

THE STATE



OF WYOMING

MIKE SULLIVAN
GOVERNOR

40-8745
RETURN ORIGINAL TO PDR, HQ.



Department of Environmental Quality

210 Lincoln Street • Lander, Wyoming 82520

Air Quality Division
(307) 332-3144

Land Quality Division
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Solid Waste Management Program
(307) 332-3144

Water Quality Division
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June 17, 1988

Mr. Gary Konwinski
U. S. Nuclear Regulatory Commission
Uranium Recovery Field Office
P. O. Box 25325
Denver, CO 80225

RE: Bison Basin Decommissioning

Dear Gary:

Enclosed are some materials to keep you informed on the status of this project. You will note that we extended Altair's contract (see Change Order No. 8) to include dismantling and preparation work necessary to conduct an auction. We would have liked to have held an auction in late June or early July, however, we had an injunction filed against us which has delayed things. You will note in the attached correspondence from Judge Hartman that the royalty owners (Graves and Hudspeth) have been given the option of paying for site maintenance and security for the next six months. We will not know until July 1 whether they intend to pursue that option.

If the injunction is not issued, then it is our intention to proceed with an auction in mid-August. We will be in contact with you in early July to discuss our plans for the auction.

Also enclosed is a memo from Steve Johnson relative to the groundwater stability and a draft of our Phase Three specifications. If you have any concerns or comments, please let me know.

Sincerely,

Mark Moxley
District II Supervisor

FEE NOT REQUIRED
Info only

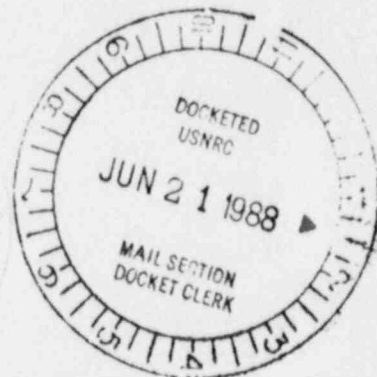
Enclosures (4)

MM:mm

xc: Rick Chancellor - Cheyenne DEQ-LQD
Glenn Catchpole - Altair Resources

DESIGNATED ORIGINAL

Certified By Mary C. Ford



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PDR ADOCK 04008745
PDC

~~ORIGINAL DOCKET COPY~~

DF03

88-0870

CHANGE ORDER

Dated... March 21, 1988

OWNER's Project No..... 9-00487

Project..... Bison Basin Restoration

CONTRACTOR..... Altair Resources, Inc., 2510 East 15th Street, Suite 8, Casper, WY 82609

Contract For..... Reclamation Bison Basin Contract Date..... August 1, 1986

To:..... Glenn J. Catchpole, President and General Manager, Altair Resources, Inc.
Contractor

You are directed to make the changes noted below in the subject Contract:

- 1) Incorporate Section M into original job specifications.
- 2) Increase contract amount to cover tasks in Section M.
- 3) Extend contract as specified in Section M.

Wyoming Dept. of Environmental Quality

OWNER

R. L. Wood

DIRECTOR

Roger Shaffer

ADMINISTRATOR

Dated, 19...

Nature of the Changes Incorporation of Section M "Phase II Reclamation" into original job specifications.

Enclosures: Section M



These changes result in the following adjustment of Contract Price and Contract Time:

Contract Price Prior to This Change Order	\$.....1,432,809.67
Net (Increase)(Decrease) Resulting from this Change Order	\$.....179,013
Current Contract Price Including This Change Order	\$.....1,611,822.67

Current Contract Time Including This Change Order.....August 1, 1986 through July 31, 1988
(Days or Date)

The Above Changes Are Accepted:

.....
CONTRACTOR

By.....

Date....., 19....



Section M.
Phase II Reclamation
Bison Basin Decommissioning Project
Contract No. 9-00487
Contractor: Altair Resources, Inc.

Scope of Work

Outlined below are the tasks and the completion schedule for work to be done by the CONTRACTOR for Phase II Reclamation. All of the work specified below shall be completed by July 31, 1983. See also payment schedule below and qualified statements.

<u>Task Description</u>	<u>Time Period for Completion</u>
1. Provide 24 hour site security and maintenance up to ten (10) days after the date of the Auction.	3/23 - 7/31
2. Pull pumps, drop pipe and electrical cords from all wells. Stack pumps and cords on pallets. Stack drop pipe on the ground near the plant.	4/1 - 5/31
3. Pick up and stack all wellfield electrical equipment, wiring and boxes on pallets near the plant.	4/1 - 5/31
4. Set up and operate 2 R.O. Units to treat and discharge as much evaporation pond water as feasible, in compliance with the N.P.D.E.S. permit.	4/1 - 6/15
5. Repair and operate continuously the sprayer systems on the 2 large evaporation ponds.	5/15 - auction date
6. Perform radiation survey of all equipment to be offered for unrestricted sale, perform decontamination if feasible and as directed on such items, and tag all items which can be released for unrestricted use.	5/1 - auction date
7. Be available to assist in setting up for the auction and also to assist buyers in loading purchased equipment if it can be accomplished using available equipment such as the forklift.	6/1 - 7/31
8. Dismantle all wellfield piping and cut into 20 ft. or shorter lengths. Dispose of foam insulation and all noncontaminated piping in pit(s) to be excavated on-site, compact and backfill pits. Stack contaminated parts near the plant.	5/1 - 7/31



Section M.
Page Two



9. Seal all wells with 250 lbs./each of bentonite gravel, excavate around casing, cut 2 ft. below grade, cap and backfill. 5/1 - 7/31
10. Clean up after auction, place as much of the unsold equipment as possible inside the plant, repair fences, secure the site, put up signs and lock the building(s). Complete by 7/31

Payment Schedule

The CONTRACTOR shall be paid based upon completion of the tasks outlined above according to the following schedule. Payment shall be subject to a 10% retainage.

March 23 - 31, 1988	\$ 6,401.00
April, 1988	45,856.00
May, 1988	38,766.00
June, 1988	34,529.00
July, 1988	25,961.00

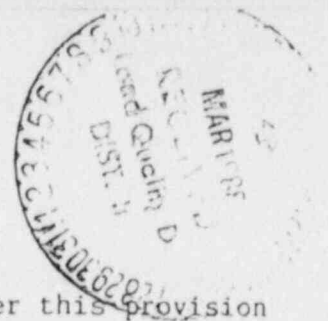
See qualifier statements below for additional charges and an explanation of what is included and what is not included in these payments. The total increase in contract price resulting from this amendment is \$179,013.00.

Qualifier Statements

1. R.O. Units Fee: In addition to the charges listed in the above payment schedule, the OWNER will pay a fee of \$9.00 per operating hour per operating R.O. Unit while pond water is being treated with the R.O. Unit(s). The feed rate to each R.O. Unit will be approximately 122 GPM. Maximum payments under this provision will be \$13,000.00, for the life of the contract.
2. Staff: During the contract period, the CONTRACTOR will employ five full time persons through June and four full time persons through July, at the Bison Basin project site, one of whom will be Joe Vialpando as the project superintendent. Additionally, a project manager and a secretary (both part time) will be employed by CONTRACTOR during the contract period.

The OWNER reserves the right to employ on the project an outside labor force not to exceed four laborers for a period of time not to exceed two months. CONTRACTOR will be advised of any such arrangement prior to April 1, 1988. These laborers would be paid by the OWNER, not CONTRACTOR. This labor force, if it were to be employed, would be utilized for one or more of the above-listed Tasks Nos. 3, 8 and 9. These laborers would work under the direction and supervision of CONTRACTOR. Transportation and meals would be provided by CONTRACTOR. CONTRACTOR agrees to reduce their monthly charges, listed above, by an amount equal to \$1,650 per man month or increment thereof, for each man month of labor provided by these outside laborers.

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The maximum reduction in payments CONTRACTOR would incur under this provision would be \$13,200.00, for the life of the contract.

3. All of CONTRACTOR's insurance policies for the Bison Basin project expire on July 31, 1988, except for the equipment policy which expires on May 31, 1988. The bid amount does not include a charge for extending the equipment policy beyond May 31, 1988. The equipment policy coverage is for approximately 1.3 million dollars. The estimated premium cost for a two month extension of the equipment policy is \$1500 to \$2500. If the OWNER wants the equipment insurance policy extended, they will notify CONTRACTOR in writing by April 15, 1988, and agree to reimburse CONTRACTOR for the premium amount.
4. Under the "secure site" portion of the contract, the bid amount does not include the purchase and installation of "new" fence and the cost of new warning signs. These items were not included because no specifications have been provided to CONTRACTOR at this time. The bid does include repairing existing fence and installing warning signs. The OWNER will reimburse CONTRACTOR for new fencing and signs if required.
5. The OWNER will continue to pay for all natural gas consumed at the project site.
6. The bid does include a rental fee for the use of CONTRACTOR's small Ford generator set.
7. The OWNER will reimburse CONTRACTOR for any single item repair on any essential piece of the OWNER'S equipment that costs over \$500.00. For example, if a transmission on a vehicle has to be replaced at a cost of \$750, the Wyoming-DEQ will reimburse CONTRACTOR the full \$750. This qualifier includes repairs to vehicles, mobile equipment, large generators, plant equipment and buildings.
8. The bid amount does not include the cost and delivery of bentonite and well caps. The delivered cost of the bentonite is \$12,500 plus a deposit on the pallets. The OWNER agrees to reimburse CONTRACTOR for these costs. Total charges under this provision shall not exceed \$15,000.00 for the life of the contract.
9. The OWNER will continue to lease all buildings, vehicles, and equipment at Bison Basin to CONTRACTOR for one (1) dollar. The backhoe, Jessen, forklift, and vehicles will be kept at the site for CONTRACTOR's use until they are no longer needed.
10. A radiation consultant will be utilized to perform the radiation surveys and tag the equipment.
11. CONTRACTOR's bid does include the cost of replacing the rear main seal in the No. 2 CAT generator set and performing a tune-up of the engine.

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Page Four

12. CONTRACTOR's bid does include the cost of replacing the wire cable on the Jessen pump pulling unit and repairing the hydraulic reservoir.
13. The OWNER will conduct an auction at the site some time during the time period of 6/15/88 - 7/15/88. The CONTRACTOR will be advised of the exact date no later than 5/15/88. The OWNER will offer everything on the site for sale except that the backhoe, Jessen, forklift, and vehicles will be kept until 7/31/88 or until they are no longer needed.
14. Buyers of contaminated equipment will be required to have an NRC license or have authorization from a licensed operator to store the material on their site. Buyers will be responsible for all necessary paperwork, documentation and transportation requirements of the Department of Transportation and the NRC.

Termination by OWNER

In addition to the termination provisions of Section G-1N of the original job specifications, the OWNER also may terminate work if legal proceedings are instituted, by any third party, concerning the reclamation activities addressed in this Section M. Such termination may be effected by OWNER with seven (7) days written notice to CONTRACTOR. In such case, CONTRACTOR shall be paid for all work up to the date of termination; NO PAYMENT for any additional expenses incurred by CONTRACTOR as a result of said termination will be made.



Circular
The State of Wyoming

Fifth Judicial District *gmn*

GARY P. HARTMAN
DISTRICT JUDGE

June 14, 1988

ARC Copy
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JUN 15 1988

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504

Re: Graves and Hudspeth v. UNC Teton et al.
Fremont County Civil No. 24768

Dear Counsel:

Plaintiffs filed their Motion for Preliminary Injunction asking this Court pursuant to Rule 65, U.R.C.P. to issue a preliminary injunction against State of Wyoming through the Department of Environmental Quality. The injunction, if issued, would prohibit said Department from further reclamation work on the Bison Basin uranium mine property. The Court heard the testimony of the parties' witnesses and while present, the following counsel did not present or object to evidence: Tom Reese, Joel Vincent and Carl Lathrop.

Factually, this case and its companion case, Laramie County Civil docket no. 112-231 arise out of an abandoned uranium processing mill located approximately 30 miles south of Sweetwater Station in Fremont and Sweetwater Counties. Plaintiffs in this case staked several thousand acres of these uranium claims and eventually sold a portion thereof to Defendant UNC Teton who, in turn, sold the project to Ogle Petroleum, Inc. Ogle entered into a joint venture with Western

Fuels, Inc., a wholly owned subsidiary of Duke Power, for the establishment and production of "yellow cake," also known as U₃O₈. The uranium extraction process consisted of in-situ mining whereby numerous wells were drilled on the premises and fluid was injected through the injection wells. The "yellow cake" is retrieved from the fluid returning to the surface from recovery wells. A substantial amount of money was spent drilling the wells, establishing the site and the uranium mill itself. The mine was in production but a short period of time when the bottom fell out of the uranium market. The operator of the mill, Ogle, was unable to continue due to the depressed economic conditions. Notice of the intent to abandon the project was communicated to the State of Wyoming which had issued a mining permit through the Department of Environmental Quality, Land Quality Division. Suit was originally brought in Laramie County to determine the liability of the owners and operators to pay for the reclamation and this case was brought by the original claim stakers to determine the ownership of the property of the uranium claims, and for breach of contract. The reclamation of the site has been completed through Phase I which included the ground water restoration. Reclamation is in Phase II, which consists of dismantling of all the equipment, plugging the holes and disposing of other radioactive material not sold at a public auction. It is this phase that Plaintiffs seek this Court to enjoin on the ground and for the reason that Plaintiffs believe they have four parties now interested in the purchase of the entire project. Plaintiffs claim that if the mining equipment, buildings and other apparatus are sold and the holes plugged, irreparable damage will occur and they will not be able to sell the property. They believe that if they are able to sell the project, any sale would be consummated within six months. The State rejects this contention and alleges they made numerous attempts to sell the property with no success and that to stop the reclamation would put the project over budget and thus, reclamation could not be accomplished before winter. If reclamation is stopped at this point, additional security would be required to maintain the site during the winter months until such time as crews could come in, dismantle the equipment, hold an auction and haul off any radioactive material not disposed of previously.

At the outset, a preliminary injunction is an extraordinary remedy which has far-reaching force and one which must not be indulged in under hastily contrived conditions, Simpson v. Petroleum Inc., 548 P.2d 1 (Wyo. 1976). When one traces the history of preliminary injunctions, the trend appears to indicate that injunctive relief is more readily available today and less dependant upon a showing that a legal remedy is inadequate, Wright, "The Law of Remedies as a Social Institution," 1955, 18 U. of Det. L.J. 376. Secondly, there is a requirement that there must be a showing that the irreparable injury threatened must be real, not fancied, actual and not

prospective, threatened and not imagined, Association of Professions Engineering Personnel v. Radio Corporation of America, 183 F.Supp. 834, (D.C.N.J. 1960). Here this Court is satisfied that if the reclamation continues as outlined by the State of Wyoming, DEQ through Phase II, that the buildings, all equipment to the mines will be sold at a public auction in July or August of this year. The Court also realizes that the time it takes to sell this project to someone who is a qualified buyer and who holds a NRC license does require substantial amount of time for the purchasing company to review all the documentation. Therefore, this Court believes that the damage is real, actual and not fancied. The testimony of Mr. Graves at the hearing was persuasive that any hopes of selling the prospect in today's declining uranium market would be severely diminished, if not totally extinguished, with the dismantling of the uranium mill. This Court does recognize and applaud the efforts of DEQ pursuant to its statutory duty to clean up and reclaim abandoned mines. The Court is aware that at worst, the cleanup process would be delayed by six to nine months. Any delay in the cleanup process would require additional expense for maintaining security during those winter months when no reclamation or dismantling could be accomplished. Here the Plaintiffs have made a threshold showing that if the uranium mill is dismantled and the site reclaimed, irreparable injury would result and the damages would not adequately compensate the Plaintiff for the loss of that property. While the Plaintiffs could redrill the 500 holes the DEQ plans to plug, to erect a new uranium mill would be at a substantial cost when compared with the small monetary cost of waiting the six months to allow Plaintiffs to sell the project.

For the reasons cited herein, this Court will preliminarily enjoin the State of Wyoming/the Department of Environmental Quality from any further site reclamation connected with the Bison Basin Uranium Mill with the exception of continuing to operate the evaporation facilities at the tailings pond. This preliminary injunction shall be until such time as the matter has been heard fully on the merits or until December 31, 1988, whichever is earlier.

Rule 65, W.R.C.P. subsection (c) provides that no preliminary injunction shall issue except upon giving of security by the applicant in such sum as the court shall deem proper. . . . State's Exhibit M is enlightening on the shutdown costs. That exhibit projects that the cost per month for security and light maintenance is \$18,900.00 together with an \$8,000.00 a month gas bill and \$5,000.00 a month depreciation for a total of \$31,900.00 a month. That exhibit also states that there would be an additional \$10,000.00 of insurance and a onetime cost of \$5,000.00 for remobilization. Mark Moxley did testify, however, that the shutdown costs may be reduced to the sum of \$12,000.00 to \$13,000.00 a month to

Page four

provide security for the site during the shutdown periods. Therefore, the Court will use the sum of \$15,000.00 per month as the amount needed to maintain the facility in a shutdown position for the six month period. The Court believes that the operation of the evaporation pond should be continued until the shutdown occurs, if at all possible, due to the fact that this reclamation is one which needs to be continued. Therefore, this Court will order the sum of \$105,000.00 as security bond (six months times \$15,000 equals \$90,000 plus \$15,000 insurance and remobilization). Said security shall be for the payment of such costs and damages as may be incurred or suffered by the State of Wyoming, DEQ by reason of this stay. The Plaintiffs will have until July 1, 1988 to post the necessary security with the Clerk of the District Court, otherwise the preliminary injunction will not issue.

I would ask that Mr. Hooper please prepare the necessary order in conformance with the Court's decision, submit it to the necessary opposing counsel for approval as to form and then to me for signature and entry. Should counsel have any questions, please feel free to contact me.

Sincerely,
Original Signed By
Gary P. Hartman
District Judge
Gary P. Hartman
District Judge

GPH:sg



MIKE SULLIVAN
GOVERNOR



Department of Environmental Quality

Herschler Building • 122 West 25th Street • Cheyenne, Wyoming 82002

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Land Quality Division
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Solid Waste Management Program
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Water Quality Division
(307) 777-7781

Memorandum

To File: Ogle Petroleum, Bison Basin Project, Permit No. 504

From: Steve Johnson, Hydrologist SJ

Date: 25 March 1988

Subject: Initial Review of Stability Status for the Bison Basin Project

I. INTRODUCTION

Mark Moxley requested on 23 February 1988, a review of the ground-water stability data submitted to the LQD by Altair Resources Inc. (ARI) in their monthly Progress Reports. The period of record for this review is from October 1987 to January 1988. A more complete evaluation of the restoration success at the Bison Basin Project should be conducted after the LQD has received the remaining two analytical reports from the stability monitoring program conducted by ARI. Because of the turn-around time inherent in all extensive water-quality sampling programs, analytical results from samples collected in February and March 1988 at Bison Basin will not be available until April and May 1988, respectively. The March 1988 sampling will be the last stability-period monitoring data to be submitted by ARI in their Progress Reports.

II. DISCUSSION

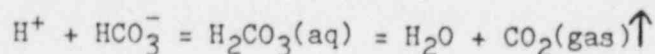
Active restoration of mining unit number one consisted of ground-water sweep and clean water recycle using reverse osmosis technology. The active restoration period was from November 1986 to September 1987. A 6-month stability period began in September 1987 and will terminate in March 1988.

Reporting and Sampling Errors

The following target restoration values (TRV) were incorrect, as reported by ARI, in their Progress Reports.

Parameters	Units	Reported TRV	Correct TRV
Fluoride	mg/L as F	1.38	1.2
pH	standard units	11.4	6.5-11.4
Radium-226	pCi/L as Ra-226	12.1	12.4
Selenium	mg/L as Se	0.002	< 0.002

In addition to these reporting errors, ARI has continued to measure pH at their site lab and at the Energy Laboratories Inc. (ELI) lab, despite being informed both through memoranda and personally (Personal Communication with Glenn Catchpole: President of ARI) that pH must be measured in the field immediately after sample collection. Empirically-derived data on field and lab measurements of pH indicate that pH values generally increase over time once a sample is collected from wells at Bison Basin. This phenomenon is most likely due to the gaseous loss of carbon dioxide, and subsequent loss of hydrogen ions, from ground-water samples as these samples tend toward a new equilibrium with respect a typically lower partial pressure of carbon dioxide (according to Henry's Law) at the ground surface as opposed to the ground-water system. The chemical reaction for a loss of hydrogen ions (i.e., increase in pH) from solution is:



Evaluation of Restoration Progress during the Stability Period

The 23 January 1988 sampling data (Appendix A) indicate that the following parameters displayed wellfield (P-16, A-38, B-5, B-50) averages that did not meet their respective TRV:

Parameter	Units	23 Jan 1988	TRV	DEQ
		Wellfield Average		Class III Standard
Arsenic	mg/L as As	0.06	<0.04	0.2
Boron	mg/L as B	0.50	0.38	5.0
Fluoride	mg/L as F	1.5	1.2	no std.
Iron	mg/L as Fe	0.20	0.13	no std.
Manganese	mg/L as Mn	0.04	<0.01	no std.

As indicated in the previous table, all of the parameters with wellfield averages that did not meet their TRV, did meet their DEQ Class III standard. (A discussion of WQD's classification of Mining Unit number one at Bison Basin can be found in a 19 November 1987 memorandum from Johnson to File.) A comparison of wellfield averages, for all other parameters analyzed from samples collected on 23 January 1988, with DEQ Class III standards indicate that all reported parameter values meet their DEQ Class III standard except as described below.

As stated in the footnote section of Table 1 (included in the DEQ-approved Bison Basin restoration plan), because of the "extreme variation" in baseline values for radium-226 between wells, the TRV for radium-226 is based on a well-by-well basis. Using this criterion, the following designated restoration wells had sampled values, on 23 January 1988, that exceeded their TRV for radium-226 (pCi/L as Ra-226):

Well ID	TRV for Ra-226	Ra-226 Value on 23 Jan 1988
P-16	12.4	22.3
B-5	72.3	75.3

Considering an observed analytical variability of reported radium-226 values between and within water-quality labs that analyze this radionuclide, the difference between the reported radium-226 value (75.3 pCi/L as Ra-226) and the TRV (72.3 pCi/L as Ra-226) for well B-5 is insignificant. However, the most recent reported radium-226 value for well P-16 indicates that this well does not meet its TRV.

A possible explanation for increased radium-226 levels in these two wells is that radium-226 may have been redistributed in the affected aquifer during active restoration. This phenomenon could have resulted in higher or lower radium-226 values associated with wells after active restoration terminated. Because of the low number of wells (only 4) involved and insufficient information on radium-226 geochemistry for restoration operations at in-situ uranium mines, any theory regarding the plausibility of radium-226 redistribution during active restoration is tentative. However, based on four samples, a baseline wellfield (TRV) average of 73.9 ± 66.0 pCi/L as Ra-226 compared to a wellfield average (on 23 January 1988) of 55.5 ± 42.7 pCi/L as Ra-226, would marginally favor a redistribution theory. If a redistribution theory is accepted, then radium-226 TRVs should be based on wellfield averages and not on a well-by-well basis. And, the radium-226 TRV would be met for restoration purposes.

III. CONCLUSION AND RECOMMENDATION

An evaluation of water-quality data submitted by ARI to date, for the stability monitoring program at Bison Basin, indicate that all parameters, except radium-226, either meet their respective TRV or are within class-of-use standards (i.e., DEQ Class III). If the TRV for radium-226 is based on a well-by-well basis, then well P-16 does not meet its radium TRV and well B-5 is at its radium TRV. However, if the TRV for radium-226 is based on a wellfield average, then the TRV for radium is met. A more thorough evaluation of restoration success should be conducted once the analytical results from the last two stability sampling dates have been received from ARI in their monthly progress reports.

SJ:11

Enclosure

cc: Mark Moxley

Rick Engelmann

Steve Johnson (for the hydrology file)

Appendix A: Stability Data (October 1987 to January 1988) for the Bison Basin Project

Parameter	Units	DEQ		Avg. of Designated Wells (P-16,A-38,B-5,B-50)			
		Class III Standard	TRV	22 Oct. 1987	24 Nov. 1987	22 Dec. 1987	23 Jan. 1988
TDS	mg/L @ 180°C	5000	1812	715	723	755	737
Sodium	mg/L as Na	*	495	258	255	258	258
Potassium	mg/L as K	*	16	3.2	4.1	3.7	3.8
Calcium	mg/L as Ca	*	500	19.1	16.4	18.5	17.2
Magnesium	mg/L as Mg	*	250	3.3	3.3	3.4	3.3
Sulfate	mg/L as SO ₄	3000	1100	180	160	166	170
Chloride	mg/L as Cl	2000	250	155	161	156	153
Alkalinity	mg/L as CaCO ₃	*	500	255	266	271	271
pH (site)	s.u.	6.5-8.5	6.5-11.4	-	7.1	7.0	7.2
Aluminum	mg/L as Al	5.0	<0.1	<0.10	<0.10	<0.10	<0.10
Ammonia	mg/L as N	*	2.9	0.10	0.11	0.22	0.13
Arsenic	mg/L as As	0.2	<0.04	0.06	0.05	0.05	0.06
Barium	mg/L as Ba	*	1.0	<0.05	<0.05	<0.05	<0.05
Boron	mg/L as B	5.0	0.38	0.50	0.40	0.50	0.50
Cadmium	mg/L as Cd	0.05	<0.02	<0.02	<0.02	<0.02	<0.02
Chromium	mg/L as Cr	0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L as Cu	0.5	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoride	mg/L as F	*	1.2	1.5	1.6	1.7	1.5
Iron	mg/L as Fe	*	0.13	0.16	0.19	0.20	0.20
Lead	mg/L as Pb	0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese	mg/L as Mn	*	<0.01	0.04	0.03	0.03	0.04
Mercury	mg/L as Hg	0.00005	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L as Mo	*	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	mg/L as Ni	*	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrate	mg/L as N	100	10.0	<1.0	<1.0	<1.0	<1.0
Nitrite	mg/L as N	10	1.0	<1.0	<1.0	<1.0	<1.0
Selenium	mg/L as Se	0.05	<0.02	0.003	<0.02	<0.02	<0.02
Uranium	mg/L as U ₃ O ₈	5.0	5	0.298	0.366	0.338	0.326
Vanadium	mg/L as V	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
Zinc	mg/L as Zn	25.0	5	0.01	0.01	<0.01	<0.01
Radium-226	pCi/L as Ra-226	5	12.4(P-16)	30.9	20.2	16.1	22.3
Radium-226	pCi/L as Ra-226	5	165.8(A-38)	137.5	118.9	69.6	106.2
Radium-226	pCi/L as Ra-226	5	72.3(B-5)	102.5	83.9	68.3	75.3
Radium-226	pCi/L as Ra-226	5	44.91(B-50)	34.5	25.5	21.4	18.1

Explanation

* = no established standard

- = not analyzed

< = less than reported lower detection limit

note: the reported lower detection value is used in calculation of average values

Specifications - Bison Basin Decommissioning - Phase Three
Revised 3/11/88

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INTRODUCTION

This phase of the project will entail the final decommissioning, decontamination and reclamation of the site. All facilities, and equipment will be either removed from the site or buried. The area will be returned to native rangeland. Phase Three will be completed by 10/31/89.

The OWNER will attempt to dispose of as much of the equipment and facilities as possible by sale. All such sales will be completed and the equipment removed by 8/30/88. Nothing will be held back from sale, however it is likely that the plant building and some other miscellaneous scrap will be left. The CONTRACTOR will be responsible for disposal of all equipment and facilities remaining and shall have sale and salvage rights on same. Disposal operations shall insure that:

1. No radioactive contaminated materials may be disposed of on the site. All such materials must be hauled off-site and placed in a NRC approved disposal site by the CONTRACTOR.
2. All decontamination, disposal, and release of equipment shall be conducted in accordance with Reference No. 7, the NRC Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct or Source Materials, dated September 14, 1984.

The CONTRACTOR will be responsible for some decontamination work, as directed by the OWNER, in order to minimize the amount of equipment and components that must be hauled off-site. The CONTRACTOR may also choose to decontaminate certain items, subject to the prior approval of the OWNER, in order that they may be sold. Decontamination by washing will have to be limited due to the necessity of drying up the evaporation ponds by early summer 1989.

The OWNER will secure a disposal site for contaminated waste and will pay any and all fees associated with the permitting and use of the site. Off-site disposal shall be bid on a unit cost basis using the estimated volumes listed but realizing that the actual volumes may vary. Loading and unloading will be bid on a cubic yard basis. Haulage will be bid on a per mile basis.

Material Volumes

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Decommissioning of the Bison Basin site will require the offsite disposal of all contaminated materials. These materials include pond liners, pond residues, contaminated soils in the pond area, wellfield piping, in-plant piping and other misc. scrap. Table 1 provides an itemized estimate of the expected volume of contaminated materials that will have to be disposed of at an NRC licensed disposal site. This estimate is based upon the assumption that most of the equipment on-site that is contaminated will either be sold to another licensed operator or decontaminated. Also, it is expected that the plant building, including most of the concrete flooring, can be decontaminated.

Uncontaminated or decontaminated scrap materials will be buried on-site. The primary source of scrap materials will be from the demolition of the plant building. Table 2 provides an itemized estimate of the expected volume of uncontaminated scrap for on-site disposal.

Final reclamation of the site will involve the following dirtwork volumes:

- excavation and backfill of on-site disposal pits for uncontaminated scrap - approx. 2,000 CY.
- grading and contouring evaporation ponds - approx. 40,000 CY.
- resspreading subsoil and topsoil - approx. 50,000 CY.

NOTE: These quantities are estimates only and have not been measured. It shall be the CONTRACTOR'S responsibility to evaluate and verify these estimates prior to bidding.

TABLE 1

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Estimated Volume of Contaminated Materials from Bison Basin
to be disposed off-site

- a. Pond Liners
Total Pond Area = 340,000 SF
Use 1 in. overall average thickness to account for voids and
soils that will be picked up with the liners
= 1,045 CY
 - b. Pond Residues
Total Pond Bottom Area = 246,000 SF
Use 4 in. average depth of sludge ← may vary substantially
= 3,000 CY
 - c. Contaminated Soils
Estimated at 1 ft. depth under 5% of Pond Bottoms ✓
= 1 ft. x 12,300 SF
= 455 CY
 - d. Wellfield PVC Pipe
3,750 ft. of 8 in. line (use 8 in. square cross section to
account for voids)
= 62 CY
23,600 ft. of 2 in. line (use 2 in. square cross section to
account for voids)
= 26 CY
Total = 88 CY
 - c. In-Plant Piping estimated at 50 CY
 - d. Other misc. Contaminated Scrap estimated at 50 CY
- Total Contaminated Material = 4,688 CY
Round to 5,000 CY

NOTE: These quantities are estimates only and have not been
measured. Off-site disposal shall be bid on a unit cost basis.

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TABLE 2

Estimated Volume of Uncontaminated and Decontaminated Scrap
to be disposed of on-site

- a. Process Building
170 ft. x 68 ft. x 24 ft. average height
exterior walls = 11,424 SF
roof = 11,560 SF
Total walls and roof = 22,984 SF
@ 6 in. thickness
= 425 CY
- b. Interior Walls and Suspended Ceiling
7,377 SF
@ 6 in. thickness
= 137 CY
- c. Concrete Floor and Pad Area
18,360 SF
@ 9 in. average thickness
= 510 CY
- d. Misc. Uncontaminated Scrap
estimated at 100 CY

Total uncontaminated and decontaminated scrap = 1,172 CY
Round to 1,200 CY

NOTE: These quantities are estimates only and it shall be the
CONTRACTOR'S responsibility to evaluate and verify quantities
prior to bidding.

DRAFTPLANT AND FACILITIES DECOMMISSIONING

All equipment and fixtures in the plant and the plant floors, walls, and ceilings will be surveyed for radioactive contamination. The release criteria stated in Reference 7 will be used to establish which items are acceptable for release to unrestricted use. Equipment, fixtures, and building materials that are not contaminated and items that are decontaminated will either be sold or buried on site. Equipment, fixtures, and any building components that cannot be decontaminated must be transported off-site to an NRC approved waste disposal facility.

Proper disposal of noncontaminated and decontaminated scrap equipment and building materials on site will require excavation of disposal pits. The CONTRACTOR shall design these pits and shall notify the DEQ Solid Waste Division of the exact location of each pit along with a detailed description of the materials to be buried in each. Such pits will be located in upland areas away from any drainages and in close proximity to the plant and wellfield. The CONTRACTOR shall strip no less than six (6) inches of topsoil from the disposal pit sites. This soil shall be stockpiled for use in reclamation of the pits. All scrap materials must be buried below ground level, compacted and covered with a minimum of three feet of mounded natural fill. All slopes shall be 5:1 or flatter.

It is estimated that the total volume of material to be buried on-site will approach 1,200 cubic yards. A separate pit will be excavated on the north side of the plant and utilized exclusively for final disposal of all concrete.

The initial check for contamination in the plant will be made by alpha count survey. If contamination of an item is present, a swipe survey will be made to determine the level of activity of removable contamination. It is unlikely that radioactive contamination in the generator room, shop, warehouse, offices, and change rooms will be significant, however, these areas will be surveyed (see Figure 3). The main plant floor and the uranium processing equipment will most likely be contaminated and require remedial action.

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After all decontamination operations have been finished, the buried 4 inch diameter FVC plant to evaporation ponds discharge pipeline will be decommissioned. The pipeline will be dug up at three randomly selected locations and surveyed for contamination. If the pipeline at these locations is not contaminated, the remainder of the pipeline will be left in place. If the pipeline is contaminated, the entire length must be dug up, cut into 20 foot lengths, and disposed of off-site.

The equipment from the plant that is not contaminated will be removed from the permit area or buried on site. All scrap materials and debris to be buried must be reduced to a size not to exceed 20 feet in length and 4 feet in width. The portions of the buildings that are not contaminated and have no salvage value will be buried on site.

Following demolition of the plant building the concrete floor and pad areas will be broken up using a hydraulic breaker. Concrete will be broken into pieces not to exceed 4 feet by 4 feet in size. Concrete that was previously identified as being contaminated will be hauled off-site. Uncontaminated concrete will be placed in an excavated pit just north of the plant site.

Following the burial of all concrete the land surface in the plant area will be recontoured to the natural topography in preparation for topsoil replacement and seeding.

In the case of both wellfield and plant radiological surveys, an Eberline Model PAC-6 w/AC24 probe or a PRMS-3 or equivalent rate counter will be used for determining alpha activity. Removable alpha contaminants will be determined with swipeable filter paper and counted on an Eberline SAC-4 scintillation counter or equivalent.

EVAPORATION PONDS DECOMMISSIONING

Following the completion of Phase Two, the evaporation ponds will be allowed to dry out primarily through evaporation. The contaminated sludge or residue in the evaporation ponds must be trucked off-site to an NRC licensed waste disposal facility. The ponds may be emptied by pumping sludge once the volume has been reduced to 3,000 CY or less by evaporation. Alternatively, conventional earth moving equipment, such as front-end loaders, could be used once the ponds have dried. In no case will the liner integrity be compromised until the ponds are dry. The liner itself and any contaminated soil under the liner will also be disposed of in the same manner as the residue.

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The quantity of contaminated pond residue to be disposed of off-site is difficult to estimate because of the amount of foreign material that is and will be deposited in the ponds through wind transport. Conservatively, the amount of contaminated residue that may need to be trucked off-site is placed at 3,000 CY. All shipments of contaminated materials shall be in accordance with NRC and DOT regulations. A gamma survey of the ponds area must be conducted after liner removal to identify areas of soil contamination. Baseline gamma levels have already been determined.

SITE RECLAMATION

The reclamation of the land surface as defined in the DEQ Permit to Mine, Reference 1, involves returning lands disturbed by mining to their approximate original condition by reestablishing native vegetation. Additionally, post-reclamation radiological levels in the soils and vegetation must be no more than 5 PiC/gram above premining baseline levels. The natural topography has not been significantly altered by the in-situ mining operations. The final contour of all disturbed areas shall blend with the natural topography following reclamation.

A comprehensive premining description of soils and vegetation in the permit area is contained in the DEQ Permit to Mine, Reference 1; in the NRC FES, Reference 6; and in the Environmental Report, Reference 2. These documents explain the soils and vegetation baselining program and they present both the radiological and non-radiological data obtained from the program. The data from the post-reclamation sampling and evaluation program will be compared against existing baseline data in order to evaluate the site reclamation program.

After all facilities and equipment have been buried or removed from the site and after the ponds area has been backfilled, and all fences removed, the disturbed areas will be contoured to blend with the natural topography. This action will take place prior to the reapplication of topsoil on appropriate areas. Next, the locations sampled for vegetation and soils baselining will again be sampled in the same manner as before and analyzed for the same radiological parameters. A gamma survey will also be conducted in the same areas as were monitored during baseline. Any contaminated soils discovered during this program will then be removed and disposed of at an NRC licensed facility.

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Once all radioactive contaminated soils have been disposed of, the stored topsoil will be applied on appropriate areas to its approximate original depth and then seeded. Affected areas that did not require topsoil removal will be scarified to a depth of six inches and seeded.

Seeding will be performed in the fall after October 1 or in the spring before May 1 but will not be performed when the ground is frozen. Seed will be drilled 1/2 inch deep in the soil. The following seed mixture will be planted at the rates shown:

<u>Species</u>	<u>Pounds Pure Live Seed/Acre</u>
Streambank Wheatgrass	4
Thickspike Wheatgrass	4
Indian Ricegrass	2
Sheep Fescue	4
Total	14

Mulch shall be applied to all affected areas to retain soil moisture and to control erosion. A dry mulch consisting of native hay or small-grain straw shall be applied uniformly at a rate of 1 1/2 tons per acre. The mulch shall be anchored with either a straight coulter machine or an agricultural disc. When anchoring with a straight coulter machine, seeding will precede mulching. When anchoring with a disc, seeding will be performed following mulching an anchoring.

PERSONNEL MANNING AND TRAINING

Phase Three activities must be under the overall direction and control of a Project Manager experienced in uranium processing. The day-to-day activities at the site shall be closely supervised by a Project Superintendent whose place of work shall be the Bison Basin mine site. The Project Superintendent will also have experience in uranium processing. The CONTRACTOR shall employ either a R.S.O. or a qualified Safety/Radiation Protection Engineer (SRPE) whose place of work shall be the Bison Basin mine site. The types and numbers of other employees will be up to the CONTRACTOR; however, all personnel either through experience or training must be qualified to perform assigned tasks.

During Phase Three adequate security shall be provided so as to deter theft, vandalism, unauthorized entry and exposure to radioactive contaminated materials. The site shall at all times be maintained in a safe condition so as to pose no hazard to the public or to livestock or wildlife.

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All employees engaged in the activity of decommissioning shall be trained in the hazards associated with working in potential radiological health problem areas. Training will be in accordance with the Source Material License SUA-1396 License Conditions and the "Radiological Safety Program" document (Reference 5) specifically developed for the Bison Basin Mine. Emphasis in training shall be given in the following areas: use and maintenance of respirators, acid handling and spills, protective clothing, yellowcake handling, and self-monitoring. Special Work Permits (SWP) will be issued for work performed in areas where additional monitoring surveys are warranted.

The appropriate radiation monitoring instruments will be used and maintained in accordance with Source Material License SUA-1396 license conditions. An Eberline model, or equivalent, scintillation detector SAC-R5 and MS-3 miniscaler will be used to determine radon gas concentrations. Airborne particulate levels will be surveyed with a RAS-1 air sampler with patches counted on an Eberline Model SAC-4, or equivalent, scintillation counter. Self-monitoring for alpha activity will be with an Eberline Model PAC-6 and AC-24 probe, or a PRMS-3 or equivalent.

REPORTING AND TIMETABLE

During the decommissioning of the Bison Basin site, the CONTRACTOR will prepare and submit a monthly report to the DEO. This report should be mailed by the 10th day of each month. The monthly report will contain a summary of decommissioning activities that have taken place during the past calendar month. All data pertinent to the decommissioning activity collected during the month along with a discussion of progress and problem areas shall be included in the monthly report. The CONTRACTOR will also prepare a summary report following completion of Phase Three.

Phase Three will begin after Phase Two of the project is completed on July 31, 1988 and shall be completed by October 31, 1989.

Slippins