15.9	0.0000
March 2011	2,450	1.7	7,000,000	15.9	0.0001
April 2011	2,450	4.1	17,000,000	15.9	0.0003
May 2011	2,450	2.2	9,000,000	15.9	0.0001
June 2011	2,450	2.6	11,000,000	15.9	0.0002
July 2011	2,450	6.3	26,200,000	15.9	0.0004
August 2011	2,450	18.3	76,200,000	15.9	0.0012
September 2011	0	0.0	0	15.9	0.0000
October 2011	2,450	3.0	12,000,000	15.9	0.0002
November 2011	2,450	39.6	165,000,000	15.9	0.0026
December 2011	0	0.0	0	15.9	0.0000
				2011 Total	**0.0077**

Air flow rate given from ventialtion survey, Jess Fullbright

ATTACHMENT A

Radon Monitoring Data

Radtrak monitors were not placed within the mine during the first quarter of 2011 due to misinterpretation of the active mining designation and therefore, no data was collected. Radtrak monitors placed in the mine in the second and third quarters of 2011 were removed from the mine during periods of no ventilation to more accurately determine the average radon concentration in the mine during periods of ventilation. Results from the second quarter monitors were received in late July 2011. The results were calculated by Landauer to be 2.5 ρCi/L based on total days in the monitoring period. See attached Radon Monitoring Reports for measured radon concentrations. When recalculated based on actual time in the mine (539 minutes), the average radon concentration was approximately 700 ρCi/L. This concentration is far higher than expected considering the ore zone was submerged. After investigating possible causes for the error, it was determined that since the radon monitors were sealed and unsealed inside the mine during change-outs, that air (with low concentrations of radon) was sealed into the Radtrak canister and continued to produced etches in the detector even after it was removed from the mine. As a result, Energy Fuels implemented a program to determine the best manner in which to deploy the Radtraks in the future.

The program included deploying four Radtrak canisters. The first was a control which is placed inside the dry building and sealed and unsealed within the building and only exposed during times of ventilation (Result 8.6 pCi/L). The first canister never entered the mine. The second canister was placed inside the mine and sealed and unsealed within the mine but only exposed for the duration of ventilation (Result 3.3 pCi/L). The second Radtrak was deployed in the same fashion as the second and third quarters of 2011. The third canister was placed within the mine but sealed and unsealed outside of the mine and only exposed for the duration of ventilation (Result 2.9 pCi/L). The third Radtrak was used to determine if the air sealed within the canister has a significant impact on the result. The forth canister was placed within the mine and left open within the mine for the three months (Result 15.9 pCi/L).

Based on the results, it is apparent that the air sealed within the canisters continue to produce etches after the canisters were sealed. It was also notable that the dry had a higher radon concentration than the flooded mine. The results also show that there is little difference between the canisters sealed within the mine and those sealed outside of the mine (2.9 pCi/L vs 3.3 pCi/L), possibly because there is very little radiation in the mine air at this time.

Based on the information gathered, Energy Fuels decided to report radon emissions based on the 15.9 pCi/L concentration reported for the canister left open in the mine over the entire fourth quarter. This is a conservative approach, as the fan only ran for 42.6 hours during this quarter. Although there is inherent error in monitoring continuously, this error is expected to be much smaller during active mining when higher concentrations and flow rates will occur.

Radon Monitoring Report

LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 323-8830 Facsimile: (708) 755-7018

ENERGY FUELS RESOURCES
ATTN: ZACH ROGERS
44 UNION BLVD, STE 600
LAKEWOOD, CO 80228

Acct. No. 0410143

RECEIVED AUG 2 2 2011

Dosimeter Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	
4819737	DRNF	01-APR-11	12-JUL-11	IN PLACE ONLY WHEN FAN WAS ON TOTAL TIME EXPOSED:539 MINUTES	258.5 ±13.9	2.5 ±0.14	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

RESULTS RELATED ONLY TO MONITORS
AS RECEIVED BY LANDAUER.

O.C. Release	Process No	Report Date	Date Received
LMR	A22256	17-AUG-11	05-AUG-11

Radon Monitoring Report

ENERGY FUELS RESOURCES
ATTN: ZACH ROGERS
44 UNION BLVD, STE 600
LAKEWOOD, CO 80228

LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Acct. No. 0410143

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	
4819738	DRNF	12-JUL-11	01-OCT-11	X-CUT#1,RR GOING IN 2,450 CFM WHIRLWIND MINE ID#05-04816	395.0 ±17.8	4.9 ±0.22	
①	②	③	④		⑤ ⑥	⑦	⑧

RESULTS RELATED ONLY TO MONITORS
AS RECEIVED BY LANDAUER.

Q.C. Release	Process No.	Report Date	Date Received
LMR	A22307	25-OCT-11	12-OCT-11

Radon Monitoring Report

ENERGY FUELS RESOURCES
ATTN: ZACH ROGERS
44 UNION BLVD, STE 600
LAKEWOOD, CO 80228

LANDAUER

Landauer, Inc. 2 Science Road Glenwood, Illinois 60425-1586
Telephone: (800) 528-8327 Facsimile: (708) 755-7048

Acct. No. 0410143

Detector Number	Detector Type	Starting Date	Ending Date	Field Data / Comments	Exposure pCi/l-days	Avg. Radon Conc. pCi/l	
4798094	DRNF	01-OCT-11	28-DEC-11	DRY BUILDING CONTROL,SEALED UNSEALED,496MINUTES EXPOSURE	755.8 ±25.4	8.6 ±0.29	
4846797	DRNF	01-OCT-11	28-DEC-11	X-CUT#1,RR GOING IN,2450 CFM, SEALED/UNSEALED 496 MINUTES	292.6 ±15.1	3.3 ±0.17	
4846816	DRNF	01-OCT-11	28-DEC-11	X-CUT #1,RR GOING IN,LEFT IN ALL THE TIME	1395.9 ±35.8	15.9 ±0.41	
4846817	DRNF	01-OCT-11	28-DEC-11	X-CUT#1.RR GOING IN, PLACED 2450CFM,SEALED/UNSEALED 471MIN	257.6 ±14.0	2.9 ±0.16	

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

RESULTS RELATED ONLY TO MONITORS AS RECEIVED BY LANDAUER.

Q.C. Release	Process No.	Report Date	Date Received
KJT	A22369	20-JAN-12	12-JAN-12

13966

RADON TEST DETECTOR LOG

Landauer, Inc.
2 Science Road
Glenwood, IL 60425-1586

Company Energy Fuels Resources
Address 426 Adams Street
PO Box 236
Naturita, CO 81422
Phone 970-865-2415
Contact Jess W Fulbright
Account # 410043

Detector Number	Starting Date			Ending Date			Detector Location/Comments
	Mo	Day	Yr	Mo	Day	Yr	
4846816	10	01	11	12	28	11	X-cut #1,RR going in, left in all the time.
4846817	10	01	11	12	28	11	X-cut #1,RR going in, placed while fan running only, 2450 CFM, sealed and unsealed in mine, 471 minutes of total exposure time.
4846797	10	01	11	12	28	11	X-cut #1,RR going in, placed while fan running only, 2450 CFM, sealed and unsealed in dry building, 496 minutes of total exposure time.
4798094	10	01	11	12	28	11	Dry building control, sealed, unsealed and left in dry building, 496 minutes of total exposure time.
							Jess W Fulbright
							Jess W. Fulbright

Return original copy with detectors. Retain copy for your records.

ATTACHMENT B

COMPLY-R Report

40 CFR Part 61
National Emission Standards
for Hazardous Air Pollutants

REPORT ON COMPLIANCE WITH

THE CLEAN AIR ACT LIMITS FOR RADIONUCLIDE EMISSIONS

FROM THE COMPLY-R CODE, VERSION 1.2

Prepared by:

Energy Fuels Resources
Whirlwind Mine
30100 5/10 Road, Gateway, Colorado

Ryan Ellis
(303) 974-2151

Prepared for:

U.S. Environmental Protection Agency
Office of Radiation Programs
Washington, D.C. 20460

03/20/12 09:26

Stack	Release Rate (curies/YEAR)
1	1.000E-02

Ground level release.

Distance from the source to the receptor is 835 meters.

Default mean wind speed used (2.0 m/sec).

NOTES:

Input parameters outside the "normal" range:

None.

RESULTS:

Effective dose equivalent: 5.6E-04 (mrem/year).

Complies with emission standards.

*** This facility is in COMPLIANCE ***

********** END OF COMPLIANCE REPORT **********