



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

Att 1 Box

FCML:JB

Kennecott Mineral Corporation
ATTN: Bob Folsom
1515 Mineral Square
Salt Lake City, UT 84111

Gentlemen:

This refers to our recent telephone conversations concerning the suitability of your facilities located at Bingham Canyon Mine for unrestricted use.

As discussed, you will be submitting for our review a copy of the results of the radiation surveys you perform of the facility to ensure that no contamination exists. We have enclosed a copy of "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct Source or Special Nuclear Material" to help you in providing the necessary information. A report of the results of your surveys should be sent to my attention and to the attention of Glen D. Brown, Chief of our Region IV Office of Inspection and Enforcement, Technical Inspection Branch. Their mailing address is 611 Ryan Plaza Drive, Suite 1000, Arlington, Texas 76012. We will also send a memorandum to their office concerning your case.

Sincerely,

A handwritten signature in cursive script that reads "J. Bruce Carrico".

J. Bruce Carrico
Material Licensing Branch
Division of Fuel Cycle and
Material Safety

cc: G. Brown, Region IV

Enclosure: As stated

February 17, 1982

Mr. Paul Taylor
Kennecott Minerals
Environmental Engineering Section
Salt Lake City, Utah

Subject: Preliminary Radiological Survey of Verona Pilot Plant

Dear Mr. Taylor:

On February 12, 1982 I made a preliminary Radiological Survey of the Verona Pilot Plant used for Uranium Extraction from Copper Leach Solution. The results of this survey indicated the following:

1. Exterior surfaces of the eluant columns, associated piping, valves and support structures were found to be free of any contamination whatsoever.
2. Interior surfaces of the eluant column piping and valve system, where accessible, were also found to be clean; however, after identification of the appropriate lines carrying the "pregnant eluant" is made, a more extensive survey of that piping system is recommended.
3. The solvent extraction building which housed precipitated Uranium product was found to have several areas of localized contamination and contained several empty drums which exhibited surface contamination levels above the limits prescribed by "ANNEX A" (Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted use or Termination of Licenses for By Product, Source, or Special Nuclear Material U. S. Nuclear Regulatory Commission Division of Fuel Cycle and Material Safety, Washington, D. C. 20555, November 1976.)

I recommend that those areas and equipment so identified be decontaminated by applicable and convenient methods and re-surveyed prior to release for unrestricted use.

If I may be of further assistance, please do not hesitate to contact me at 364-1071.

Sincerely,

R. E. Berg

R. E. Berg
Radiation Protection Officer
Wyoming Mineral Corporation

REB:cc

cc: R. N. Platzke - B. Canyon

R. W. Conroy - Lakewood

License Condition 20 (a)

Description of Equipment to be Surveyed:

R. BERG WMC : KCC UREXIA Pilot Plant α-survey
SURVEY ON SURFACE of IX Columns (Three Levels), surrounding pipings, Interior
of PIPING whl accessible, surfaces of precip. CONES, valve accesss etc.

Initial Survey Location	Date	Total Counts	Count Time	CPM	BKG	CPM -BKG	1/ EFF	DPM / 100 cm ²
exterior surface	2-12-82		1MIN	3	1.5	1.5	2.40	4
of eluant columns				1				LMDL
(4 each) & assoc.				-				LMDL
pipng, Interior				1				LMDL
(where accessible)				1				LMDL
of eluant valve				1				"
& pipng, support				2				"
structures				2				"
				1				"

Decontamination Methods if Applicable (describe below):

NONE Required
Note: PAC-45 Alpha METER
Survey over eluant process system also
 Storage on Site (describe location): Indicated on
exterior surfaces to be free of
contamination.

Release from Site (to whom or where):

Survey Locations	Date	Total Counts	Count Time	CPM	BKG	CPM -BKG	1/ EFF	DPM / 100 cm ²
exterior surface			1MIN	2	1.5		2.41	LMDL
of IX columns				-				"
associated pipng				1				"
& VALVE accesss				1				"
				-				"
DATE Survey				-				"
2-12-82				2				"
				2				"
				1				"

Released by: _____ Date of Release: _____

1. Sample Area 100 cm² with 47 mm Filter Paper.
2. Count for 1 minute.
3. Smearable Limits: 1000 DPM/100 cm² α (Alpha)
4. Calibration Check:

Thorium 230 Standard I.D. No. S-1623
 1 min. Count DPM 2440
 Gross Counts (CPM) 1012.9

$\frac{CPM}{DPM} \times 100 = \% \text{ EFF}$ Efficiency = $\frac{.415}{1} \times 100 = 41.5\%$

MDL = minimum detectable limit ~ 1.5

February 26, 1982

Mr. Paul Taylor
Kennecott Minerals
Environmental Engineering Section
Salt Lake City, Utah

Subject: Continued Radiological Survey of the Verona Pilot Plant

Dear Mr. Taylor:

After having identified the process system from the engineering drawings of the Verona Pilot Plant you provided, it can be reasonably assumed that those areas of the process system which would potentially exhibit Alpha Contamination levels in excess of the limits specified in "Annex A" would consist of the following:

1. The four eluant columns where uranium is stripped off the ion exchange resin
2. The eluant holding tank
3. The associated piping system carrying off the "loaded eluant"
4. The solvent extraction building and associated plumbing.

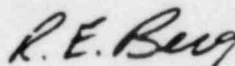
After making a preliminary radiological survey of the exterior surfaces of these plant systems (letter - R. Berg February 17, 1982) I made a follow up survey on February 19, 1982 which particularly concerned the interior accesses of the eluant columns and interior surface of the associated piping of the system carrying the "pregnant eluant". All appropriate influent and effluent pipe lines were disconnected on the four eluant columns which exposed interior surfaces and made them available for Alpha Swipe sampling. The following is a summary result of that survey:

1. Alpha Swipe Smear Survey of the interior of the top and bottoms of the four eluant columns were found to be free of any contamination.
2. The interior accesses of the disconnected "pregnant eluant" piping system were also found to be free of contamination, however, I would recommend that those lines in the eluant system be set aside after dismantling and re-surveyed prior to disposal.

3. The eluant acid makeup tank contained residual liquid approximately 2400 gallons which exhibited a uranium concentration (< 5 ppm) below the limit specified in Code of Federal Regulations Title 10: Part 20, Appendix B, Table II, Column II and is, therefore, suitable for release to a unrestricted area. This can best be accomplished by draining the tank into the near by run off stream which is collected and recirculated throughout the Kennecott Dump system anyway.
4. The loaded eluant holding tank also contained approximately 125 gallons of residual liquid which has a uranium concentration of 6.5 gm/lit. This solution is not suitable for discharge into the near by stream because it exceeds the limits specified in Title 10: Part 20, Appendix B Column II, Table II. I suggest that when dismantling begins this tank be loaded onto a flatbed truck and taken down to the WMC pumphouse which feeds our plant and dumped and rinsed into the feed sump. The appropriate paper work (i.e. NRC 741 Transfer Form) must accompany this transfer but since we are talking about less than 15 pounds of uranium this can be accomplished under a General License Transfer to the Bingham Canyon Site License SUA 1315, and should meet all regulatory requirements.
5. The solvent extraction building which contained several areas of localized contamination spill has now been decontaminated and should be re-surveyed to insure that it is now within the guidelines specified in "Annex A". The empty drums which exhibited surface contamination levels above the limits prescribed in "Annex A" have been transported to the WMC site where applicable decontamination will take place and the appropriate surveys made prior to release for unrestricted use.

If I may be of additional assistance, please do not hesitate to contact me at 364-1071.

Sincerely,



R. E. Berg
Radiation Protection Officer
Wyoming Mineral Corporation
Bingham Canyon Site

REB:cc

cc: R. N. Platzke - B. Canyon
B. W. Conroy - Lakewood

Verona Pilot

Location	Date	Total Counts	Count Time	CPM	BKG	CPM - BKG	1 / EFF	DPM / 100 cm ²
Top of Eluent burns, inside Dug Holes	2/14/82	11919	1 MIN	2	1.3	.7	2.42	LMOL
all columns, 1st 1/2 of 1st hole				4		2.7		6
all lines				2		.7		LMOL
on eluent				1		-		.
burn were				1		-		.
assembled				1		-		.
d-swipe				1		-		.
exposed				6		4.7		11
				-		-		LMOL
				2		.7		"

- SAMPLE AREA 100 cm² WITH 47 mm FILTER PAPER. Instrument - 40-14
- COUNT FOR 1 MINUTE. d Counter - MS-2
- SMEARABLE LIMITS 1000 DPM / 100 cm² α (ALPHA) AMISCA 14
- CALIBRATION CHECK THORIUM 230 STANDARD ID. NO. S-1623
1 MIN. COUNT DPM 2440
GROSS COUNTS (CPM) 1008.3

$\frac{CPM}{DPM} \times 100 = \% \text{ EFF}$ EFFICIENCY = $\frac{.413 \times 1}{EFF} = 2.42$

MDL \approx VT.3

- SAMPLE AREA 100 cm² WITH 47 mm FILTER PAPER.
- COUNT FOR 1 MINUTE
- SMEARABLE LIMITS 100 DPM / 100 cm² α (ALPHA)
- CALIBRATION CHECK THORIUM 230 STANDARD ID. NO. _____
1 MIN. COUNT DPM _____
GROSS COUNTS (CPM) _____

$\frac{CPM}{DPM} \times 100 = \% \text{ EFF}$ EFFICIENCY = $\frac{\%}{EFF} =$ _____

WYOMING MINERAL CORPORATION
BINGHAM CANYON EXTRACTION PLANT

Date	Total Counts	Count Time	CPM	BKG	CPM - BKG	EFF	DPM/100cm ²
SWIPER SURVEY ASSOCIATED							
2-19-62		1 MIN	1	1.3	-	2.42	2.42
Plant Lines,			-		-		"
Plant surfaces			-		-		"
In tunnel			1		-		"
Piping system			1		-		"
Plant short columns			2	0.7			"
Plant short tank			2	0.7			"
Leading to			-		-		"
Plant building			1		-		"
			3		1.7		4

Date	Total Counts	Count Time	CPM	BKG	CPM - BKG	EFF	DPM/100cm ²
2-19-62		1 MIN	-	1.3	-	2.42	2.42
			1				
			2				
			1				
			2				
			1				

- SAMPLE AREA 100 cm² WITH 47 mm FILTER PAPER.
- COUNT FOR 1 MINUTE
- SMEARABLE LIMITS
10000 DPM/100 cm² α (ALPHA)
- CALIBRATION CHECK
THORIUM 230 STANDARD ID. NO. Page 1
1 MIN COUNT DPM _____
GROSS COUNTS (CPM) _____

$\frac{CPM}{DPM} \times 100 = \% \text{ EFF}$ EFFICIENCY = $\frac{1}{\% \text{ EFF}} =$ _____

Date:

- SAMPLE AREA 100 cm² WITH 47 mm FILTER PAPER.
- COUNT FOR 1 MINUTE
- SMEARABLE LIMITS
100 DPM/100 cm² α (ALPHA)
- CALIBRATION CHECK
THORIUM 230 STANDARD ID. NO. _____
1 MIN COUNT DPM _____
GROSS COUNTS (CPM) _____

$\frac{CPM}{DPM} \times 100 = \% \text{ EFF}$ EFFICIENCY = $\frac{1}{\% \text{ EFF}} =$ _____

Date:

WYOMING MINERAL CORPORATION
BINGHAM CANYON EXTRACTION PLANT

	Date	Total Counts	Count Time	CPM	BKG	CPM - BKG	1 / EFF	DPM / 100cm ²
<i>Associated piping</i>								
<i>2-19</i>								
<i>1 MIN</i>				5	1.3	3.7	2.4	9
<i>Access, bottom</i>				1	-	-		LMOL
<i>elbow elbows</i>				2	.7	.7		LMOL
				2	.7	.7		"
				2	.7	.7		"
				3	1.7	1.7		4
				2	.7	.7		LMOL
				1	-	-		"
				-	-	-		"
				1	-	-		"

1 SAMPLE AREA 100 cm² WITH 47 mm FILTER PAPER.
 2 COUNT FOR 1 MINUTE
 3 SHEARABLE LIMITS 1000 DPM / 100 cm² α (ALPHA)
 4 CALIBRATION CHECK THORIUM 230 STANDARD ID. NO. _____
 1 MIN COUNT DPM _____
 GROSS COUNTS (CPM) _____

Refer to page 1

$\frac{CPM}{DPM} \times 100 = \% EFF$ EFFICIENCY = $\frac{1}{\% EFF} =$ _____

Date: _____

1 SAMPLE AREA 100 cm² WITH 47 mm FILTER PAPER.
 2 COUNT FOR 1 MINUTE
 3 SHEARABLE LIMITS 100 DPM / 100 cm² α (ALPHA)
 4 CALIBRATION CHECK THORIUM 230 STANDARD ID. NO. _____
 1 MIN COUNT DPM _____
 GROSS COUNTS (CPM) _____

$\frac{CPM}{DPM} \times 100 = \% EFF$ EFFICIENCY = $\frac{1}{\% EFF} =$ _____

Date: _____

July 8, 1982

Mr. Bob Folsom
Kennecott Mineral Corporation
Process Technology
1515 Mineral Way
Salt Lake City, Utah 84147

Dear Mr. Folsom:

RE: Continued Radiological Survey of Dismantled
Piping System - Verona Pilot Plant.

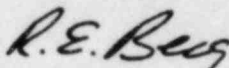
On June 29, 1982 I made an additional Radiological Survey of the disassembled piping system and equipment used in the Verona Pilot Plant, and also a post decontamination survey of SX building after decontamination methods were applied to those areas of localized spill. The disassembled pipe lengths were classed and stacked into separate piles and provided a basis for identifying those particular piping systems which would potentially exhibit alpha contamination levels in excess of limits prescribed in Annex A. The results of this survey indicate the following:

1. Exterior surfaces of all pipe sizes and type were extensively surveyed using a PAC-4S Alpha-Counter and Probe, and were found to have surface contamination levels of zero above background.
2. Interior surfaces and accesses of the three general piping types were surveyed using Alpha-Smear Survey techniques. All Alpha-Swipe results of these interior surfaces indicate Alpha Contamination levels from <minimum detectable limits to <10 dpm/100 cm². The limit prescribed in Annex A of removable Alpha Contamination levels is, as you know, 1000 dpm/100 cm².
3. Post decontamination survey results of the SX building which contained areas of localized product spill revealed Alpha Contamination levels again below the limits of those prescribed in Annex A.
4. A Gamma Radiation Survey of the general area, all equipment, piping systems etc. was also made using a Model E-120 Geiger Mueller Instrument and HP-190 Gamma Probe. Results of this survey indicate Gamma Radiation levels of zero above background in all cases.

Final disposition and appropriate decontamination of the fiberglass tank which contains approximately 100 gallons of pregnant solution with a U_3O_8 concentration of approximately 7.0 gm/liter is all that needs to be done prior to NRC's approval for abandonment. I recommend that disposal of this loaded eluant solution be expeditiously accomplished in the most practical manner and in accordance with 10 CFR 20.303.

If I may be of further assistance in this matter, please let me know.

Sincerely,



R. E. Berg
Radiation Protection Officer
Wyoming Mineral Corporation

REB:cc

cc: R. N. Platzke - B. Canyon
B. W. Conroy - Lakewood

EQUIPMENT CONTAMINATION SURVEY
AND RELEASE FORM

License Condition 20 (a)

VERONA PILOT
Plant Survey made
By R. Berg WMC &
L. Folsom. LMC

WYOMING MINERAL CORPORATION
BINGHAM CANYON EXTRACTION PLANT

Description of Equipment to be Surveyed: Small PVC Pipe (1" etc.) used in the Verona Pilot Plant - 1) Interior Surfaces & accesses of pipe 2) exterior surfaces of pipe

Initial Survey Location	Date	Total Counts	Count Time	CPM	BKG	CPM -BKG	1/ EFF	DPM/100 cm ²
	6-29-82		1 MIN		2.4		2.38	
Interior Surfaces		5		5		2.6		6
		1		1		-		LMDL
		3		3		0.6		"
		1		1		-		"
		2		2		-		"
		2		2		-		"

Decontamination Methods if Applicable (describe below):

2-counted survey of exterior surface
Result: zero above Bkg.

Storage on Site (describe location):

Release from Site (to whom or where): not for use in food or drug industry after disposition

Post Decontamination Survey Locations	Date	Total Counts	Count Time	CPM	BKG	CPM -BKG	1/ EFF	DPM/100 cm ²
Exterior Surfaces		0	1 MIN	-	2.4	-	2.38	LMDL
		1		1		-		"
		1		1		-		"
		3		3		-		"
		2		2		-		"
		1		1		-		"
		5		5		2.6		6

Released by: _____ Date of Release: _____

- Sample Area 100 cm² with 47 mm Filter Paper.
- Count for 1 minute.
- Smearable Limits: 1000 DPM/100 cm² α (Alpha)
- Calibration Check:

Thorium 230 Standard I.D. No. S-1623
1 min. Count DPM 1077.8/2440

Gross Counts (CPM) _____

$\frac{CPM}{DPM} \times 100 = \% \text{ EFF}$ Efficiency = $\frac{419}{1077.8} \times 100 = 38.9\%$

GAMMA SURVEY w/ MODEL E-120
Survey Method number result 100 dpc

Survey date 6-29-82
 BY R. Berg WMC &
 R. Folsom KMC

EQUIPMENT CONTAMINATION SURVEY
 AND RELEASE FORM

License Condition 20 (a)

Description of Equipment to be Surveyed: Disassembled (> 2") PVC piping used in the Yellow Pilot plant - Initial Surveys & accesses of large PVC pipe

Decontamination Methods if Applicable (describe below):
PAC-45 & Lintex / 10 Minute Survey Interval
Contamination levels of zero above
Background

Storage on Site (describe location):

Release from Site (to whom or where): Equipment for
abatement not to be used in food
or drug processing industry

Released by: _____ Date of Release: _____

1. Sample Area 100 cm² with 47 mm Filter Paper.
2. Count for 1 minute.
3. Smearable Limits: 1000 DPM/100 cm² α (Alpha)
4. Calibration Check:

Thorium 230 Standard I.D. No. 5-1623
 1 min. Count DPN 2440
 Gross Counts (CPM) 10328
 $\frac{\text{CPM}}{\text{DPN}} \times 100 = \% \text{ EFF}$ Efficiency = $\frac{10328}{2440} \times 100 = 419\%$ $\frac{1}{\text{EFF}} = 2.38$

Model E120 gamma scanner Result
 zero above BGC

Initial Survey Location	Date	Total Counts	Count Time	CPM	BKG	CPM -BKG	1 / EFF	DPM / 100 cm ²	Post Decontamination Survey Locations	
									Date	Total Counts
	6-29-82 MIN			3	2.4	-	2.38	LMDC		
Tardiox Surfaces & accesses of large (> 2" I.D.) PVC Pipe				3		-		LMDC		
				1		-		LMDC		
				0		-		LMDC		
				0		-		LMDC		
				1		-		LMDC		
				2		-		LMDC		
				2		-		LMDC		
			4		1.6		LMDC			

(Survey date 6-29-82)
by R. Berg WMC

Description of Equipment to be Surveyed: (1) Back steel & pressed fiber glass pipe 1.5 to 3 inch I.D. - This survey represents a smear contamination survey of the internal access and surfaces of this pipe type used for the decontamination of the reactor plant (describe below):

Initial Survey Location	Date	Total Counts	Count Time	CPM	BKG	CPM - BKG	1/ EFF	DPM / 100 cm ²
Internal access & internal surface of 1.5 to 3 inch Black pipe	6/29/82	2	1 MIN	2	2.4	-	2.38	< MDL
		5		5		2.6		6
		6		6		3.6		8
		3		3		0.6		< MDL
		2		2		-		< MDL
		2		2		-		< MDL
		5		5		2.6		6
		5		5		2.6		6
		1		1		-		< MDL

Survey Locations	Date	Total Counts	Count Time	CPM	BKG	CPM - BKG	1/ EFF	DPM / 100 cm ²
Back steel	2	1 MIN		2	2.4	-	2.38	< MDL
	3			3		0.6		< MDL
	4			4		1.6		MDL
	1			1		-		< MDL

Release from Site (to whom or where): Equipment
NOTED) NOT TO BE USED IN FOOD PROCESSING OR OTHER RELATED INDUSTRY AFTER DISMANT

Storage on Site (describe location): Levels of zero above background

Released by: _____ Date of Release: _____

- Sample Area 100 cm² with 47 mm Filter Paper.
- Count for 1 minute.
- Smearable Limits: 1000 DPM/100 cm² α (Alpha)
- Calibration Check: Thorium 230 Standard I.D. No. S-1623
1 min. Count DPN 2440
Gross Counts (CPM) 1022.8
CPM X 100 = % EFF Efficiency = .419 % $\frac{1}{\text{EFF}} = 2.38$
DPN

MODEL E/20 GAMMA SURVEY RESULT
ZOB above BGA

MINIMUM Detectable Limit MDL ≈ 12.4

Initial Survey & Decontamination
made by R. Berg & G. Cohen
of W.M.C.

License Condition 20 (a)

Description of Equipment to be Surveyed: Building Structure & floor w/l contained & processed uranium from the Vela Pilot Plant - all equipment used in processing had been moved and decontaminated during period of active ore license in 1972

Decontamination Methods if Applicable (describe below):
 (1) Collection of leached salts
 (2) Wash w/ 30 to 30% H₂SO₄
 (3) Wash w/ "RAPIAC Wash"
 (4) ~~Wash w/ H₂O~~ (location):
 (5) Removal of Plums & collect in spill
 To Wyoming Mineral Uranium Plant
 Release from Site (to whom or where): Facility

Initial Survey Location	Date	Total Counts	Count Time	CPM	BKG	CPM -BKG	1/ EFF	DPM/100 cm
DATE of Initial Survey:	2-17-82							
Instrument used	PP-15							
Initial Survey of this								
Indicated areas within the Building's								
IN excess of limits prescribed in "AVER A"								
This was due to localized contamination								
spills & storage of residual process streams								
(5.5 gallons @ 40% concentration of ~ 30ppm/L)								
In all areas								

Released by: _____ Date of Release: _____

1. Sample Area 100 cm² with 47 mm Filter Paper.
 2. Count for 1 minute.
 3. Smearable Limits: 1000 DPM/100 cm² α (Alpha)
 4. Calibration Check:
 Thorium 230 Standard I.D. No. S-1623
 1 min. Count DPM 2440
 Gross Counts (CPM) 1022.8
 $\frac{CPM}{DPM} \times 100 = \% \text{ EFF}$ Efficiency = $\frac{1022.8}{2440} = 41.9\%$ $\frac{1}{\% \text{ EFF}} = 2.38$

Post Decontamination Survey Location	Date	Total Counts	Count Time	CPM	BKG	CPM -BKG	1/ EFF	DPM/100 cm
Wall	6-29-82	3	1 MIN	3	2.4	0.6	2.38	~MDL
Floor		19		19		16.6		39
Center top of small lab bench		5		5		2.6		6
Floor		22		22		19.6		44
Floor		18		18		15.6		37
Wall		2		2		-		~MDL
Floor		32		32		29.6		70
Floor		8		8		5.6		13
Wall		1		1		-		~MDL

GAMMA SURVEY RESULT - ZERO above
6-29-82
Back Ground

July 15, 1982

Mr. Bob Folsom
Kennecott Mineral Corporation
Process Technology
1515 Mineral Way
Salt Lake City, Utah 84147

Dear Mr. Folsom:

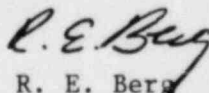
Enclosed are the results of the alpha swipe survey that I made on 7/13/82 of the interior surfaces and walls of the tank which contained residual uranium solution recovered from the Verona Plant.

The residual solution in the tank (approximately 100 gallons at a U_3O_8 concentration of 7.0 gm/liter) was disposed of into leach solution stream feeding your sump circulation system after it had been diluted to approximately 8 to 10 times the original volume. This was accomplished prior to transport of the tank to the "P" plant yard where final cleaning and rinsing took place. Disposition of the diluted uranium solution was in accordance with guidelines specified in 10 CFR 20.303.

I am sure that the radiological surveys over the past several months have reasonably identified any areas of possible contamination and that every effort to comply with the appropriate regulations prior to abandonment of a facility has been made.

Good luck with your project and I hope that communications with the NRC can be expeditiously handled.

Sincerely,



R. E. Berg
Radiation Protection Officer
Wyoming Mineral Corporation
Bingham Canyon Site

REB:cc

EQUIPMENT CONTAMINATION SURVEY
AND RELEASE FORM

License Condition 20 (a)

DATE OF SURVEY 7-13-82
VERONA PILOT PLANT
TANK SURVEY

WYOMING MINERAL CORPORATION
BINGHAM CANYON EXTRACTION PLANT

Description of Equipment to be Surveyed: 10' x 10' Fiberglass Tank w/ CONTAINED ~ 100 GAL of U₂O₈ @ 7.0 gm/lit - INTERIOR SURFACES of TANK, INSIDE WALLS etc. AFTER solution was disposed of IN ACCORDANCE WITH 10 CFR 20.303.

Initial Survey Location AFTER DISPOSITION of	Date	Total Counts	Count Time	CPM	BKG	CPM -BKG	1/ EFF	DPM/100 cm ²
Liquid -	7-14-82	1	1 MIN	1	2.1	-	2.40	LMOL
		3		3		-		LMOL
① Interior surfaces of Tank, Top walls etc.		7		7		4.9		11
		9		9		6.9		17
		6		6		3.9		9
		7		7		4.9		11
		4		4		1.9		4
		6		6		3.9		9
		2		2		-		LMOL

Decontamination Methods if Applicable (describe below):

Complete Rinsing of Heel Liquid PRIOR to Reuse.

Storage on Site (describe location):

Release from Site (to whom or where):

Not to be used IN DRUG or FOOD PROCESS INDUSTRY - SMC will Retain ownership of TANK

Post Decontamination Survey Locations	Date	Total Counts	Count Time	CPM	BKG	CPM -BKG	1/ EFF	DPM/100 cm ²

Released by: _____ Date of Release: _____

GAMMA SURVEY w/ GAMMA METER E-120 & Probe A.P. 170 Indicate GAMMA Radiation Levels of ZERO above Background

- Sample Area 100 cm² with 47 mm Filter Paper.
- Count for 1 minute.
- Smearable Limits: 1000 DPM/100 cm² α (Alpha)
- Calibration Check:

Thorium 230 Standard I.D. No. S-1623

1 min. Count DPM 2440

Gross Counts (CPM) 1016.3

$$\frac{\text{CPM}}{\text{DPM}} \times 100 = \% \text{ EFF Efficiency} = \frac{1016.3}{2440} \times 100 = 41.6\%$$