IUC INTERNATIONAL URANIUM (USA) CORPORATION

Independence Plaza, Suite 950 • 1050 Seventeenth Street • Denver, CO 80265 • 303 628 7798 (main) • 303 389 4125 (fax)

October 7, 1998

40-9048

Mr. Bob Giurgevich
District III Supervisor
Wyoming Department of Environmental Quality
Land Quality Division – District III
1043 Coffeen Avenue, Suite D
Sheridan, Wyoming 82801

Re: 1997-98 Annual Report for the Reno Creek Project, Permit No. 479

Dear Mr. Giurgevich:

Enclosed is the Annual Report from International Uranium (USA) Corporation ("IUSA") for the Reno Creek Project, Permit No. 479, for the period from October 16, 1997 to October 15, 1998. Please note that the enclosed report conforms to the standard LQD format used in the report for 1996-1997.

Should you have any questions regarding the report or bond estimate, please do not hesitate to call me at (303) 389-4131

Sincerely yours,

Michelle R. Rehmann
Environmental Manager

NL05

MBM/tay
Enclosures

cc/enc:
David C. Frydenlund
Harold Lefevre, U.S. NRC
Mark B. Mathisen
Donn M. Pillmore
Terry V. Wetz
cc:
Earl E. Hoellen
Harold R. Roberts

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INTERNATIONAL URANIUM (USA) CORPORATION
1997-98 ANNUAL REPORT TO
WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY
LAND QUALITY DIVISION
RENO CREEK PROJECT
PERMIT NO. 479

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1. **Name, Address, and Phone Number of Permittee:**

International Uranium (USA) Corporation
1050 Seventeenth Street, Suite 950
Denver, Colorado 80265
(303) 628-7798

Attention: Donn M. Pillmore, Project Manager
Michelle R. Rehmann, Environmental Manager
Mark B. Mathisen, Project Geologist/Geophysicist

2. **Permit Number:** 479

3. **Reporting Date:** From October 16, 1997 to October 15, 1998

4. **Location of the Operation (Section, Township, Range, and County):**

Legal land description of the permit area complete with acreage tabulation. Exact metes and bounds should be listed for the permit area only if the area or a portion thereof is irregular (Attachment 1).

A portion of Sections 21, 22, 27, 28, T43N, R73W as described by the following legal subdivisions:

SW corner Section 22 Township 43N Range 73W is P.O.B.
thence Due North 554' to PT1
thence Due East 443' to PT2
thence South 36^0 5' East 218' to PT3
thence Due South 450' to PT4
thence Due East 397' to PT5
thence Due South 652' to PT6
thence Due West 280' to PT7
thence Due South 403' to PT8
thence Due West 198' to PT9
thence Due North 403' to PT10
thence Due West 505' to PT11
thence Due South 90' to PT12

thence Due West 483' to PT13
thence Due North 342' to PT14
thence N 32^0 15' E 560' to PT15
thence Due East 205' to P.O.B.

Section	#22	6.773
	#27	16.909
	#28	8.068
Total		31.750 Acres

Contingency Reservoir and Road

PT8 from above is P.O.B.

thence Due South 274.45' to PT1
thence Due East 478.05' to PT2
thence Due South 650.00' to PT3
thence Due West 530.00' to PT4
thence Due North 650.00' to PT5
thence Due East 31.95' to PT6
thence Due North 274.45' to PT7
thence Due East 20.00' to P.O.B.

Section	#27	7.57 Acres

5. **On a separate sheet, please attach a brief description of your operation during the past reporting period including:**

- **all activities conducted, including the number of wells installed, quantity of recovery fluid injected, total quantity of recovery fluid recovered (per each wellfield);**

No operational wells for injection, recovery, or monitoring were installed during the past reporting period within the current boundaries of Permit No. 479.

In support of The Permit to Mine Amendment Application, which is currently in preparation and review, one geotechnical investigation program was initiated in June 1998. The purpose of the drilling program was to determine the infiltration coefficient properties of the soils within the proposed land infiltration area (SW ¼ Section 33, T43N, R73W). This area is not within the boundaries of Permit No. 479. This program consisted of drilling, 8 5.25-inch rotary boreholes to depths of 80-200

feet, and 17 14-inch diameter auger boreholes to a nominal depth of six feet below the ground surface. None of the holes intersected groundwater, and all of the holes were abandoned using Plug-gel and/or ¾-inch bentonite chips from bottom to surface, in accordance with or exceeding the specifications for drill hole sealing contained in Chapter XV of the Land Quality Division's Rules and Regulations.

- **all restoration and reclamation work accomplished;**

No restoration or reclamation work was conducted during the past reporting period.

- **the extent to which predictions made in the original license or any previous reports have been fulfilled and any deviation therefrom;**

The schedule of reclamation of surface facilities has not changed during the past reporting period. The existing building located in Section 28, T43N, R73W continues to be maintained as a warehouse for an indefinite period of time.

On May 9, 1997, the NRC issued a license amendment which approved the transfer of the Source Material Possession-Only License (POL) SUA-1558 from Energy Fuels Nuclear, Incorporated to IUC. The purpose of the license was to allow IUC to store organic resin on site prior to approval of the full commercial mining permit and source material license. On March 9, 1998, having met the applicable requirements of 10 CFR Parts 20, 40.42, 40.51 and 40.61, the NRC terminated IUC's Reno Creek property POL by License Amendment No. 5. License Amendment No. 5, License Condition No. 4 of Source Material POL SUA-1558 was amended to read as follows:

4. Terminated

Compliance with applicable requirements indicates that: (1) the source material has been properly disposed, and the (2) a radiation survey has been performed demonstrating that the premises are suitable for unrestricted release.

The Reno Creek property POL SUA-1558 having been terminated, IUC was relieved of the requirement, imposed under its former license, of submitting any further bond estimates relative to resin storage or disposal of the resin at the Reno Creek property.

- **a revised schedule of operations and reclamation, an estimate of the number of acres to be affected and the volume of groundwater to be affected during the next (one year) report period;**

The Permit to Mine Amendment Application is currently in preparation and review. As permitting allows, IUC may commence construction under the amended permit in 1999. Estimates of the acreage to be disturbed and the affected groundwater volume will be provided in the Amendment Application and the Wellfield Data Package.

- **if appropriate and illustrative, a map which identifies the major features of the existing field operation (e.g. Buildings, well sites, disturbed lands, topsoil stockpiles, access roads, evaporation ponds, etc.) A quality, hand-drawn map is acceptable;**

The attached map entitled "Permit #479 1994-1995 Annual Report" shows the permit boundary, the plant building, the access road and the Mine Unit I monitor well network. This map also shows an area to the south of the current permit area, which has not been disturbed or occupied in the past.

All disturbances associated with the original Rocky Mountain Energy Corporation (RMEC) operations have been adequately reclaimed with the following exceptions:

- Regional Monitor Wells
- Demolition of RMEC process building (warehouse).
- Reclamation of the building site itself. The building site, the surrounding graveled area for vehicle access, and the access road to the building total approximately 1.5 acres as detailed in Attachment 2, 1997-98 Annual Report Reno Creek Bond Estimate.
- Reclamation of the access road within the permit area. The road outside the permit area is maintained as an access to a producing oil well operated by Butte Resources.
- Removal of barbed wire fence surrounding the permit area.

- **updated potentiometric surface map(s) for all aquifers that are affected or may be affected by the mining operation.**

Initial water level data and baseline water quality samples have been collected for Mine Unit I, and potentiometric surface maps of aquifers that may be affected by the

mining operations will be prepared for and included in the Wellfield Data Package.

6. **On a separate sheet, please describe all monitoring activities required by the existing License, including:**

- **a map and description (location, parameter(s), extent) of all excursions which occurred during the report period;**

Not applicable

- **completion details for all monitor wells installed or repaired during the report period;**

No monitoring wells were installed or repaired within the current boundaries of Permit No. 479, and no monitoring activities are required under existing Permit No. 479. Completion details for the Mine Unit I monitor wells was provided in the 1995 Annual Report.

The monitoring well network installed in Mine Unit I during early 1995 is not within the boundaries of Permit No. 479; however, IUC has included the cost of reclaiming these wells in the current bond estimate until such time as a new bond is established for commercial operation at Reno Creek. IUC has completed the initial baseline groundwater sampling of these wells as part of the planned Wellfield Data Package for Mine Unit I.

- **the date, place, time and method of sampling;**

The initial four rounds of baseline sampling for Mine Unit I were completed in December, 1995. IUC prepared and implemented a Field Sampling Plan (FSP) in accordance with the guidelines recommended by the Wyoming Department of Environmental Quality-Land Quality Division for collecting groundwater samples to characterize baseline water quality (Guideline 8, WDEQ 12/90). All groundwater samples were collected from pumped wells. Samples were preserved and filtered, as appropriate, for the analyses being performed.

- **the personnel responsible for the sampling;**

The water quality baseline sampling program is under the direction Michelle R. Rehmann, International Uranium (USA) Corporation Environmental Manager. Field activities are under the direct supervision Mark B. Mathisen, International Uranium (USA) Corporation Project Geologist.

- **the date(s) on which the analysis was performed and the personnel (firm) who performed the analysis;**

Analyses were performed by Energy Laboratories in Casper, Wyoming within the holding times for the parameters listed in WDEQ-LQD Guideline 8. Laboratory analyses were directed by Roger Garling, Branch Manager at Energy Laboratories in Wyoming. Analytical reports for all four rounds of baseline sampling have been received from the Energy Laboratories and will be incorporated in the planned Wellfield Data Package.

- **the analytical techniques utilized;**

Analytical techniques used by Energy Laboratories conform to those specified in Guideline 8 and will be reported in the analytical data package.

- **analytical results in an organized format.**

The analytical results from the baseline water quality sampling program will be incorporated in the Wellfield Data Package for Mine Unit I.

If groundwater restoration program is underway, the Annual Report should contain supporting data sufficient to demonstrate restoration in accordance with the standards of the approved license.

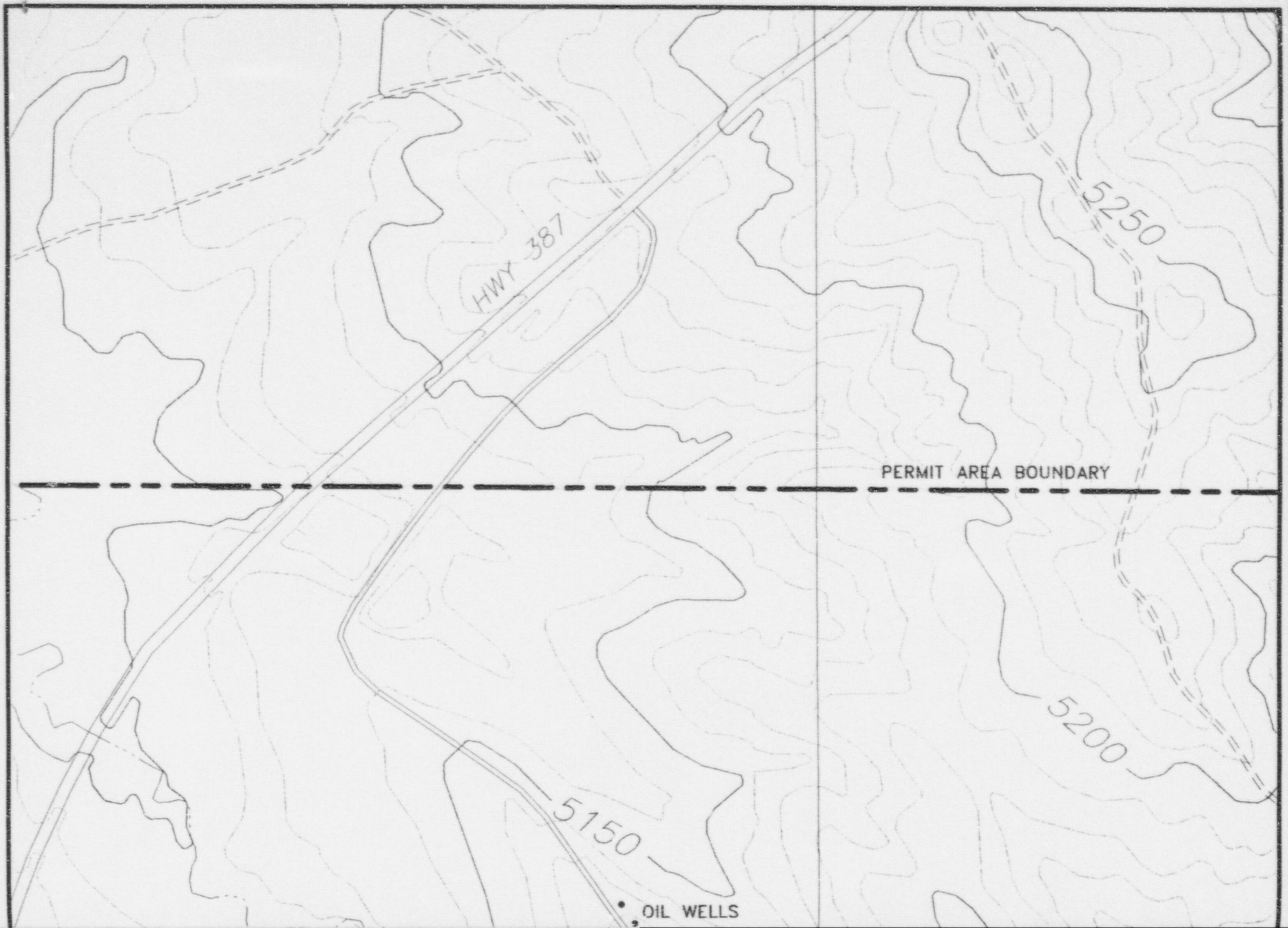
As no mining has taken place, no groundwater restoration activities are required or have been undertaken on the Reno Creek permit area.

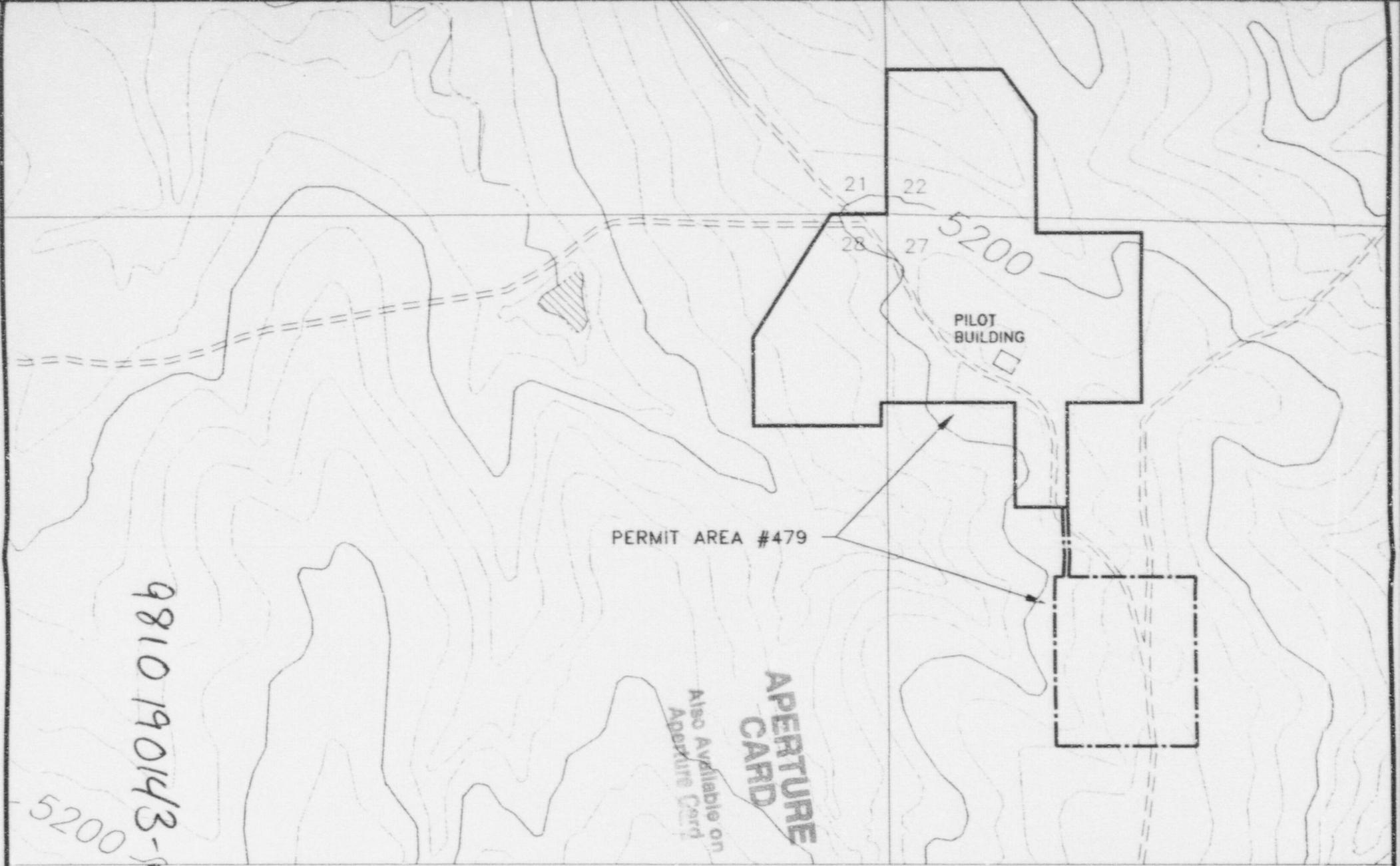
7. **On a separate sheet, furnish a current Reclamation Performance Bond estimate which itemizes the cost of complete reclamation including removal of all facilities, proper plugging and reclamation of all wells, backfilling, grading ,retopsoiling and seeding all disturbed lands, including all access roads.**

IUC has filed an Amendment Application for a Permit to Mine with the WDEQ and a Source Material License application with the NRC. Both portions of the application are currently under review and/or revision. The total bond related to the construction and operation of the commercial project will be evaluated in conjunction with the Application reviews. Subject to completion of reviews of permit and license application, IUC may commence project construction in 1999.

IUC has prepared an updated estimate of the bond for this Annual Report. The bond as of October 1997 for the Reno Creek project was $73,300.00, for demolition of the existing building, and site reclamation. As in previous bond estimates for the Reno Creek project, IUC has also included the cost of plugging all regional monitor wells and Mine Unit I monitor wells. This detail estimate is included as Attachments 2, 3, 4 and 5.

The reclamation bond proposed by IUC in this year's Annual Report is $74,774.53.


HWY 387
5250
PERMIT AREA BOUNDARY
5200
5150
OIL WELLS



INTERNATIONAL URANIUM (USA) CORP.

Project: RENO CREEK ISL PROJECT

REVISIONS: Date | By

County: Campbell | State: Wyoming

Location: T 43 N, R 73 W

AREA OF PERMIT #479
1997-1998 ANNUAL REPORT

Scale: 1"=500' | Date: Oct. 11, 1994 | upc-479

Author: | Draftsman: L L Sledd

ATTACHMENT 2
1997-98 ANNUAL REPORT
RENO CREEK BOND ESTIMATE
PERMIT NO. 479

WAREHOUSE AND PILOT SITE RECLAMATION

I. Building Demolition

A. Demolition	No. Bldgs.	Total Vol. (ft3)	$/ft3	$ Cost	Ref
1. Warehouse Building	1	51200	0.18	9216.00	1
2. Shop Building	1	6000	0.18	1080.00	
			Subtotal	10296.00	

B. Transportation Costs	No. Bldgs	Total Mat. Vol. (yd3)	$/yd3	$ Cost	Ref
1. Warehouse Building	1	107.6	9.00	968.00	3 & 4
2. Shop Building	1	20.5	9.00	184.25	
			Subtotal	1152.25	

C. Disposal Costs	Total Vol. (yd3)	$/yd3	$ Cost	Ref
	128.0	25.00	3200.69	3

II. Foundation Demolition

A. Demolition	Total Vol. (yd3)	$/yd3	$ Cost	Ref
1. Warehouse Building	74.1	75.00	5555.56	1 & 4
2. Shop Building	11.6	75.00	868.06	
		Subtotal	6423.61	

III. Site Reclamation

A. Gravel Removal	Area (ft2)	Total Vol. (yd3)	$/yd3	$ Cost	Ref
1. Warehouse Area	28300	524.1	0.60	314.44	2 & 5
2. Access Road	18600	344.4	0.60	206.67	
			Subtotal	521.11	

B. Disposal Costs	Vol. (yd3)	Rate (yd3/hr)	Total Hrs.	$/Hr	$ Cost	Ref
1. Dozer Costs						
- Excavate Trench (C44 x 150' x 15')	1666.7	102.5	16.26	95.00	1544.72	6, 7 & 8
- Disposal of Rubble (Foundations+Gravel)	954.2	183.3	5.20	95.00	494.43	

	- Backfill Trench (20' x 150' x 15')	1666.7	183.3	9.09	95.00	863.64	
					Subtotal	2902.78	
C. Ripping and Grading				Acres	$/Acre	$ Cost	Ref
	1. Ripping Costs			2.00	70.23	140.46	2 & 9
	2. Grading Costs			2.00	100.00	200.00	
					Subtotal	340.46	
D. Revegetation				Acre	$/Acre	$ Cost	Ref
	1. Seed Cost			2.00	173.55	347.10	2
	2. Seeding Costs			2.00	40.00	80.00	
					Subtotal	427.10	
E. Fence Removal				Length	$/ft.	$ Cost	Ref
	1. Removal Cost			5417	1.16	6283.72	10
F. Miscellaneous						$ Cost	Ref
	1. Remove Cattle Guard					100.00	2

WELL ABANDONMENT AND RECLAMATION

IV. Well Plugging

		No.	No. Wells	Hrs/Well	Total Hrs.	$/Hr.	$ Cost	Ref.
A. Labor	1. Foreman	1	95	1.00	95.00	20.00	1900.00	11
	2. Laborer	2	95	1.00	190.00	15.00	2850.00	
						Subtotal	4750.00	
B. Equipment		No.	No. Wells	Hrs/Well	Total Hrs.	$/Hr.	$ Cost	Ref.
	1. Backhoe	1	95	0.25	23.75	27.50	653.13	12
C. Materials				Well Type	No. Wells	$ Material/Well	$ Cost	Ref.
				M-Well	30	377.96	11338.80	13
				MO-Well	8	264.23	2113.84	
				MP-Well	10	267.60	2676.00	

MU-Well	8	248.15	1985.20	
RI-Well (Ore SS)	32	188.89	6044.48	
RI-Well (Up Aquifer)	7	124.22	869.54	
		Subtotal	25027.86	

V. Well Site Revegetation

	No. Wells	$/well site	$ Cost	Ref.
1. Ground Preparation Cost	95	15.00	1425.00	14

	Total Ft. (ft2)	Acre	$/Acre	$ Cost	Ref.
2. Seed Cost	85500	3.47	173.55	601.92	2
3. Seeding Costs	85500	1.96	40.00	78.51	
			Subtotal	680.43	

SUMMARY

I. Building Demolition			14648.94
II. Foundation Demolition			6423.61
III. Site Reclamation			10575.17
IV. Well Plugging			30430.99
V. Well Site Revegetation			2105.43
		SUBTOTAL	**64184.15**
VI. Contingencies			
Project Design & Document Preparation	2.00%		1283.68
Contractor Profit, Overhead, Mobilization	10.00%		6418.41
Liability Insurance	1.00%		641.84
Post-Reclamation Monitoring Costs	0.50%		320.92
Administration, Accounting, Costs	1.00%		641.84
Unknowns	2.00%		1283.68
		Contingencies Subtotal	**10590.38**
		GRAND TOTAL BOND	**74774.53**

ATTACHMENT 3
1997-1998 ANNUAL REPORT - GENERAL CALCULATION PARAMETERS
RENO CREEK BOND ESTIMATE
Permit No. 479

I. Labor Cost Parameters

Personnel	$/Hour	$/Year
Supervisor		60000
Operator		30000
Foremen	20.00	
Laborer	18.00	
Electrician	30.00	
RST	30.00	
Welder	36.00	

II. Equipment Rental Cost & Rate Parameters - Means 1997 & Meigaard Construction

Item	$/Month	$/Week	$/Day	Hrs/Day	$/Hr.	Rate Excavate (C.Y./hr)	Rate Backfill (C.Y./hr)
Cementer				12.00	60.00		
Drill Rig					115.00		
1/2 C.Y. Backhoe		1100.00	220.00	8.00	27.50	25.00	53.00
D7 (200 H.P.) Dozer			1140.00	12.00	95.00	102.50	183.33

III. Local (Gillette Landfill) Haul Cost Parameters

Haul Distance (miles)	Haul Rate ($/mile)	Vol./Load (yd3)	$/yd3	Disposal Cost
90.0	3.00	20	9.00	25.00

IV. White Mesa Haul Cost Parameters

Haul Distance (miles)	Haul Rate ($/mile)	Vol./Load (ton)	$/ton	Disposal Cost	Disposal Cost ($/ft3)
750.0	2.80	25	86.40	40.00	15.00

V. Construction Cost Parameters - Means 1997 & WDEQ 1995

Item	$/ft3	$/ft2	$/ft	$/yd3	$/Acre
Building Demolition (small)	0.18				
Site Demolition (concrete)				75.00	
Site Demolition (fencing)			1.16		
Gravel Removal				6.00	
Ripping Cost					70.23
Grading Cost					100.00
Replace Topsoil				0.50	
Seed Cost					173.56
Seeding Cost					46.00

WELLFIELD ABANDONMENT AND RECLAMATION CALCULATIONS

VI. Well Site Parameters

Number Sites	Site Disturbance	Area (ft2)	Total Feet (ft2)	Total Acres	Soil Prep ($/well)
96	30	900	86600	1.98	18.00

VII. Well Plugging Cost Parameters

A. Inventory

Number Prod. Wells	Number Inj. Wells	Number M-Wells	Number MO-Wells	Number MP-Wells	Number MU-Wells	No. RI Wells (Ore SS)	No. RI Wells (Up Aquifer)	Total Wells
0	0	30	8	10	8	32	7	96
Avg. Prod. Well Depth	**Avg. Inj. Well Depth**	**Avg. M-Well Depth**	**Avg. MO-Well Depth**	**Avg. MP-Well Depth**	**Avg. MU-Well Depth**	**Avg. RI-Well Depth (Ore SS)**	**Avg. RI-Well Depth (Up Aquifer)**	**Avg. Well Depth (ft)**
0	0	410	314	405	219	314	148	348

B. Material Cost Parameters - Stacked Completion Technique

$/Prod. Well	$/Inj. Well	$/M-Well	$/MO-Well	$/MP-Well	$/MU-Well	$/RI-Well (Ore SS)	$/RI-Well (Up Aquifer)
0.00	0.00	377.96	284.23	267.60	248.15	188.59	134.22

WAREHOUSE RECLAMATION CALCULATIONS

VIII. Warehouse Resin Disposal

Volume (ft3)	Lbs/ft3	Total Lbs.	Total Tons
3316	53	175864	87.9

IX. Warehouse Building Demolition Cost Parameters

A. Warehouse Buildings

Number Buildings	Length (ft)	Width (ft)	Height (ft)	Wall Thick (ft)	Area Bldg. (ft2)	Vol. Bldg. (ft3)	Material Vol. Bldg. (ft3)	Swell (%)	Mat'l Vol. Bldg. + Swell (ft3)	Mat'l Vol. Bldg. + Swell (yd3)
1.0	80.0	40.0	16.0	0.33	3200	51200	2323.2	0.25	2904.0	107.6

B. Shop Building:

Number Buildings	Length (ft)	Width (ft)	Height (ft)	Wall Thick (ft)	Area Bldg. (ft2)	Vol. Bldg. (ft3)	Material Vol. Bldg. (ft3)	Swell (%)	Mat'l Vol. Bldg. + Swell (ft3)	Mat'l Vol. Bldg. + Swell (yd3)
1.0	25.0	20.0	12.0	0.33	500	6000	442.2	0.25	552.8	20.5

X. Warehouse Foundation Demolition Cost Parameters

A. Demolition Cost Parameters

i. Warehouse Building:

Number Foundation	Length (ft)	Width (ft)	Height (ft)	Vol. Foundation	Total Vol. (yd3)	Swell (%)	Total Vol.
1.0	80.0	40.0	0.5	1600.0	59.3	0.25	74.07

ii. Shop Building:

Number Foundation	Length (ft)	Width (ft)	Height (ft)	Vol. Foundation	Total Vol. (yd3)	Swell (%)	Total Vol.
1.0	25.0	20.0	0.5	250.0	9.3	0.25	11.57

B. Haul & Disposal Cost Parameters

i. Warehouse Building:

Lbs/ft3	% Contaminated	Lbs. Uncontaminated	Tons Uncontaminated	Vol. (yd3) Uncontaminated	Lbs. Contaminated	Tons Contaminated	Vol. (yd3) Contaminated
150.00	0.00	340000.0	170.0	98.36	0.0	0.0	0.0

ii. Shop Building:

Lbs/ft3	% Contaminated	Lbs. Uncontaminated	Tons Uncontaminated	Vol. (yd3) Uncontaminated	Lbs. Contaminated	Tons Contaminated	Vol. (yd3) Contaminated
150	0	37500.0	18.8	9.26	0.0	0.0	0.0

XI. Warehoee and Pilot Site Fencing Cost Parameters

Length (ft)
5417

XII. Warehouse and Pilot Site Reclamation

A. Gravel Removal

i. Warehouse (Pilot Plant) Area - (Warehouse & Shop Building Area)

Length (ft)	Width (ft)	Depth (ft)	Area (ft2)	Total Vol. (ft3)	Total Vol. (yd3)	Total Acres	Topsoil Depth (ft)	Topsoil Vol. (ft3)	Topsoil Vol. (yd3)
179	179	0.50	28300	14150	524	0.65	0.50	14150	524

ii. Access Road

Total Road Length (ft)	Depth (ft)	Total Disturbed Width (ft)	Area (ft2)	Total Vol. (ft3)	Total Vol. (yd3)	Total Acres	Topsoil Depth (ft)	Topsoil Vol. (ft3)	Topsoil Vol. (yd3)
1550	0.50	12	18600	9300	344	0.43	0.50	9300	344

ATTACHMENT 4

1997-98 ANNUAL REPORT - WELL ABANDONMENT COSTS

RENO CREEK BOND ESTIMATE

PERMIT NO. 479

Well Type:	M-Well	MO-Well	MP-Well	MU-Well	RI-Well (Ore SS)	RI-Well (Upper Aquifer)
Borehole - Well Parameters						
Depth Parameter(s):						
Average Total Depth to Bottom Well (feet)	410	314	405	219	314	148
Average Depth to Bottom of Casing (feet)	341	272	365	178	274	128
Average Depth to Top of Screen/J-collar (feet)	331	262	355	168	264	118
Borehole/Well Diameter(s):						
Borehole diameter (inchs)	7.875	7.875	7.875	7.875	7.875	7.875
Underreamed borehole diameter (inchs)	10.5	10.5	10.5	10.5	7.875	7.875
Casing Diameter(s):						
O.D. of well casing (inchs)	5.563	5.563	5.563	5.563	5.563	5.563
I.D. of well casing (inchs)	5.00	5.00	5.00	5.00	5.00	5.00
O.D. of screen (inchs)	3.500	3.500	3.500	3.500	5.563	5.563
I.D. of screen (inchs)	2.89	2.89	2.89	2.89	5.00	5.00
Borehole/Casing Volume(s):						
Volume of well casing (ft3/ft)	0.136	0.136	0.136	0.136	0.136	0.136
Volume of screen (ft3/ft)	0.046	0.046	0.046	0.046	0.136	0.136
Volume of underream borehole (ft3/ft)	0.602	0.602	0.602	0.602	0.338	0.338

Well Type	M-Well	MO-Well	MP-Well	MU-Well	RI-Well (Ore SS)	RI-Well (Upper Aquifer)
Stacked Completion Technique Parameters						
Completion Zone Plug:						
Seal Material	Bentonite Chips	Bentonite Chips	Bentonite Chips	Bentonite Chips	Bentonite Chips	Bentonite Chips
Underreamed Zone Plug Thickness (ft/well)	69	42	40	41	40	20
Volume of Completion Zone Plug (ft3/well)	41.54	25.28	24.08	24.68	13.52	6.76
Bottom Plug Thickness (ft/well)	50	50	50	50	50	50
Volume of Bottom Plug (ft3/well)	6.80	6.80	6.80	6.80	6.80	6.80
Formation Loss Seal Material (%)	0.0	0.0	0.0	0.0	0.0	0.0
Shrinkage Loss Seal Material (%)	0.0	0.0	0.0	0.0	0.0	0.0
Total Volume Completion Zone Plug (ft3/well)	48.34	32.08	30.88	31.48	20.32	13.56
Well Casing Seal:						
Fill Material	Unscreened Wash Sand	Unscreened Wash Sand	Unscreened Wash Sand	Unscreened Wash Sand	Unscreened Wash Sand	Unscreened Wash Sand
Fill Material Thickness (ft/well)	261	192	285	98	194	48
Volume of Fill Material (ft3/well)	35.50	26.11	38.76	13.33	26.38	6.53
Formation Loss Seal Material (%)	0.0	0.0	0.0	0.0	0.0	0.0

ATTACHMENT 4

1997-98 ANNUAL REPORT - WELL ABANDONMENT COSTS

RENO CREEK BOND ESTIMATE

PERMIT NO. 479

Well Type	M-Well	MO-Well	MP-Well	MU-Well	RI-Well (Ore SS)	RI-Well (Upper Aquifer)
Shrinkage Loss Seal Material (%)	0.0	0.0	0.0	0.0	0.0	0.0
Total Volume Fill Material (ft3/well)	35.50	26.11	38.76	13.33	26.38	6.53
Surface Zone Plug:						
Seal Material	Bentonite Chips	Bentonite Chips	Bentonite Chips	Bentonite Chips	Bentonite Chips	Bentonite Chips
Surface Plug Thickness (ft/well)	30	30	30	30	30	30
Volume of Surface Zone Plug (ft3/well)	4.08	4.08	4.08	4.08	4.08	4.08
Formation Loss Seal Material (%)	0.0	0.0	0.0	0.0	0.0	0.0
Shrinkage Loss Seal Material (%)	0.0	0.0	0.0	0.0	0.0	0.0
Total Volume Surface Zone Plug (ft3/well)	4.08	4.08	4.08	4.08	4.08	4.08
Seal Material Cost ($/well)						
Quantity (pounds/bag)	50	50	50	50	50	50
Water (gallons/bag)	0.0	0.0	0.0	0.0	0.0	0.0
Density	67.3 lbs/ft3	67.3 lbs/ft3	67.3 lbs/ft3	67.3 lbs/ft3	67.3 lbs/ft3	67.3 lbs/ft3
Material Yield (ft3)	0.65	0.65	0.65	0.65	0.65	0.65
Cost of Seal Material ($/bag)	4.20	4.20	4.20	4.20	4.20	4.20
Cost of Seal Material ($/ft3)	6.46	6.46	6.46	6.46	6.46	6.46
Total Volume of Seal Materal (ft3/well)	52.42	36.16	34.96	35.56	24.40	17.64
Bags Seal Needed	81.0	56.0	54.0	55.0	38.0	27.0
Total Cost Seal Material	340.20	235.20	226.80	231.00	159.60	113.40

ATTACHMENT 4

1997-98 ANNUAL REPORT - WELL ABANDONMENT COSTS

RENO CREEK BOND ESTIMATE

PERMIT NO. 479

Well Type	M-Well	MO-Well	MP-Well	MU-Well	RI-Well (Ore SS)	RI-Well (Upper Aquifer)
Fill Material Cost ($/well)						
Bulk Fill Material Cost:						
Material Yield (tons/27ft3)	1.50	1.50	1.50	1.50	1.50	1.50
Cost of Filler Material ($/ton)	11.00	11.00	11.00	11.00	11.00	11.00
Cost Filler Material ($/ft3)	0.61	0.61	0.61	0.61	0.61	0.61
Delivery Charge of Fill Material:						
Hour Rate ($/hour)	55.0	55.0	55.0	55.0	55.0	55.0
Haul Capacity (ft3)	432.0	432.0	432.0	432.0	432.0	432.0
Distance to Project Sight (miles)	50.0	50.0	50.0	50.0	50.0	50.0
Delivery Time (hours)	2.5	2.5	2.5	2.5	2.5	2.5
Total Delivery Charge ($/ft3)	0.32	0.32	0.32	0.32	0.32	0.32
Total Cost Fill Material ($/ft3)	0.93	0.93	0.93	0.93	0.93	0.93
Total Volume of Fill Materal (ft3/well)	35.50	26.11	38.76	13.33	26.38	6.53
Total Cost Fill Material ($/well)	33.01	24.28	36.05	12.40	24.54	6.07
Capping Material Cost ($/Well)						
Cement Plug w/ wire ring ($/well)	3.75	3.75	3.75	3.75	3.75	3.75
Aluminum tag/plate ($/well)	1.00	1.00	1.00	1.00	1.00	1.00
Total Materials ($/well)	4.75	4.75	4.75	4.75	4.75	4.75
Backhoe Cost ($/Well)						
Backhoe Time (hours/well)	0.25	0.25	0.25	0.25	0.25	0.25
Backhoe ($/hour)	25.00	25.00	25.00	25.00	25.00	25.00
Total Cost of Backhoe ($/well)	6.25	6.25	6.25	6.25	6.25	6.25

ATTACHMENT 4

1997-98 ANNUAL REPORT - WELL ABANDONMENT COSTS

RENO CREEK BOND ESTIMATE

PERMIT NO. 479

Well Type	M-Well	MO-Well	MP-Well	MU-Well	RI-Well (Ore SS)	RI-Well (Upper Aquifer)
Labor Cost ($/Well)						
Man Hours (hours/well)	1.00	1.00	1.00	1.00	1.00	1.00
Foreman (man/well)	1	1	1	1	1	1
Foreman ($/hour)	20.00	20.00	20.00	20.00	20.00	20.00
Laborer (man/well)	2	2	2	2	2	2
Laborer($/hour)	15.00	15.00	15.00	15.00	15.00	15.00
Total Labor ($/well)	50.00	50.00	50.00	50.00	50.00	50.00
Subtotal Stacked Completion Technique ($/Well)	$434.21	$320.48	$323.85	$304.40	$245.14	$180.47
Number of Wells	30	8	10	8	32	7
GRAND TOTAL	$13,026.34	$2,563.87	$3,238.47	$2,435.16	$7,844.39	$1,263.30

ATTACHMENT 5
1997-98 ANNUAL REPORT - REFERENCES
RENO CREEK BOND ESTIMATE
Permit No. 479

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1. Means 1997
   - Small Building Demolition (020-600-604-0500) = $0.18/ft^3
   - Site Demolition (020-550-554-5100) = $75.00/yd^3

2. Annual Inspection Report, Reno Creek ISL Project, Permit No. 479, October 28, 1997, Glenn Mooney
   - Assume 1 yd^3 = 1 ton, and use 20 yd^3 haulers.
   - Distance to Campbell County Landfill is about 60 miles at $3.00/mile = 60 x $3.00/mile = $180. With 20 ton payload, cost per hauled ton: $180/20 = $9.00/ton with a disposal cost of $25/yd^3.
   - Gravel Removal $0.60/yd^3.
   - Seed Cost $173.55/Acre is calculated per Glenn Mooney, LQD District 3 (10/28/97) 1997 Annual Inspection Report.
   - Seeding Cost $40/Acre per LQD Guideline No. 12 (10/28/97).
   - Ripping Cost $70.23/Acre is per Glenn Mooney, LQD District 3 (10/28/97) 1997 Annual Inspection Report.
   - Grading Cost $100.00/Acre is per Glenn Mooney, LQD District 3 (10/28/97) 1997 Annual Inspection Report.
   - Assume $100.00 to remove cattle guard; no culvert exists at entrance.

3. Volume of pilot plant buildings with 4" thick walls as follows:
   - Pilot Plant - (2 each @ 80' x16' x .33') + (2 each @ 40' x 16' x .33') + (80' x 40' x.33') = 2323 ft^3; with 25% swell, total volume = 2903.75 ft^3/bldg. = 107.55 yd^3.

   - Shop - (2 each @ 25' x12' x .33') + (1 each @ 20' x 12' x .33') + (25' x 20' x.33') = 442 ft^3 with 25% swell, total volume = 552.50 ft^3/bldg. = 20.46 yd^3.

4. Pilot plant foundation volumes as follows:
   - Pilot Plant - (80' x 40' x .5') = 2144 ft^3 = 59.3 yd^3, with 25% swell during disposal, total disposal volume =74.07 yd^3.

   - Shop - (25' x 20' x .5') = 250 ft^3 = 9.3 yd^3, with 25% swell during disposal, total disposal volume =11.57 yd^3.

5. Volume of gravel on access road to pilot building = 1550' x 12' x 0.5' thick = 9300 ft^3 = 344.4 yd^3. Volume of gravel on plant site = 32,000 ft^2 - 3200 ft^2 (Warehouse Building Area) - 500 ft^2 (Shop Building Area) = 28,300 ft^2 x 0.5' thick = 14150 ft^3 = 524.0 yd^3.

6. Melgaard Construction - Gillette, Wyoming, September 1996 estimate
   - D7 (200 H.P.) Dozer with crew - $95.00/hour

7. Means 1997 (022-200-208-4020)
   Backfilling:
   - 200 HP Dozer = 2200 C.Y./day, 2200/12 = 183.33 C.Y./hr.

8. Means 1997 (022-200-242-4020)
   Excavating:
   - 200 HP Dozer = 1230 C.Y./day, 1230/12 = 102.50 C.Y./hr.

9. Area of disturbance at pilot site = (road @ 1550' x 20') + (plant site @ 32000 ft^2) = 63000 ft^2 =1.45 acres. Assume 2.0 acres for ripping, grading, and revegetation to cover peripheral areas disturbed during reclamation work.

10. Means 1997 (020-550-554-0650)
    - Fence Demolition (5 strand) - $1.16/L.F.

11. General foreman, electrician, RST, welders, laborer rates (including fringes and benefits), and material costs for Wyoming and local region have been drawn from the Pathfinder North Butte ISL Project Annual Report to the DEQ (02/10/92).

12. Means 1997 (016-400-408-0470)
    - 112 H.P., 1-3/4 C.Y. loader, ½ C.Y. backhoe - $1100/week, $1100/40 = $27.50/hour.

13. The total well inventory in the next year is expected to be:
    - 0 injection and production wells in Mine Unit I
    - 56 monitor wells in Mine Unit I (30 M-wells, 8 MO-wells, 10 MP-wells, and 8 MU-wells).
    - 39 existing regional monitor wells (32 RI-wells (Ore SS) and 7 RI-wells (Upper Aquifer).

    The weighted average depth of the wells is as follows:
    - M-Wells = 410 feet
    - MO-wells = 314 feet
    - MP-wells = 405 feet
    - MU-wells = 219 feet
    - RI-wells (Ore SS)= 314 feet
    - RI-wells (Upper Aquifer) = 148 feet.

    Well plugging will employ bentonite chips placed across and 50 feet above the screened zone, unscreened sand within 30 feet of the surface, bentonite chips in the top 30 feet, and a concrete plug w/ metal tag at the surface.

    The material costs based on October 1997 quote(s) from Casper Well Products, and local quarries are shown in Attachment 4.

14. IUC actual experience May 1996 for soil preparation - $15.00/well. The area to be reclaimed for each well is estimated to be 30' x 30' = 900 ft^2 x 95 wells = 85,500 ft^2 = 1.96 acres.