

6/16/64

Claude W. Sill, Assistant Director of Technology
Health & Safety Division, Analysis Branch, IDO

Leland C. Rouse, Radiation Specialist
Region IV, Division of Compliance, Denver

ATLAS MINERALS URANIUM MILL, MOAB, UTAH
ANALYTICAL PROCEDURE FOR ANALYSIS OF EFFLUENT
DISCHARGE

At the Atlas Minerals uranium mill at Moab, Utah, it was learned that the analytical procedure for analysis of effluent discharge calls for filtration as the first step to remove any suspended solids. The remaining steps in the analysis are reportedly the same as yours. Therefore, to permit direct comparison with the licensee's results, it is requested that Effluent Sample #2 be analyzed for radium-226 and thorium-230 in the following manner:

- (1) Rather than adding HNO_3 as the first step for dissolution of the readily hydrolyzible thorium and radium as you normally would, filter the sample removing the suspended solids.
- (2) Analyze both the filtrate and the residue solids for radium-226 and thorium-230.

If you have any questions on the above request, do not hesitate to call.

9612190380 640616
PDR ADOCK 04003453
C PDR

OFFICE ▶	CO:IV				
SURNAME ▶	LCRouse:em				
DATE ▶	6/16/64				

Ba 50g repp'd
1100 9/4U. S. ATOMIC ENERGY COMMISSION
IDAHO OPERATIONS OFFICE
HEALTH AND SAFETY BRANCH
IDO H & S SAMPLE RECORD SHEET

Serial No. 33181

ROUTINE SPECIAL

Sample from: Atlas Minerals, Moab, Utah

Samples Received: 6/23/64

Analyzed by: DP & RH

Collected by: L. C. Rouse

Analysis Completed:

Date submitted: June 16, 1964

Method: End Window; Prop. counter ☒; Spectrophotometric; Fluorometric; Polarographic

Sample No.	Date	Hour	Sample Description	Anal. for	Quant. used, ml.	U + ⁶ or K ⁺ Trans.	Count time, min.	Total Count.	Gross Count, c/m.	Bkgd., c/30'	Net count, c/m.	K ⁴⁰ corr., c/m.	Foreign activity c/m. mc/m
2E	6-9		Effluent Discharge 2										
Ra reaq bl = 26 ± 6 net c/30'													
9/4 @ 1415 CTR 230													
Ra reaq bl recount = 23 ± 5 net c/30' filtrate													
9/11 @ 1415 CTR 230													
Th reaq bl = 23 ± 6 net c/30' filtrate													
9/4 @ 1550													
2S			residue solids										
Ra reaq bl = 7 ± 4 net c/30'													
9/3 @ 1420 CTR 230													
Ra reaq bl recount = 1 ± 4 net c/30' residue solids													
9/10 @ 1420 CTR 230													
Th reaq bl = 145 ± 13 net c/30'													
1370 9/15 CTR 2													

Notified:

Time:

Resampling

Yes

recommended: No

Approved:

Chief, Analysis Section

U. S. ATOMIC ENERGY COMMISSION

IDAHO OPERATIONS OFFICE

HEALTH AND SAFETY BRANCH

33107

Serial No.

ROUTINE SPECIAL

IDO H & S SAMPLE RECORD SHEET

Sample from: Atlas Minerals, Moab, UtahSamples Received: 6/23/64Analyzed by: DPCollected by: Leland C. RouseAnalysis Completed: 8/11/64Date submitted: 6/8-9/64Method: End Window ; Prop. counter ☒; Spectrophotometric ; Fluorometric ; Polarographic

Sample No.	Date	Hour	Sample Description	Anal. for	Quant. used, ml.	U +6 or K+ Trans.	Count time, min.	Total Count.	Gross Count, c/m.	Bkgd. c/m.	Net count, c/m.	K ⁴⁰ corr., c/m.	Foreign activity
thru ID			ct. #2 Colorado River-upstream from	Ra ²²⁶	500	1405 7/21	30	56		7			4 c/ml
			ct. #2 Moab Mill			1485 7/28	30	76		8			< 3x10 ⁻⁹
			ct. #2	Th ²³⁰	500	1215 7/23	30	45		5			< 2x10 ⁻⁸
14				U nat	201				245	245			< 2x10 ⁻⁸ ⁸ _{1.6x10⁻⁸}
				Ra ²²³									< 3x10 ⁻⁹
				Pb ²¹⁰	500		30	175		140	1.2		< 1x10 ⁻⁸
				Po ²¹⁰	50	7-17 1010	30	51 36	1.7 1.2	1.0	.7 .2	0.9	< 3x10 ⁻⁸
			Ra reagt. blank, 1 st count, ct. #2, 7/21 214			1515 7/21	30	9		7			
			Ra reagt. blank, 2 nd Ra count = 0 ± 4										

Notified:

Time:

Resampling

Yes recommended: No

Approved:

Chief, Analysis Section

Th reagt. blank = 18 ± 5.3 c/30 m

ROUTINE _____ SPECIAL _____

IDOH & S SAMPLE RECORD SHEET

Sample from: **Atlas Minerals, Moab, Utah.**

Samples Received

6/23/64

Analyzed by

28

Collected by: **Ireland C. Rouse**

Analysis Completed:

8-11-64

Date submitted: 6/8-9/04

Method: End Window____; Prop. counter____;

Spectrophotometric ____; Fluorometric ____; Polarographic ____

[illegible]

U. S. ATOMIC ENERGY COMMISSION
IDAHO OPERATIONS OFFICE
HEALTH AND SAFETY BRANCH
IDO H & S SAMPLE RECORD SHEET

Basen rep'd
1100 9/4

Serial No. ~~3318~~
33183

ROUTINE SPECIAL

Sample from: Atlas Minerals, Moab, Utah

Samples Received: 6-23-64

Analyzed by: DP; RA

Collected by: L. C. Rouse

Analysis Completed:

Date submitted: June 16

Method: End Window ; Prop. counter ; Spectrophotometric ; Fluorometric ; Polarographic

Sample No.	Date	Hour	Sample Description	Anal. for	Quant. used, ml.	U ²³⁵ or K ⁴⁰ Trans.	Count time, min.	Total Count	Gross Count, c/m.	Bkgd., c/m.	Net count, c/m.	K ⁴⁰ corr., c/m.	Foreign activity
1 (IE)	6-9		Effluent Discharge 1 CTR4	Ra-226	200	1415 9-4	30	154		55			2.2 x 10 ⁻⁸
			Recount CTR4			1415 9-11	30	260		50			
			Th reagent blank = 145 ± 13 net c/30 min 9/10 @ 1330 CTR 2	Ra-223									< 7 x 10 ⁻⁹
			CTR 230	Th-230	200	1330 9-10	30	364		5			5.0 x 10 ⁻⁸
			Std is 1/3 S.D. for 0.05 µg U	Unat	0.01				49.0	0.4	48.6		5.6 µg/ml
			Ra reagent bl = 26 ± 6 net c/30' 9/4 @ 1415 CTR 230	Po-210	500		1410 9/11	30	1089	103		0.665	1.7 x 10 ⁻⁷ µc/ml
			Ra reagent bl = 23 ± 5 net c/30' 9/11 @ 1415 CTR 230	Po-210	40			264		(Blank 0.17 n c/30 min)			1.8 x 10 ⁻⁷ µc/ml

Notified: Time: Resampling Yes

recommended: No

Approved:

Chief, Analysis Section

RECEIVED
OCT 22 1964
DIVISION OF COMPLIANCE
REGION IV