



ATLAS CORPORATION



Republic Plaza, 370 Seventeenth Street, Suite 3050
Denver, CO 80202
Telephone: (303) 629-2440 Fax: (303) 629-2445

RICHARD E. BLUBAUGH
Vice President Environmental
and Governmental Affairs

August 26, 1997

VIA FACSIMILE: (301) 415-5397
and VIA FEDERAL EXPRESS - PRIORITY

Mr. Joseph J. Holonich, Chief
High-Level Waste and Uranium Projects Branch
Division of Waste Management (MS T7 J9)
Office of Nuclear Material Safety and Safeguards
U.S. NUCLEAR REGULATORY COMMISSION
2 White Flint North
11545 Rockville Pike
Rockville, MD 20852

**Re: Atlas Corporation -- Source Material License SUA-917 / Docket No. 40-3453
Environmental Effluent and Monitoring Program -- First Half of 1997**

Dear Mr. Holonich:

In accordance with 10 CFR 40.65, our Source Material License SUA-917, and License Condition No. 48, this letter transmits five (5) copies of the *Environmental Effluent and Monitoring Program* pertaining to the first half of 1997. If additional information or clarification is needed regarding the enclosed, please contact Mr. Dale L. Edwards at (801) 259-5131.

Sincerely,

Richard E. Blubaugh

KL05/1



020035

9709020175 970630
PDR ADOCK 04003453
C PDR

Mr. Joseph J. Holonich, Chief
U.S. Nuclear Regulatory Commission
Atlas Corporation - Environmental
Effluent & Monitoring Program 1st Half 1997
August 26, 1997
Page Two

cc:	John E. Cook (NPS-Den)	Walt Dabney (NPS-Moab)
	Dale L. Edwards (Atlas)	Kenneth J. Havran (ERO-Wash,D.C.)
	Bart Leavitt (GCC-Moab)	Dan Kimball (WRD-NPS-Ft.Collins)
	William Lamb (BLM-SLC)	Milton K. Lammering (EPA-Den)
	Marcia Moore (BLM-Wash,D.C.)	Kerry Moss (NPS-Den)
	Robert M. Reed (ORNL)	Gabrielle Sigel (J&B)
	William J. Sinclair (DRC-DEQ-UT)	V. Rai (EFD-DOI-Wash,D.C.)
	Anthony J. Thompson (SPPT)	Earl Sires (GCA-Moab)
	Christine Turk (NPS-Den)	Robert D. Williams (FWL-SLC)
	Wes Wilson (EPA-Den)	Grant Ohland (HLA)

Atlas Corporation

Source Material License SUA-917 / Docket No. 40-3453

Environmental Effluent and Monitoring Program First Half of 1997

Continuous Air Samples

First Quarter 1997

Atlas Corporation - Moab, UT
Source Mat'l Lic. SUA-917 / Dkt.No. 40-3453
Environmental Effluent and Monitoring Program - FirstHalf 1997
L:\Jude\Moab\Reports\Envir1st-1997
August 26, 1997

Atlas Minerals
Moab Mill
Regulatory Affairs Department

Continuous Air Samples

1st Quarter 1997

Sample Number	S1
Date of Collection	01/01/97 - 03/31/97
Location of Sampler	Northeast of Mill
Name of Sample Collector	D.L. Edwards

Radionuclide	Standard Limits	Concentration $\mu\text{Ci/ml}$	Error Estimate	LLD $\mu\text{Ci/ml}$	% Limit	Name of Assayer
U-Nat	$9\text{E}^{-13} \mu\text{Ci/ml}$	9.8E^{-16}		1.1E^{-16}	1.1	Barringer
Th-230	$2\text{E}^{-14} \mu\text{Ci/ml}$	2.7E^{-16}	$\pm 4.2 \text{E}^{-16}$	6.4E^{-16}	1.4	Barringer
Ra-226	$9\text{E}^{-13} \mu\text{Ci/ml}$	0	$\pm 7.3 \text{E}^{-16}$	5.4E^{-16}	0	Barringer
Rn-222	$1\text{E}^{-10} \mu\text{Ci/ml}$	2.2E^{-9}		$.2 \text{E}^{-9}$	2200	Landauer

Atlas Minerals
Moab Mill
Regulatory Affairs Department

Continuous Air Samples

1st Quarter 1997

Sample Number	S2
Date of Collection	01/01/97 - 03/31/97
Location of Sampler	Mill Salvage Yard
Name of Sample Collector	D.L. Edwards

Radionuclide	Standard Limits	Concentration $\mu\text{Ci/ml}$	Error Estimate	LLD $\mu\text{Ci/ml}$	% Limit	Name of Assayer
U-Nat	$9\text{E}^{-14} \mu\text{Ci/ml}$	2.4E^{-13}		9.7E^{-14}	2.7	Barringer
Th-230	$2\text{E}^{-14} \mu\text{Ci/ml}$	1.3E^{-13}	$\pm 5.8 \text{E}^{-16}$	6.4E^{-16}	6.5	Barringer
Ra-226	$9\text{E}^{-13} \mu\text{Ci/ml}$	5.6E^{-16}	$\pm 7.9 \text{E}^{-16}$	4.8E^{-16}	.06	Barringer
Rn-222	$1\text{E}^{-10} \mu\text{Ci/ml}$	4.3E^{-9}		$.2 \text{E}^{-9}$	4300	Landauer

Atlas Minerals
Moab Mill
Regulatory Affairs Department

Continuous Air Samples

1st Quarter 1997

Sample Number	S3
Date of Collection	01/01/97 - 03/31/97
Location of Sampler	Northwest of Mill Tailings Pond
Name of Sample Collector	D.L. Edwards

Radionuclide	Standard Limits	Concentration $\mu\text{Ci/ml}$	Error Estimate	LLD $\mu\text{Ci/ml}$	% Limit	Name of Assayer
U-Nat	$9\text{E}^{-14} \mu\text{Ci/ml}$	1.3E^{-13}		1.5E^{-16}	1.4	Barringer
Th-230	$2\text{E}^{-14} \mu\text{Ci/ml}$	3.4E^{-16}	$\pm 4.8 \text{E}^{-16}$	9.7E^{-16}	1.7	Barringer
Ra-226	$9\text{E}^{-13} \mu\text{Ci/ml}$	0	$\pm 6.3 \text{E}^{-16}$	7.3E^{-16}	0	Barringer
Rn-222	$1\text{E}^{-10} \mu\text{Ci/ml}$	2.0E^{-9}		$.2 \text{E}^{-9}$	2000	Landauer

Atlas Minera/
Moab Mill
Regulatory Affairs Department

Continuous Air Samples

1st Quarter 1997

Sample Number	S4
Date of Collection	01/01/97 - 03/31/97
Location of Sampler	Arches Headquarters
Name of Sample Collector	D.L. Edwards

Radionuclide	Standard Limits	Concentration $\mu\text{Ci/ml}$	Error Estimate	LLD $\mu\text{Ci/ml}$	% Limit	Name of Assayer
U-Nat	$9\text{E}^{-14} \mu\text{Ci/ml}$	1.1E^{-15}		1.6E^{-16}	1.2	Barringer
Th-230	$2\text{E}^{-14} \mu\text{Ci/ml}$	0	$\pm 3.8 \text{E}^{-16}$	1.1E^{-15}	0	Barringer
Ra-226	$9\text{E}^{-15} \mu\text{Ci/ml}$	1.9E^{-16}	$\pm 7.8 \text{E}^{-16}$	8.0E^{-16}	.02	Barringer
Rn-222	$1\text{E}^{-10} \mu\text{Ci/ml}$	2.2E^{-9}		$.2 \text{E}^{-9}$	2200	Landauer

Atlas Minerals
Moab Mill
Regulatory Affairs Department

Continuous Air Samples

1st Quarter 1997

Sample Number	S6
Date of Collection	01/01/97 - 03/31/97
Location of Sampler	Approx. 2mi. South of Mill
Name of Sample Collector	D.L. Edwards

Radionuclide	Standard Limits	Concentration $\mu\text{Ci/ml}$	Error Estimate	LLD $\mu\text{Ci/ml}$	% Limit	Name of Assayer
U-Nat	$9\text{E}^{-14} \mu\text{Ci/ml}$	5.8E^{-16}		1.1E^{-16}	.6	Barringer
Th-230	$2\text{E}^{-13} \mu\text{Ci/ml}$	0	$\pm 4.1 \text{E}^{-16}$	7.1E^{-16}	0	Barringer
Ra-226	$9\text{E}^{-13} \mu\text{Ci/ml}$	3.7E^{-16}	$\pm 6.4 \text{E}^{-16}$	5.3E^{-16}	.04	Barringer
Rn-222	$1\text{E}^{-10} \mu\text{Ci/ml}$	2.5E^{-9}		$.2 \text{E}^{-9}$	2500	Landauer

Continuous Air Samples

Second Quarter 1997

Atlas Minerals
Moab Mill
Regulatory Affairs Department

Continuous Air Samples

2nd Quarter 1997

Sample Number	S1
Date of Collection	04/01/97 - 06/30/97
Location of Sampler	Northeast of Mill
Name of Sample Collector	D.L. Edwards

Radionuclide	Standard Limits	Concentration $\mu\text{Ci/ml}$	Error Estimate	LLD $\mu\text{Ci/ml}$	% Limit	Name of Assayer
U-Nat	$9\text{E}^{-14} \mu\text{Ci/ml}$	9.6E^{-16}		1.2E^{-16}	1.1	Barringer
Th-230	$2\text{E}^{-14} \mu\text{Ci/ml}$	2.1E^{-16}	$\pm 4.7 \text{E}^{-16}$	1.7E^{-16}	1.1	Barringer
Ra-226	$9\text{E}^{-13} \mu\text{Ci/ml}$	0	$\pm 3.8 \text{E}^{-13}$	5.7E^{-16}	0	Barringer
Rn-222	$1\text{E}^{-10} \mu\text{Ci/ml}$	2.7E^{-9}		$.2 \text{E}^{-9}$	2700	Landauer

Atlas Minerals
Moab Mill
Regulatory Affairs Department

Continuous Air Samples

2nd Quarter 1997

Sample Number	S2
Date of Collection	04/01/97 - 06/30/97
Location of Sampler	Mill Salvage Yard
Name of Sample Collector	D.L. Edwards

Radionuclide	Standard Limits	Concentration $\mu\text{Ci/ml}$	Error Estimate	LLD $\mu\text{Ci/ml}$	% Limit	Name of Assayer
U-Nat	$9\text{E}^{-14} \mu\text{Ci/ml}$	2.6E^{-13}		1.1E^{-16}	2.9	Barringer
Th-230	$2\text{E}^{-14} \mu\text{Ci/ml}$	1.2E^{-13}	$\pm 4.1 \text{E}^{-16}$	1.8E^{-16}	6.0	Barringer
Ra-226	$9\text{E}^{-13} \mu\text{Ci/ml}$	1.0E^{-13}	$\pm 8.7 \text{E}^{-16}$	5.3E^{-16}	.1	Barringer
Rn-222	$1\text{E}^{-10} \mu\text{Ci/ml}$	2.7E^{-9}		$.2 \text{E}^{-9}$	2700	Landauer

Atlas Minerals
Moab Mill
Regulatory Affairs Department

Continuous Air Samples

2nd Quarter 1997

Sample Number	S3
Date of Collection	04/01/97 - 06/30/97
Location of Sampler	Northwest of Mill Tailings Pond
Name of Sample Collector	D.L. Edwards

Radionuclide	Standard Limits	Concentration $\mu\text{Ci/ml}$	Error Estimate	LLD $\mu\text{Ci/ml}$	% Limit	Name of Assayer
U-Nat	$9\text{E}^{-14} \mu\text{Ci/ml}$	2.1E^{-13}		1.3E^{-16}	2.3	Barringer
Th-230	$2\text{E}^{-14} \mu\text{Ci/ml}$	8.7E^{-16}	$\pm 5.6 \text{E}^{-16}$	2.2E^{-16}	4.4	Barringer
Ra-226	$9\text{E}^{-13} \mu\text{Ci/ml}$	4.1E^{-16}	$\pm 6.9 \text{E}^{-16}$	6.5E^{-16}	.05	Barringer
Rn-222	$1\text{E}^{-10} \mu\text{Ci/ml}$	2.2E^{-9}		$.2 \text{E}^{-9}$	2200	Landauer

Atlas Minerals
Moab Mill
Regulatory Affairs Department

Continuous Air Samples

2nd Quarter 1997

Sample Number	S4
Date of Collection	04/01/97 - 06/30/97
Location of Sampler	Arches Headquarters
Name of Sample Collector	D.L. Edwards

Radionuclide	Standard Limits	Concentration $\mu\text{Ci/ml}$	Error Estimate	LLD $\mu\text{Ci/ml}$	% Limit	Name of Assayer
U-Nat	$9\text{E}^{-14} \mu\text{Ci/ml}$	1.4E^{-15}		1.5E^{-16}	1.6	Barringer
Th-230	$2\text{E}^{-14} \mu\text{Ci/ml}$	3.0E^{-16}	$\pm 5.5 \text{E}^{-16}$	2.5E^{-16}	1.5	Barringer
Ra-226	$9\text{E}^{-13} \mu\text{Ci/ml}$	1.8E^{-16}	$\pm 8.1 \text{E}^{-16}$	1.0E^{-13}	.02	Barringer
Rn-222	$1\text{E}^{-10} \mu\text{Ci/ml}$	1.8E^{-9}		$.2 \text{E}^{-9}$	1800	Landauer

Atlas Minerals
Moab Mill
Regulatory Affairs Department

Continuous Air Samples

2nd Quarter 1997

Sample Number	S6
Date of Collection	04/01/97 - 06/30/97
Location of Sampler	Approx. 2mi. South of Mill
Name of Sample Collector	D.L. Edwards

Radionuclide	Standard Limits	Concentration $\mu\text{Ci/ml}$	Error Estimate	LLD $\mu\text{Ci/ml}$	% Limit	Name of Assayer
U-Nat	$9\text{E}^{-14} \mu\text{Ci/ml}$	9.5E^{-16}		1.1E^{-16}	1.0	Barringer
Th-230	$2\text{E}^{-14} \mu\text{Ci/ml}$	0	$\pm 4.7 \text{E}^{-16}$	1.9E^{-16}	0	Barringer
Ra-226	$9\text{E}^{-13} \mu\text{Ci/ml}$	0	$\pm 4.5 \text{E}^{-16}$	5.6E^{-16}	0	Barringer
Rn-222	$1\text{E}^{-10} \mu\text{Ci/ml}$	$.8 \text{E}^{-9}$		$.2 \text{E}^{-9}$	800	Landauer

Environmental TLD Badge Results

First Quarter 1997

Atlas Minerals
Regulatory Affairs Department

Direct Radiation Measurements

Environmental Badges

1st Quarter 1997

Date: 01/01/97 to 03/31/97

	Location	Exposure Rate mr/Qr		Error Estimate mr/Qr
1.	Continuous Air Monitor #1	14	±	2.0
2.	Continuous Air Monitor #2	34	±	3.4
3.	Continuous Air Monitor #3	78	±	7.8
4.	Continuous Air Monitor #4	20	±	2.0
5.	Continuous Air Monitor #6	9	±	2.0
6.	Front Office	28	±	2.8

Environmental TLD Badge Results

Second Quarter 1997

Atlas Minerals
Regulatory Affairs Department

Direct Radiation Measurements

Environmental Badges

2nd Quarter 1997

Date: 04/01/97 to 06/30/97

	Location	Exposure Rate mr/Qr		Error Estimate mr/Qr
1.	Continuous Air Monitor #1	12	±	2.0
2.	Continuous Air Monitor #2	33	±	3.3
3.	Continuous Air Monitor #3	78	±	7.8
4.	Continuous Air Monitor #4	15	±	2.0
5.	Continuous Air Monitor #6	8	±	2.0
6.	Front Office	29	±	2.9

Colorado River Surface Water Results

First Quarter 1997

Atlas Minerals
Regulatory Affairs Department

River Water Reports

1st Quarter 1997

Name of Sampler	D.L. Edwards
Date & Time of Sample Collection	02/13/97
Location of Sample	Upstream from Mill
Sampling Method (Bailed-Pumped)	Bailed

Radionuclide	Limits $\mu\text{Ci/ml}$	Date of Analysis	Concentration $\mu\text{Ci/ml}$	Error Estimate	LLD $\mu\text{Ci/ml}$	% Limit	Name of Assayer
(D) U-Nat	3 E^{-3}	02/17-02/25	3.4 E^{-3}		$.6 \text{ E}^{-3}$	1.1	Barringer
(S) U-Nat	3 E^{-3}	02/17-02/25	2.2 E^{-3}		$.6 \text{ E}^{-3}$.7	Barringer
(D) Ra-226	6 E^{-4}	02/24-02/28	0	$\pm .2 \text{ E}^{-3}$	$.4 \text{ E}^{-3}$	0	Barringer
(S) Ra-226	6 E^{-4}	02/24-02/28	1.0 E^{-3}	$\pm .3 \text{ E}^{-3}$	$.4 \text{ E}^{-3}$	1.7	Barringer
(D) Th-230	1 E^{-3}	02/20-02/24	0	$\pm 1.1 \text{ E}^{-3}$	1 E^{-3}	0	Barringer
(S) Th-230	1 E^{-3}	02/20-02/24	0	$\pm .5 \text{ E}^{-3}$	1 E^{-3}	0	Barringer
(D) Pb-210	1 E^{-4}	02/20-02/28	$.9 \text{ E}^{-4}$	1.4 E^{-3}	2 E^{-3}	9.0	Barringer
(S) Pb-210	1 E^{-4}	02/20-02/28	1.1 E^{-3}	1.4 E^{-3}	2 E^{-3}	11.0	Barringer
(D) Po-210	4 E^{-4}	02/28-03/03	4 E^{-4}	1.9 E^{-3}	4 E^{-3}	1.0	Barringer
(S) Po-210	4 E^{-4}	02/28-03/03	1.0 E^{-3}	2.0 E^{-3}	4 E^{-3}	2.5	Barringer

Common Ion and Trace Metals

Non- Radionuclide	Date of Analysis	Concentration	MDL	Name of Assayer
As	02/20/97	1 ppb	1	Barringer
Cl	02/26/97	97 mg/l	4	Barringer
Cu	05/23/97	1 ppb	1 ppb	Barringer
NO_3	05/14/97	0.2 mg/l	0.1	Barringer
Se	02/20/97	3 ppb	1	Barringer
TDS	02/17/97	540 mg/l	10	Barringer
SO_4	02/26/97	228 mg/l	25	Barringer
Conductivity	02/13/97	950 umh	10	D.L. Edwards
PH	02/13/97	7.8 units	.1	D.L. Edwards

Atlas Minerals
Regulatory Affairs Department

River Water Reports

1st Quarter 1997

Name of Sampler	D.L. Edwards
Date & Time of Sample Collection	02/13/97
Location of Sample	Downstream from Mill
Sampling Method (Bailed-Pumped)	Bailed

Radionuclide	Limits $\mu\text{Ci/ml}$	Date of Analysis	Concentration $\mu\text{Ci/ml}$	Error Estimate	LLD $\mu\text{Ci/ml}$	% Limit	Name of Assayer
(D) U-Nat	3 E^{-3}	02/17-02/25	4.7 E^{-3}		$.6 \text{ E}^{-3}$	1.6	Barringer
(S) U-Nat	3 E^{-3}	02/17-02/24	1.2 E^{-3}		$.6 \text{ E}^{-3}$.4	Barringer
(D) Ra-226	6 E^{-4}	02/24-02/28	$.1 \text{ E}^{-3}$	$\pm .2 \text{ E}^{-5}$	$.5 \text{ E}^{-4}$.2	Barringer
(S) Ra-226	6 E^{-4}	02/24-02/28	1.2 E^{-3}	$\pm .3 \text{ E}^{-3}$	$.5 \text{ E}^{-3}$	2.0	Barringer
(D) Th-230	1 E^{-3}	02/20-02/24	0	$\pm .2 \text{ E}^{-3}$	$.6 \text{ E}^{-3}$	0	Barringer
(S) Th-230	1 E^{-3}	02/20-02/24	0	$\pm .3 \text{ E}^{-3}$	$.6 \text{ E}^{-3}$	0	Barringer
(D) Pb-210	1 E^{-4}	02/20-02/28	1.3 E^{-3}	1.5 E^{-3}	2 E^{-3}	13	Barringer
(S) Pb-210	1 E^{-4}	02/20-02/28	0.2 E^{-3}	1.5 E^{-3}	2 E^{-3}	2.0	Barringer
(D) Po-210	4 E^{-4}	02/28-03/03	0	$.3 \text{ E}^{-3}$	$.8 \text{ E}^{-3}$	0	Barringer
(S) Po-210	4 E^{-4}	02/28-03/03	$.5 \text{ E}^{-3}$	$.5 \text{ E}^{-3}$	$.8 \text{ E}^{-3}$	1.3	Barringer

Common Ion and Trace Metals

Non- Radionuclide	Date of Analysis	Concentration	MDL	Name of Assayer
As	02/20/97	1 ppb		Barringer
Cl	02/26/97	107 mg/l		Barringer
Cu	05/23/97	1 ppb	1 ppb	Barringer
NO ₃	05/14/97	0.2 mg/l	1 mg/l	Barringer
Se	02/20/97	2 ppb		Barringer
TDS	02/17/97	554 mg/l		Barringer
SO ₄	02/26/97	198 mg/l		Barringer
Conductivity	02/13/97	950 umh	10	D.L. Edwards
pH	02/13/97	7.8 units	.1	D.L. Edwards

Colorado River Surface Water Results Second Quarter 1997

Atlas Corporation -- Moab, UT
Source Mat'l. Lic. SUA-917 / Dkt No. 40-3453
Environmental Effluent and Monitoring Program - First Half 1997
L:\Jude\Moab\Reports\Envir\1st-1997
August 26, 1997

Atlas Minerals
Regulatory Affairs Department

River Water Reports

2nd Quarter 1997

Name of Sampler	D.L. Edwards
Date & Time of Sample Collection	05/15/97
Location of Sample	Downstream from Mill
Sampling Method (Bailed-Pumped)	Bailed

Radionuclide	Limit	Date of Analysis	Concentration μCi/ml	Error Estimate	LLD	Name of Assayer
U-Nat	3E-1 μCi/ml	06/10/-06/17	1.4 E-9 μCi/ml		.2 E-9 μCi/ml	Barringer

Common Ion and Trace Metals

	Date of Analysis	Concentration	MDL	Name of Assayer
Conductivity	05/14/97	450	10 umhos	D.L. Edwards

Atlas Minerals
Regulatory Affairs Department

River Water Reports

2nd Quarter 1997

Name of Sampler	D.L. Edwards
Date & Time of Sample Collection	05/14/97
Location of Sample	Upstream from Mill
Sampling Method (Bailed-Pumped)	Bailed

Radionuclide	Limit	Date of Analysis	Concentration $\mu\text{Ci/ml}$	Error Estimate	LLD	Name of Assayer
U-Nat	3E^{-9} $\mu\text{Ci/ml}$	06/10-06/17	1.4E^{-9} $\mu\text{Ci/ml}$		$.2\text{E}^{-9}$ $\mu\text{Ci/ml}$	Barringer

Common Ion and Trace Metals

	Date of Analysis	Concentration	MDL	Name of Assayer
Conductivity	05/14/97	450	10 umhos	D.L. Edwards

Groundwater Results

First Quarter 1997

Atlas Minerals
Regulatory Affairs Department

Monitor Well Reports

1st Quarter 1997

Well No.	AMM-1
Date & Time of Sample Collection	03/12/97
Location of Sample	Northeast Corner of the Boundary
Sampling Method (Bailed-Pumped)	Pumped
Amount of Water Removed Prior to Sampling	480 gal.
Name of Sampler	D.L. Edwards

Radionuclide	Standard	Date of Analysis	Concentration
Gross Alpha	33 pCi/L		
U-Nat	4 pCi/L		
Ra-226	5 pCi/L		
Ra-228	5 pCi/L		

Error Estimate	LLD	% Standard	Name of Assayer

Common Ion and Trace Metals

	Date of Analysis	Standards	Concentration mg/L	MDL	% Standard	Name of Assayer
Na	03/19/97		2160	10 mg/L		Barringer
Cl	03/25/97		3000	100 mg/L		Barringer
SO₄	03/25/97		1060	125 mg/L		Barringer
NO₃	03/13/97		1.8	0.1 mg/L		Barringer
Cr		0.08 mg/L				
Pb						
Mo		0.05 mg/L				
Ni		0.06 mg/L				
Ag						
V		0.04 mg/L				
Se		0.01 mg/L				
TDS	03/17/97		6560	10 mg/L		Barringer
pH	03/12/97		7.27	0.1 units		Barringer

Atlas Minerals
Regulatory Affairs Department

Monitor Well Reports

1st Quarter 1997

Well No.	AMM-2
Date & Time of Sample Collection	03/12/97
Location of Sample	Between Tailings Pond & River
Sampling Method (Bailed-Pumped)	Pumped
Amount of Water Removed Prior to Sampling	480 gal.
Name of Sampler	D.L. Edwards

Radionuclide	Standard	Date of Analysis	Concentration
Gross Alpha	33 pCi/L		
U-Nat	4 pCi/L		
Ra-226	5 pCi/L		
Ra-228	5 pCi/L		

Error Estimate	LLD	% Standard	Name of Assayer

Common Ion and Trace Metals

	Date of Analysis	Standards	Concentration mg/L	MDL	% Standard	Name of Assayer
Na	03/19/97		4050	10 mg/L		Barringer
Cl	03/25/97		2270	200 mg/L		Barringer
SO ₄	03/25/97		13200	2500 mg/L		Barringer
NO ₃	03/13/97		33	2.5 mg/L		Barringer
Cr		0.08 mg/L				
Pb						
Mo		0.05 mg/L				
Ni		0.06 mg/L				
Ag						
V		0.04 mg/L				
Se		0.01 mg/L				
TDS	03/17/97		17800	10 mg/L		Barringer
pH	03/12/97		7.36	0.1 units		Barringer

Atlas Minerals
Regulatory Affairs Department

Monitor Well Reports

1st Quarter 1997

Well No.	AMM-3
Date & Time of Sample Collection	03/12/97
Location of Sample	Between Tailings Pond and River
Sampling Method (Bailed-Pumped)	Pumped
Amount of Water Removed Prior to Sampling	480 gal.
Name of Sampler	D.L. Edwards

Radionuclide	Standard	Date of Analysis	Concentration
Gross Alpha	33 pCi/L		
U-Nat	4 pCi/L		
Ra-226	5 pCi/L		
Ra-228	5 pCi/L		

Error Estimate	LLD	% Standard	Name of Assayer

Common Ion and Trace Metals

	Date of Analysis	Standards	Concentration mg/L	MDL	% Standard	Name of Assayer
Na	03/19/97		3770	10 mg/L		Barringer
Cl	03/25/97		2350	200 mg/L		Barringer
SO ₄	03/25/97		9920	2500 mg/L		Barringer
NO ₃	03/13/97		U	0.1 mg/L		Barringer
Cr		0.08 mg/L				
Pb						
Mo		0.05 mg/L				
Ni		0.06 mg/L				
Ag						
V		0.04 mg/L				
Se		0.01 mg/L				
TDS	03/17/97		15100	10 mg/L		Barringer
pH	03/12/97		7.30	0.1 units		Barringer

Atlas Minerals
Regulatory Affairs Department

Monitor Well Reports

1st Quarter 1997

Well No.	ATP-2S
Date & Time of Sample Collection	03/12/97
Location of Sample	Between Tailings Pond and River
Sampling Method (Bailed-Pumped)	Pumped
Amount of Water Removed Prior to Sampling	120 gal.
Name of Sampler	D.L. Edwards

Radionuclide	Standard	Date of Analysis	Concentration
Gross Alpha	33 pCi/L		
U-Nat	4 pCi/L		
Ra-226	5 pCi/L		
Ra-228	5 pCi/L		

Error Estimate	LLD	% Standard	Name of Assayer

Common Ion and Trace Metals

	Date of Analysis	Standards	Concentration mg/L	MDL	% Standard	Name of Assayer
Na	03/19/97		3490	10 mg/L		Barringer
Cl	03/25/97		2210	200 mg/L		Barringer
SO₄	03/25/97		12600	2500 mg/L		Barringer
NO₃	03/19/97		9.5	1.0 mg/L		Barringer
Cr		0.08 mg/L				
Pb						
Mo		0.05 mg/L				
Ni		0.06 mg/L				
Ag						
V		0.04 mg/L				
Se		0.01 mg/L				
TDS	03/17/97		16900	10 mg/L		Barringer
pH	03/12/97		7.29	0.1 units		Barringer

Groundwater Results

Second Quarter 1997

Atlas Minerals
Regulatory Affairs Department

Monitor Well Reports

2nd Quarter 1997

Well No.	AMM-1
Date & Time of Sample Collection	05/14/97
Location of Sample	Northeast Corner of the Boundary
Sampling Method (Bailed-Pumped)	Pumped
Amount of Water Removed Prior to Sampling	480 gal.
Name of Sampler	D.L. Edwards

Radionuclide	Standard	Date of Analysis	Concentration		Error Estimate	LLD	% Standard	Name of Assayer
Gross Alpha	33 pCi/L	06/03-06/09	211	±	57	136	639	Barringer
U-Nat	4 pCi/L	06/10-06/17	4.0			13	100	Barringer
Ra-226	5 pCi/L	06/03-06/09	0.2	±	0.4	0.2	4.0	Barringer
Ra-228	5 pCi/L	06/03-06/09	0.6	±	1.6	3	12.0	Barringer

Common Ion and Trace Metals

	Date of Analysis	Standards	Concentration mg/L	MDL	% Standard	Name of Assayer
Na	06/06/97		2180	5 mg/L		Barringer
Cl	05/28/97		4040	100 mg/L		Barringer
SO₄	05/28/97		1030	125 mg/L		Barringer
NO₃	05/14/97		1.1	0.1 mg/L		Barringer
Cr	05/14/97	0.08 mg/L	U ppb	2 ppb	0	Barringer
Pb	05/23/97		U ppb	1 ppb		Barringer
Mo	05/23/97	0.05 mg/L	6 ppb	2 ppb	12	Barringer
Ni	05/23/97	0.06 mg/L	U ppb	10 ppb	0	Barringer
Ag	06/06/97		U	.05 mg/l		Barringer
V	06/06/97	0.04 mg/L	U	.05 mg/l	0	Barringer
Se	05/23/97	0.01 mg/L	16 ppb	1 ppb	160	Barringer
TDS	05/20/97		7820	10 mg/L		Barringer
pH	05/14/97		7.23	0.1 units		D.L. Edwards

Atlas Minerals
Regulatory Affairs Department

Monitor Well Reports

2nd Quarter 1997

Well No.	AMM-2
Date & Time of Sample Collection	05/14/97
Location of Sample	Between Tailings Pond and River
Sampling Method (Bailed-Pumped)	Pumped
Amount of Water Removed Prior to Sampling	480 gal.
Name of Sampler	D.L. Edwards

Radionuclide	Standard	Date of Analysis	Concentration		Error Estimate	LLD	% Standard	Name of Assayer
Gross Alpha	33 pCi/L	06/03-06/09	2790	±	360	460	8455	Barringer
U-Nat	4 pCi/L	06/10-06/17	1896			13	47400	Barringer
Ra-226	5 pCi/L	06/03-06/09	0.4	±	0.	0.2	8.0	Barringer
Ra-228	5 pCi/L	06/03-06/09	4.5	±	1.8	3	90	Barringer

Common Ion and Trace Metals

	Date of Analysis	Standards	Concentration mg/L	MDL	% Standard	Name of Assayer
Na	06/06/97		4220	5 mg/L		Barringer
Cl	05/28/97		3080	100 mg/L		Barringer
SO₄	05/28/97		12100	500 mg/L		Barringer
NO₃	05/14/97		37.4	2.5 mg/L		Barringer
Cr	05/23/97	0.08 mg/L	8	2 ppb	10	Barringer
Pb	05/23/97		0	1 ppb		Barringer
Mo	05/23/97	0.05 mg/L	1500	2 ppb	3000	Barringer
Ni	05/23/97	0.06 mg/L	21	4 ppb	35	Barringer
Ag	06/06/97		U	.05 mg/l		Barringer
V	06/06/97	0.04 mg/L	U	.05 mg/l	0	Barringer
Se	05/23/97	0.01 mg/L	34	1 ppb	340	Barringer
TDS	05/20/97		19000	10 mg/L		Barringer
pH	05/14/97		7.33	0.1 units		Barringer

Atlas Minerals
Regulatory Affairs Department

Monitor Well Reports

2nd Quarter 1997

Well No.	AMM-3
Date & Time of Sample Collection	05/14/97
Location of Sample	Between Tailings Pond and River
Sampling Method (Bailed-Pumped)	Pumped
Amount of Water Removed Prior to Sampling	480 gal.
Name of Sampler	D.L. Edwards

Radionuclide	Standard	Date of Analysis	Concentration
Gross Alpha	33 pCi/L	06/03-06/09	2570
U-Nat	4 pCi/L	06/10-06/17	2437
Ra-226	5 pCi/L	06/03-06/09	0.4
Ra-228	5 pCi/L	06/03-06/09	0

Error Estimate	LLD	% Standard	Name of Assayer
± 300	350	7788	Barringer
	13	60925	Barringer
± 0.4	.2	8.0	Barringer
± 1.8	3	0	Barringer

Common Ion and Trace Metals

	Date of Analysis	Standards	Concentration mg/L	MDL	% Standard	Name of Assayer
Na	06/06/97		4410	5 mg/L		Barringer
Cl	05/28/97		3720	200 mg/L		Barringer
SO₄	05/28/97		8140	1000 mg/L		Barringer
NO₃	05/14/97		U	0.1 mg/L		Barringer
Cr	05/23/97	0.08 mg/L	7	2 ppb	8.8	Barringer
Pb	05/23/97		U	1 ppb		Barringer
Mo	05/23/97	0.05 mg/L	1200	2 ppb	2400	Barringer
Ni	05/23/97	0.06 mg/L	U	10 ppb	0	Barringer
Ag	06/06/97		U	.05 mg/l		Barringer
V	06/06/97	0.04 mg/L	U	.05 mg/l		Barringer
Se	05/23/97	0.01 mg/L	4	1 ppb	40	Barringer
TDS	05/20/97		18100	10 mg/L		Barringer
PH	05/14/97		7.25	0.1 units		Barringer

Atlas Minerals
Regulatory Affairs Department

Monitor Well Reports

2nd Quarter 1997

Well No.	ATP-2S
Date & Time of Sample Collection	05/14/97
Location of Sample	Between Tailings Pond and River
Sampling Method (Bailed-Pumped)	Pumped
Amount of Water Removed Prior to Sampling	120 gal.
Name of Sampler	D.L. Edwards

Radionuclide	Standard	Date of Analysis	Concentration		Error Estimate	LLD	% Standard	Name of Assayer
Gross Alpha	33 pCi/L	06/06-06/09	3090	±	320	340	9364	Barringer
U-Nat	4 pCi/L	06/10-06/17	2099			13	52475	Barringer
Ra-226	5 pCi/L	06/03-06/09	0.4	±	0.3	.2	8.0	Barringer
Ra-228	5 pCi/L	06/03-06/09	5.9	±	1.8	3	118	Barringer

Common Ion and Trace Metals

	Date of Analysis	Standards	Concentration mg/L	MDL	% Standard	Name of Assayer
Na	06/06/97		3410	5 mg/l		Barringer
Cl	05/28/97		3060	200 mg/l		Barringer
SO ₄	05/28/97		9300	1000 mg/l		Barringer
NO ₃	05/14/97		10	1.0 mg/l		Barringer
Cr	05/23/97	0.08 mg/L	7	2 ppb	8.8	Barringer
Pb	05/23/97		U	1 ppb		Barringer
Mo	05/23/97	0.05 mg/L	1000	2 ppb	2000	Barringer
Ni	05/23/97	0.06 mg/L	22	4 ppb	36.7	Barringer
Ag	06/06/97		U	.05 mg/l		Barringer
V	06/06/97	0.04 mg/L	U	.05 mg/l	0	Barringer
Se	05/23/97	0.01 mg/L	27	1 ppb	270	Barringer
TDS	05/20/97		17100	10 mg/L		Barringer
FH	05/14/97		7.30	0.1 units		Barringer