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SILVER KING MINES, INC.
MORTON RANCH PROJECT

RADIOLOGICAL ANALYSIS OF QUARTERLY COMPOSITE AIR FILTERS

QUARTER: October, 1981 - December, 1981

Sample Location	Volume (m ³)	Radionuclide	Concentration pCi/m ³ X 10 ⁻⁴	Error Estimate* pCi/m ³ X 10 ⁻⁴	LLD pCi/m ³ X 10 ⁻⁴
ASVX1	35,263	Unat	2.6		0.3
		Ra-226	0.1	0.1	0.1
		Th-230	1.7	0.6	0.1
		Pb-210	156	8	0.3
ASVX2	34,002	Unat	2.9		0.3
		Ra-226	0.6	0.1	0.1
		Th-230	1.4	0.6	0.2
		Pb-210	91	5	0.3
ASVX3	34,876	Unat	7.7		0.3
		Ra-226	2.0	0.2	0.1
		Th-230	3.9	1.0	0.2
		Pb-210	156	7	0.3
ASVX4	36,199	Unat	7.0		0.3
		Ra-226	0.8	0.1	0.1
		Th-230	0.5	0.5	0.1
		Pb-210	166	7	0.3
ASVX5	25,875	Unat	1.2		0.3
		Ra-226	0.3	0.1	0.1
		Th-230	0.8	0.8	0.4
		Pb-210	119	7	0.3
ASVX6	22,099	Unat	1.8		0.3
		Ra-226	0.8	0.2	0.1
		Th-230	1.8	1.0	0.3
		Pb-210	222	11	0.3

* Error Estimate at the 95% Confidence level.

20411



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

APR 29 1982



WMUR:GGE
Docket No. 40-8602

Silver King Mines, Inc.
ATTN: Mr. C. Wolff
Post Office Box 560
Casper, Wyoming 82602

Gentlemen:

Enclosed for your information is our review of your report entitled, "Pre-Operational Radiological Environmental Monitoring Report, July, 1981 through December, 1981." As indicated in this review, the 4th Quarter 1981 airborne particulate data for your six air sampling locations was not provided. Therefore, you are hereby requested to provide this missing airborne particulate data in your 10 CFR Part 40.65 report for the 1st and 2nd Quarters of 1982 as required.

In the future, your submission of 10 CFR 40.65 reports should be within the 60 day period following January or July each year, and such reports should provide all of the environmental monitoring program results for the semi-annual time periods of that report. If you have any questions on this matter, please contact Gregory Eadie of my staff at (301) 427-4541.

Sincerely,

Harry J. Pettengill
Harry J. Pettengill, Section Leader
Operating Facility Section II
Uranium Recovery Licensing Branch
Division of Waste Management

Enclosure:
Memo to Docket File No. 40-8602
dtd April 22, 1982

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WMUR:GGE
Docket No. 40-8602

MEMORANDUM FOR: Docket File No. 40-8602

FROM: Gregory G. Eadie, Project Manager
Operating Facility Section II
Uranium Recovery Licensing Branch
Division of Waste Management

SUBJECT: REVIEW OF PRE-OPERATIONAL RADIOLOGICAL
ENVIRONMENTAL MONITORING REPORT FOR JULY
TO DECEMBER 1981 FOR THE MORTON RANCH

I have reviewed the report submitted on January 29, 1982 by the Silver
Mines, Inc. (SMI) for the Morton Ranch (SLA-1356) entitled,
"Pre-Operational Radiological Environmental Monitoring Report,
July, 1981 Through December, 1981." I have the following comments:

Air Particulate

The total suspended particulate data for four locations was reported for
the period July to December, 1981. The highest reported result was
222.9 $\mu\text{g}/\text{m}^3$ for the August 2, 1981 sample at location ASVX3.

The radiological analysis data for the six air sampling locations was
reported for the 2nd and 3rd Quarters of 1981. The highest reported
results, irrespective of any particular sample, were: 0.00031 pCi/ m^3 for
uranium, 0.00007 pCi/ m^3 for radium-226, 0.0338 pCi/ m^3 for lead-210. This
data is typical of background concentrations of the various radionuclides
and therefore is acceptable.

Recommendation

The licensee should be required to provide the 4th Quarter 1981 airborne
particulate data for these six sampling locations.

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Meteorological Data

The licensee provided the daily average meteorological data for the period July through December, 1981. Also, the joint frequency distributions for the level one and level two, and the atmospheric stability and delta temperature data were provided. This information is acceptable.

Radon-222

Radon-222 results for the six air sampling locations was provided for the 3rd and 4th Quarters of 1981. The highest reported result was 2310 pCi/m³ at location ASVX-3 during July, 1981. Except for this highest reported radon level, all other radon levels are typical of background levels.

Gamma Survey

The licensee provided the results of the gamma radiation survey conducted on August 14, 1981 at 5 air sampling locations. Two different portable gamma detectors were used for this survey, and the highest reported result was 20.5 μ R/hr at location ASVX-3. Measurements made using the PIC ranged from 13.99 to 14.60 μ R/hr which is typical of background radiation levels. The L-19 detector indicated higher exposure rates ranging from 18.25 to 20.50 μ R/hr.

Ground Water

The radiological and chemical analysis results for 11 ground water wells were provided for samples collected from each well during the 3rd and 4th Quarters of 1981. The highest reported results for the dissolved component, irrespective of any particular sample, were: 450 pCi/l for uranium, 3.2 pCi/l for radium-226, 2.9 pCi/l for thorium-230, 46 pCi/l for lead-210, and 0.2 pCi/l for polonium-210. With the exception of uranium at several wells, all other analytical results indicate background levels of the uranium decay chain series radionuclides.

Surface Water

The radiological and chemical analysis results for 5 surface water sampling locations were provided for the 3rd and 4th Quarters of 1981. The highest reported results for either the dissolved or the suspended component, irrespective of any particular sample, were: 442 pCi/l for

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uranium, 3 pCi/l for radium-226, 46 pCi/l for thorium-230, 0.7 pCi/l for lead-210, and 0.6 pCi/l for polonium-210. With the exception of these high uranium and thorium-230 results, all other analytical results indicate background levels of the uranium decay chain series radionuclides.

Sediment

A single sediment sample was collected at 5 surface water sampling locations. The highest reported results, irrespective of any particular sample, were: 32.64 pCi/g for uranium, 2.0 pCi/g for radium-226, 6.3 pCi/g for thorium-230, and 1.5 pCi/g for lead-210. These reported results indicate background levels of the uranium decay chain series radionuclides.

Soil

Soil sample results for a single sample collected on June 29, 1981 at each of the six air sampling locations were provided. The highest reported results, irrespective of any particular sample, were: 4.8 pCi/g for uranium, 1.1 pCi/g for radium-226, 5.5 pCi/g for thorium-230, and 2.2 pCi/g for lead-210. These reported results indicate background levels of the uranium decay chain series radionuclides.

Vegetation

Vegetation sample results for samples collected during the 2nd, 3rd, and 4th Quarters of 1981 were provided. The highest reported results, irrespective of any particular sample, were: 63 pCi/kg for uranium, 75 pCi/kg for radium-226, 75 pCi/kg for thorium-230, 250 pCi/kg for lead-210, and 250 pCi/kg for polonium-210. These reported results indicate background levels of the uranium decay chain series radionuclides.

Supplemental Information

Air sampler calibration data was provided and is acceptable. A map (dated 4/29/81) was provided which shows the location of all sample collection sites. This map is acceptable.

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Summary

Except for the missing 4th Quarter 1981 airborne particulate sampling results, the subject report provides the data for an acceptable environmental monitoring program for the 3rd and 4th Quarters of 1981.

ORIGINAL SIGNED BY

Gregory G. Eadie, Project Manager
Operating Facility Section II
Uranium Recovery Licensing Branch
Division of Waste Management

ORIGINAL SIGNED BY

Approved by:

H. J. Pettengill, Section Leader
Operating Facility Section II
Uranium Recovery Licensing Branch
Division of Waste Management

Case Closed: 04008602080E

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