HEALTH ENVIRONMENT department

STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
STEVEN ASHER, Director

TONEY ANAYA
GOVERNOR

ROBERT McNEILL
SECRETARY

ROBERT L. LOVATO, M.A.P.A.
DEPUTY SECRETARY

JOSEPH F. JOHNSON
DEPUTY SECRETARY

February 10, 1984

Mr. Meade A. Stirland, Manager
Anaconda Minerals Company
P.O. Box 638
Grants, New Mexico 87020

Dear Mr. Stirland:

Thank you for your correspondence of January 25, 1984. We were pleased to learn that the issues concerning ambient radon concentrations for the Anaconda millsite have apparently been resolved. Of particular significance was the finding that the discrepancy in reported radon values was not, apparently, attributable to differences in sampling methodology, but simply to the misinterpretation of collected data. More importantly, measurements of ambient radon levels by EID and Anaconda personnel now appear to be in better agreement.

Your cooperation and assistance in the resolution of this matter is appreciated. If personnel from the EID can be of further assistance please feel free to contact us.

Respectfully,

Felix R. Miera, Jr.

Felix R. Miera, Jr.
Program manager
Uranium Licensing Section

FRM/cvg

cc: Frank Lucero, PRB, NMEID
Jere Millard, RPB, NMEID
Steven Asher, Director, NMEID
Ted Brough, NMEID, Milan

ANACONDA Minerals Company
New Mexico Operations
P.O. Box 638
Grants, New Mexico 87020
Telephone 505 876 2211

January 25, 1984

Mr. Steven Asher, Director
Environmental Improvement Division
P. O. Box 968
Santa Fe, New Mexico 87503

Dear Mr. Asher:

During the period January 1, 1978 to July 1, 1980, we measured ambient Radon concentrations at our millsite using the Tedlar Bag Method. This data was reported to the E.I.D. During this time, the concentrations of Radon were below the N.M. State standards. The values ranged from 0.17 to 0.68 pCi/L, depending on the location of the monitoring equipment.

On July 17, 1980, we changed the ambient Radon concentration measurement equipment from the Tedlar Bag equipment to the Eberline RGM II continuous monitoring equipment. In using the Eberline RGM II equipment, we used an Eberline furnished instrument background number, which was subtracted from the ambient readings taken at the respective sites where we located the several instruments. This "modified" ambient reading was supposed to be the accurate representation of the ambient Radon concentration at the respective monitoring sites. Our Eberline RGM II equipment has been returned to Eberline on a periodic basis for calibration, and the new calibration, or background number was used subsequent to the calibration. The data from this equipment indicated Radon concentrations below the N.M. State standards and the values ranged from 1.28 to 2.19 pCi/L depending on the location of the respective monitoring equpiment.

When comparing the data from the two methods of monitoring, there was a significant offset in the data; the data from the Eberline RGM II equipment indicating a higher concentration than the data from the Tedlar Bag equipment. We thought the offset in the data was attributable to the RGM II continuous monitoring equipment being a more dependable method than the Tedlar Bag method. However, upon inquiry by Mr. Ted Brough of the State E.I.D., we questioned Eberline people on the calibration methods they used to provide the background number we were using for our measurements and found out that the background number they had been providing us was not accurate for our use, not at all appropriate and we were unable to duplicate it at our location.

As a result of finding this deficiency, we initiated a calibration procedure in our lab described in Attachment A.

This calibration procedure has produced the following results:

Machine Identification	Eberline Calibration Background, pCi/L	In-House Calibration Background, pCi/L
Unit 4, SN 104	.25	1.62
Unit 8, SN 108	.25	1.25
Unit 30, SN 101	.25	0.95
Unit 39, SN 129	.25	1.48

The background values determined in-house were significantly higher than those reported by Eberline. Incorporating the new background numbers resulted in data which showed close correlation of ambient radon when monitored by the RGM II method and the Tedlar Bag method.

Each piece of equipment will be recalibrated on a semi-annual basis and the current background number will be used until the next recalibration.

It is reasonable to use the background calibration number generated in our recent lab procedures to adjust the most recently collected ambient Radon data data. These corrected data are included as part of the Semi-Annual Amendment #5 Report for the last six months of 1983. It is not appropriate to apply these corrections to data obtained earlier in time as the actual background could have changed over time. It is significant that all data reported to the E.I.D. is within the N.M. State standards, notwithstanding the known erroneously high readings previously reported.

I trust the information in this letter will satisfactorily explain the discrepancies in the ambient Radon data reported in the past for the Anaconda Millsite. We appreciate the patience and cooperation of your staff, especially that of Ted Brough of the Milan Field Office, E.I.D. Please call me or Dean Roberts if you have further questions on this matter.

Sincerely,

Meade A. Stirland
General Manager

mls

cc: Felix Miera, Radiation Section
Ted Brough, EID-Milan
D. Roberts
C. Woolfolk

ATTACHMENT A

RGM-II BACKGROUND CALIBRATION PROCEDURE

1. Connect scintillation cell intake hose to source of "aged" (high purity nitrogen). Nitrogen source must have flow meter to allow for metering of nitrogen flow.

2. Flush scintillation cell with a minimum of 10-20 volumes of nitrogen. The volume of the scintillation cell is one liter. Flush the cell at a rate of 0.8 to 1 liter per minute at 4-5 pounds of pressure.

3. Immediately following flushing, clamp off the intake and exhaust hoses on the scintillation cell. This prevents the introduction of ambient air into the cell.

4. Program the computer using a background value of 1.00×10^{-10} and the calibration value determined by Eberline. Refer to the enclosed pages from the RGM Technical Manual for the correct procedure for entering the background and calibration values.

5. Enter into the keyboard the day and time of day, test time or data. Refer to pages 3-5 of the RGM Technical Manual for the correct procedure for the introduction of this information. Unless programmed otherwise, there will be hourly printouts with a 24-hour average.

6. Press the enter, ENT, key to complete the entry of the above data. Refer to the enclosed pages for additional information on programming the computer and interpretation of the printout.

7. Run the test for a minimum of 24 hours. The 24-hour average will be the background value of the machine.

SECTION II
OPERATION

A. DESCRIPTION OF CONTROLS AND CONNECTORS (See Figure 2-1)

1. Operator Controls

a. Power: There is a switch to apply either line power or battery power to the instrument.

b. Keyboard Enable: There is a switch to enable or disable the keyboard.

c. Keyboard: The RGM-2 has a 16-key key-board for instrument mode control and data entry.

2. Connectors

a. Line Power: Located on the rear of the control console (J202), this connector is for line power.

b. Battery: This connector, located on the rear of the control console (J210), is for an external 12 V dc power source.

c. Alarm: Located on the chassis plate (J209), this is used for connection to an external alarm (optional).

B. PREPARATION FOR USE AND OPERATIONAL CHECK

1. The instrument should be checked for physical damage.

2. Secure the four legs to the instrument by using the four knurled nuts.

3. Loosen the two screws on the lid of the instrument and open the lid.

4. Load the printer with paper.

NOTE

When transporting the instrument, remove the paper from the printer and store it securely to prevent damage to the paper and the instrument.

5. Connect power to the instrument.

NOTE

Normal power to the system is 115 V ac, 60 Hz. The instrument is also designed to operate from either 230 V ac, 50/60 Hz or from a 12 V dc power source. Refer to Section IV, F for more information.

6. Switch the power on and wait for a message to be printed. The message will indicate the instrument unit number and the start-up values for background, calibration and alarm set. (See Section II, C, 2 for details.) Enter the day and time and, if desired, edit the start-up values. The instrument should now operate normally.

7. Check the operation of the air system by observing the flowmeter. The meter should indicate 0.5 to 1.0 L/min. If a lower value is indicated, check the air inlet and discharge ports for an obstruction. If no obstruction is found, refer to Section IV for information on servicing the air line filter.

8. The ventilation fan is thermostatically controlled and should not operate until the set temperature is reached.

C. OPERATING THE INSTRUMENT

1. Keyboard and Keyboard Enable-Disable Switch

a. To operate the keyboard, the Keyboard Enable-Disable Switch must be in the *Enable* position.

b. To enter day and time data or to change test modes, operate the keyboard as follows:

1) The first keyboard entry must be the function desired: Clock, *CLK;* Background, *BKG;* Calibration Factor, *CAL;* Alarm Set, *ALM;* or Test *TST.*

2) The next keyboard entry must be the day and time of day, test time or data.

For date and time, the entry must be in day-of-the-year and 24-hour time. The entry must be 7 numbers. Example: If the date and time were February 27 and 4:05 p.m., the entry would be 0581605; 058 would be the 58th day of the year and 1605 would be 4:05 p.m.

For data such as background, calibration or alarm set point, the entry must be in scientific notation. For example if 1.25 + 02 were entered this would be the number 1.25×10^2 or 125.

For test time, the entry must be a number from 1 to 9 for test mode or 0 for clearing of test mode. The number represents the time in minutes between data printouts. Example: 5 would be a printout each 5 minutes.

3) The last keyboard entry must be the enter, *ENT*, key. This completes the entry and the message printed will indicate what was entered into the instrument. See Section II, C, 2 for printout interpretation.

If the entry has been incorrectly entered, an error message will be printed and the data etc. must be re-entered.

c. Keyboard Entry Limits

1) Scientific Notation numbers must not be greater than 1.00 + 15 nor less than 1.00 - 15. A sign (+ or -) before the number should not be used.

2) Test time must be a single digit entry between 1 and 9. A 0 entry will clear the test mode.

3) Date and time entry must be seven digits. Date and time numbers greater than 365 for the day and 2359 for the time should not be entered. To compensate for the extra day in a leap year, the operator must perform an edit function. During a normal year, the clock would turn over to start day 1 at day 365 2359. The operator would then have to edit the clock to read back at day 365 and whatever time is appropriate to compensate for the extra day in the leap year.

d. To prevent keyboard operation, the Keyboard Enable-Disable switch should be in the *Disable* position.

2. Printout Interpretation

a. The start-up message is the first printout after power is applied to the instrument. The message printed should be similar to the following example:

RGM-2 V1.0 UNIT 13
START UP VALUES
BKG PCI/L = +2.50 - 01
CAL PCI/L = +2.00 + 00
ALM PCI/L = +3.00 + 01
EDIT START UP VALUES?
INPUT DAY AND TIME
001 0000 PWR ON
001 0000 AIR ON

The unit number should be the last two digits of the instrument serial number. The unit number may be changed if desired. Refer to Section IV, H.

The start-up values are nominal values. They may be edited by keyboard entry; see Section C, 1 above. The values are in pCi/L.

The numbers "001 0000" prior to *PWR* (Power) *ON* and *AIR ON* are day and time.

b. When entering clock data, a message similar to the following example should be printed:

Clock Set = 058/1605

This would indicate that the day of the year was 58 (or February 27) and the time was 1605 hours (or 4:05 p.m.).

c. At hourly intervals, a data printout message similar to the following example will be printed:

129 1200 + 2.86 + 00

This message indicates that on day 129, between the hours of 1100 and 1200, the average reading was 2.86 pCi/L.

d. At the end of the 24-hour day, a message similar to the following example will be printed:

133 0000 + 7.92 - 01
24 HR. AVG. UNIT 13
PCI/L = 7.41 - 01
BKG PCI/L = 2.50 - 01
CAL PCI/L = 2.00 + 00
ALM PCI/L = 3.00 + 01

The first line indicates that between 2300 of day 132 and 0000 of day 133 the average reading was 0.792 pCi/L.

The next two lines indicate that for RGM-2, Unit 13, the 24-hour average for day 132 was 0.741 pCi/L.

The next three lines indicate the background and calibration constants used for the computation of the readings and the alarm setting. In this example they are the same values as the start-up values.

e. If air flow is impeded due to a dirty filter or other obstruction, a message similar to the following example will be printed:

256 0931 AIR FAIL

This message indicates that on day 256 at 9:31 a.m. the air flow was less than the value considered normal.

When the air flow is again normal a message similar to the following example should be printed:

257 1603 AIR ON

This indicates that on day 257 at 4:03 p.m. the air flow through the system was normal.

f. If a power failure occurs, the printer will not automatically print a message. To conserve power drain on the internal batteries, the printer is inhibited during that time. After power has been restored, a message similar to the following example will be printed:

085 0915 PWR FAIL
085 1000 + 1.25 + 00
085 1007 PWR ON

The first line of the message indicates that a power failure occurred on day 85 at 9:15 a.m. The second line indicates an hourly average of 1.25 pCi/L at 10:00 a.m., and the third line indicates that power was restored at 10:07 a.m.

g. If the data values exceed the alarm set value, a message similar to the following example will be printed:

133 0602 ALARM

This message indicates that on day 133 at 9:02 a.m. the data value computed by the instrument was equal to or greater than the alarm set point.

When the computed data drops below 80 percent of the alarm set value, after an alarm message has been printed, a message similar to the following will be printed:

130 1418 ALM OFF
MAX PCI/L = 2.81 + 01

The first line indicates when 80 percent of the alarm set value was equal to the computed data value, and the second line indicates the maximum computed data value that occurred between *ALARM* and *ALARM OFF* conditions.

h. If a count rate too high for proper instrument response is detected, then a message similar to the following would be printed:

HIGH COUNT FAILURE

This message would be printed if the count rate detected by the instrument were in excess of approximately 1,000,000 cpm. This high count rate is many times greater than the normally expected rate.

i. If an error in keyboard entry is made, a message similar to the following should be printed:

ENTRY ERROR, RE-ENTER

The correct keyboard entry should be entered.

j. When a test command is entered on the keyboard, a message similar to the following example will be printed:

TEST MODE - MIN = 5

A number between 1 and 9 will be printed, depending on the one selected.

The test mode message will be similar to the following:

140 1258 + 6.00 + 00 T

The message indicates on day 140 at 1258 p.m., the average reading for the test period selected was 6 pCi/L and the *T* indicates test mode data.

When the test mode is cleared, a message similar to the following will be printed:

TEST MODE CLEAR

The message indicates a *TEST MODE 0* was entered on the keyboard.

D. OPERATING ENVIRONMENT

The RGM-2 is housed in a rugged, weather-tight cabinet for use in outdoor environments. If extreme conditions exist, additional equipment may be required.

The instrument is designed to be rain-proof; however, it is not designed to operate in high water or on a surface where water can splash into the ventilation ducts.

HEALTH ENVIRONMENT department

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P.O. Box 968, Santa Fe, New Mexico 87504-0968
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Steven Asher, Director

RADIATION PROTECTION BUREAU

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M E M O R A N D U M

TO: Jere Millard, Program Manager
Surveillance and Assessment Section

FROM: Felix R. Miera, Surveillance and Assessment Section

DATE: August 17, 1983

SUBJECT: Verification of Reported Rn-222 Measurements by Anaconda

---

Increased levels of Rn-222 have been reported in Anaconda's semi-annual environmental monitoring reports beginning in mid-1980. The monitoring data submitted from all four stations indicates an increase in Rn-222 concentrations from mid-1980 through 1982 of 3 to 4 times. Of particular concern are the reported increases for the two monitoring sites in the immediate vicinity of the housing area in Anaconda Village. Values were previously reported ranging from 0.2- to 0.68- pCi/l, and now are reported to range from 1.4- to 2.0- pCi/l.

Anaconda personnel attributed the increases to changes in instrumentation for radon monitoring, i.e., the apparent rise corresponded to the change over from the Tedlar bag collection system to the Eberline RGM-2 continuous radon monitor (see attached). Changes in measurement methodologies, and consequent changes, if any, in reported results, have been of concern to staff of the Bureau. To address this question, 74 measurements were taken with both the Tedlar and RMG-1 systems during 1978-1980, which also included samples at the Anaconda facility. Sampling covered a wide range of ambient radon concentrations (0.2- to 10- pCi/l). A statistical analysis of the data indicated that both sampling methodologies were identical.

Results obtained from permanent sampling locations at the facility were within the range, and in agreement with the Anaconda values reported prior to mid-1980. Mean values obtained at one station located in Anaconda Village were 0.57 pCi/l for the first year and 0.49 pCi/l the second year, with a total of 46 individual measurements. Pooled data from two stations (80 total measurements) located east of the tailings pile, downwind from the prevailing wind direction, averaged 1.06 pCi/l

for the first year and 0.87 pCi/l for the second year. Results of this study have undergone critical peer review and the final text is now being prepared.

Argonne National Laboratory also conducted a study of ambient Radon concentrations in the vicinity of the Anaconda Mill from 1977 to 1978. Both continuous monitors and 48 hour Tedlar bag collection systems were utilized with values reported (NUREG/CR-1133) which were comparable to those of our study.

Additionally, as of March 1 of this year, we have initiated an indoor/outdoor radon study to evaluate continuous passive radon monitoring equipment provided by the USEPA (PERM's and Track Etch detectors). For quality control purposes we are utilizing 48 hour Tedlar bag collections. Preliminary analysis of the limited data (covering 3 months to date) for our outdoor sampling locations in Anaconda Village at the nearest residence, show ambient radon levels to range up to 0.8 pCi/l, but average approximately 0.5 pCi/l.

To what are the increased Rn-222 values attributable? A change in management practices, e.g., maintenance of the tailings pile, might account for the increase. However, examination of the data, in particular the North Perimeter site which is located upwind from the tailings and mill facility and would be the least affected by such changes indicates that the increase in reported values is consistent for all stations.

Based on the above, it is recommended that the following be formally requested from Anaconda by the Bureau:

(1) Verification of Rn-222 values reported beginning in mid-year 1980 (A detailed summary of the data).

(2) Dates of calibration and procedures utilized in calibration of instrumentation utilized in the measurement of Rn-222 levels, more specifically as applied to the Eberline RGM-2 continuous radon monitor. Recommended calibration procedures are given in NRC Regulatory Guide 4.14, 6.2.

(3) The quality assurance procedures employed in the Anaconda facility environmental monitoring program to ensure that representative and reliable samples are being obtained.

FRM/mp

Attachment

March 21, 1983

Mr. Kelley Crossman CKC
Uranium Licensing Section
Radiation Protection Bureau
Environmental Improvement Division
P. O. Box 968
Santa Fe, New Mexico 87503

RE: RADON MEASUREMENT AT BLUEWATER MILL

Dear Mr. Crossman:

You recently expressed concern over the increased level of Rn-222 reported since the second semi-annual report of 1980. On July 17, 1980, measurement of Rn-222 was changed from a 48 hour Tedlar bag collection system to the Eberline RGM-2 continuous Radon Monitor. The increased levels of measured Rn-222 is a function of the change from a grab sample collection system to a continuous 24 hour, 365 day collection system.

Even though this system has resulted in a measured increase in Rn-222, it is still below the standard of 3×10^{-9} uCi/ml as stated in the Radiation Protection Regulations Part 4, Appendix A, Table II, Column I.

If you have any additional questions or need further clarification, pleas give us a call.

Sincerely,

Meade A. Stirland, Manager
Environment, Health & Safety

mls

file copy

HEALTH ENVIRONMENT Department

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DEPUTY SECRETARY

M E M O R A N D U M

TO: Gerald Stewart, Program Manager
Uranium Licensing Section

FROM: Jere Millard, Program Manager
Surveillance and Assessment Section

DATE: September 10, 1983

SUBJECT: Regulatory Control Action

As stated in your memo of July 8, 1983, you requested information showing real or potential NMRPR violations in order to take corrective actions. Your reticence to address these issues has been of concern. Although I think you have been fully aware of such information, the following are listed for your convenience.

1. Radon concentrations in excess of 2 pCi/l have been reported by Anaconda near the community of Anaconda Village. This anamolous result is 2-3 times higher than any of their previously reported values, thus raising questions concerning instrument calibration and/or operational causes. This situation has needed your attention since these values are clearly above the population limit of 1 pCi/l and represent an unusual change in reported Rn-222 concentrations. See attached memo from Mr. Felix Miera dated August 17, 1983.

2. Radon concentrations around the Homestake facility have also been very close or above the population limit of 1 pCi/l. Certainly, the radon report has documented these concentrations and a number of Homestake briefings which you attended have been given in which the borderline radon concentrations in nearby Broadview and Murray Acres were addressed. This situation needs to be addressed by the Uranium Licensing Section.

3. High Th-230 concentrations in air have been measured downwind of the Homestake pile. Although these concentrations do not exceed soluble MPC values as listed in NMRPR, they would result in substantial dose committments to human bone of exposed individuals. This situation also needs attention by the licensing section regardless of the fact that uranium mill tailings are presently exempted from 40 CFR 190. In addition, the burden of proof must rest with the licensee and not the Surveillance Section. Homestake's recent response to our inquiry concerning their measured Th-230 concentrations in air is totally inadequate and inappropriate. The licensing section, therefore, needs to obtain some measure of confidence in Homestake's data.

4. High Rn-222 levels have persisted in the Ambrosia Lake area. Despite our lack of regulatory control over mine emissions in this area, it is readily apparent that this exposed population should be notified of the existing levels. See the attached memo from Dr. Lapham of the Office of Epidemiology.

5. The external exposure levels from newly placed cover material at the Johnny M Mine Site are unacceptably high. Coordination with the Surveillance Section must be initiated for this and future reclamation actions to prevent this type of situation from reoccuring.

JM/mp

cc: Benito J. Garcia

Attachment

(4) the exposed population (which equals about 10 people at present have been informed of the high numbers. We have monitored indoors for some of these people. (anderson trucking - Grass to cooperate) and they show a radon conc approx equal to the outside conc, but a WL no. that is quite a bit less than predicted using 100% equil (the equil is about 50% or 20 in most bldgs. The highest value however, is in a restaurant using a 4-burner commercial gas stove.

STATE OF NEW MEXICO
ENVIRONMENT

DATE: May 11, 1983

TO: Jere Millard, Al Topp
Radiation Protection Bureau

FROM: Sandra C. Lapham
Office of Epidemiology

THRU: Jonathan Mann, Office of Epidemiolgy

SUBJECT: Ambient air radon measurements-Ambrosia Lake

The elevated ambient air radon levels you reported from the Am
Lake area may pose a health hazard to residents of this area.
people should be advised that the levels exceed safe standards
breathing this air may unnecessarily expose them to a higher r
developing lung cancer.

In addition, I feel that the EID should offer to monitor the
their dwellings, as radon daughters present in elevated concen
outdoors could be even more concentrated inside. We are oblig
measure these levels even through we have no specific regulati
taining to indoor radon.

If you would like assistance providing these people with writt
about the health effects of radon and radon daughters, I would
to provide this information.

HEALTH ENVIRONMENT department

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Steven Asher, Director

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M E M O R A N D U M

TO: Kelley Crossman
Uranium Licensing Section

FROM: JM Jere Millard, Program Manager
Surveillance and Assessment Section

DATE: October 20, 1983

SUBJECT: Radon Measurements at Anaconda

As you are aware from our informal discussions Rn-222 concentrations in air reported by Anaconda in their environmental monitoring reports suddenly increased during 1980 by a factor of 3 to 4. Such an increase may or may not be a result of some change in mill operations. Nevertheless, it is our responsibility to ascertain the cause(s) of such an increase regardless of the fact that the levels of Rn-222 in question are below any of our existing standards.

Anaconda's response to your initial inquiry was not sufficient (See attached memo to me from Felix Miera, August 1983). In this issue we are in the fortunate position of taking issue with industry's overly high reported values of Rn-222. However, the issue of reporting reliable results is rather troublesome.

I therefore request that you take action(s) to resolve this issue by following the recommendations in Mr. Miera's memo. Anaconda has hitorically done the best job in controlling Rn-222 and we would like to have them continue with this practice. This memo is for internal distribution only.

JM/mp

cc: Tom Buhl
Felix Miera
Ted Brough

March 21, 1983

Mr. Kelley Crossman
Uranium Licensing Section
Radiation Protection Bureau
Environmental Improvement Division
P. O. Box 968
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Even though this system has resulted in a measured increase in Rn-222, it is still below the standard of 3×10^{-9} uCi/ml as stated in the Radiation Protection Regulations Part 4, Appendix A, Table II, Column I.

If you have any additional questions or need further clarification, plea give us a call.

Sincerely,

Meade A. Stirland, Manager
Environment, Health & Safety

mls

HEALTH & ENVIRONMENT Department

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RADIATION PROTECTION BUREAU

M E M O R A N D U M

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Surveillance and Assessment Section

FROM: Felix R. Miera, Surveillance and Assessment Section

DATE: August 17, 1983

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for the first year and 0.87 pCi/l for the second year. Results of this study have undergone critical peer review and the final text is now being prepared.

Argonne National Laboratory also conducted a study of ambient Radon concentrations in the vicinity of the Anaconda Mill from 1977 to 1978. Both continuous monitors and 48 hour Tedlar bag collection systems were utilized with values reported (NUREG/CR-1133) which were comparable to those of our study.

Additionally, as of March 1 of this year, we have initiated an indoor/outdoor radon study to evaluate continuous passive radon monitoring equipment provided by the USEPA (PERM's and Track Etch detectors). For quality control purposes we are utilizing 48 hour Tedlar bag collections. Preliminary analysis of the limited data (covering 3 months to date) for our outdoor sampling locations in Anaconda Village at the nearest residence, show ambient radon levels to range up to 0.8 pCi/l, but average approximately 0.5 pCi/l.

To what are the increased Rn-222 values attributable? A change in management practices, e.g., maintenance of the tailings pile, might account for the increase. However, examination of the data, in particular the North Perimeter site which is located upwind from the tailings and mill facility and would be the least affected by such changes indicates that the increase in reported values is consistent for all stations.

Based on the above, it is recommended that the following be formally requested from Anaconda by the Bureau:

(1) Verification of Rn-222 values reported beginning in mid-year 1980 (A detailed summary of the data).

(2) Dates of calibration and procedures utilized in calibration of instrumentation utilized in the measurement of Rn-222 levels, more specifically as applied to the Eberline RGM-2 continuous radon monitor. Recommended calibration procedures are given in NRC Regulatory Guide 4.14, 6.2.

(3) The quality assurance procedures employed in the Anaconda facility environmental monitoring program to ensure that representative and reliable samples are being obtained.

FRM/mp

Attachment