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Remitter	
Check No.	2575
Amount	\$15.00
Fee Category	2A
Type of Fee	UNOCAL
Date Check Rec'd	11/25/89
Date Completed	11/25/89
By	missed

Minerals Exploration Company  
A Unocal Company  
Sweetwater Uranium Project  
P.O. Box 1500  
Rawlins, Wyoming 82301  
Telephone (307) 328-1476

40-8584

RETURN ORIGINAL TO PDR, HQ

## MINERALS

27 September 1989

Mr. Ramon E. Hall  
Director, Uranium Recovery Field  
Office, Region IV  
U.S. NRC  
P. O. Box 25325  
Denver, Colorado 80225

RE: SML #SUA-1350  
REQUEST FOR LICENSE AMENDMENT  
IX PLANT

Dear Sir:

Minerals Exploration Company (MEC) wishes to operate a 600-800 gallon per minute downflow uranium extraction (IX) plant at its Sweetwater Uranium Project in Sweetwater County, Wyoming. This plant will be used to reduce the uranium content in MEC's mining pit lake located at the facility. MEC intends to start operation of this IX plant in the Spring of 1990 and end sometime in late 1993 or early Spring of 1994.

MEC has purchased (contingent upon an NRC license amendment) from IEC Corporation's Lamprecht site in Texas, a three column, skid mounted, downflow ion exchange unit, approximately 38 feet long, 10 feet wide and 12 feet high, with 400 cubic feet of used Dow G-55 monospheric ion exchange resin (unloaded) contained in the unit. This skid mounted ion exchange unit along with assorted tank(s), pumps, motors, valves and meters will be transported from IEC's Lamprecht site on the week of October 22 to October 28, 1989 by Valentine Construction Company of Wyoming. Additional materials (tanks, pumps, motors, valves, etc.) needed to construct the IX plant will be purchased from Malapai Resources Company's Irrigary Mine near Linch, Wyoming and transported by MEC to the Sweetwater Mine.

The system will consist of two, thirty horsepower Grundfos SP70-5 submersible pumps in the pit (with a third on standby) drawing (800 gpm) water from the pit lake through a 10 inch in-place dewatering line to the wash bay section of the Tire/Lube/Wash Bay building. This area is bermed and equipped with a sump. The pit water will flow through the line into the Wash Bay, through a mechanical flowmeter and into a 60 hp stainless steel column feed pump. The

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DESIGNATED ORIGINAL

Certified By Mary C. Hard

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water will flow through a 6 inch feed line into two of the three columns on the skid. One of the three columns will always be off line for elution or on standby. The water will flow into the top of the column through a 4 foot deep bed of strong base anion ion exchange resin. The uranium depleted pit water will be returned to the pit via a return line MEC intends to install.

Elution will be accomplished by isolating the column to be eluted as the spare column is put on line. Compressed air will be used to force any fluid in the column into the return line to the pit. The column will be filled with 1,250 gallons of eluant (a solution of salt and sodium carbonate) from the high preg. tank. The eluant is circulated through the column for a set length of time during which it will strip the uranium from the resin. The uranium containing solution will then be blown down (with compressed air) to the precipitation cell via piping from the Wash Bay to Yellowcake Area of MEC's Mill. The column that was eluted will be refilled with 1,250 gallons of eluant from the low preg. tank. This eluant will be recirculated and then blown down to the high preg. tank. Then 1,250 gallons of fresh eluant (FE) will be circulated through the resin for a set time and then blown down to the low preg. tank. The column will then be filled with 1,250 gallons of water from the pit lake, circulated and then blown down to the fresh eluant tank to replace the FE used in the elution. This procedure serves to rinse the column. The column now rinsed and blown down may be placed on line when needed.

A precipitation system will be constructed in the existing Yellowcake Area in the Mill in order to eliminate yellowcake contamination problems. It will consist of a 5000-6000 gallon cone bottomed tank (precipitation cell) equipped with an agitator. The system will also contain a 500 gallon H<sub>2</sub>O<sub>2</sub> tank made of pacified aluminum, a hydrochloric acid tank (HCL) and a small caustic soda (NaOH) tank. The precipitation cell will be hooked to the line coming from the Wash Bay where precipitation will be accomplished by adding HCL to the cell to lower the pH of the eluant. A defoamer and a measured amount of H<sub>2</sub>O<sub>2</sub> will then be added while agitating. Caustic soda will then be added to raise the pH along with some flocculant to settle the yellowcake slurry. Agitation will be discontinued and the decant water will be pumped out of the cell into a trailer mounted tank and disposed of in the tailings cell. The yellowcake slurry in the bottom of the cell will be pumped into the thickener for storage or barreled and stored in the Roller Room of the Yellowcake Area until marketed. All liquid waste from the process and cleanup water will be transported to the tails cell for disposal.

In keeping with the ALARA philosophy, MEC will take these precautions for the safety of the employees working at the Wash Bay and at decanting the yellowcake slurry at the Mill:

Wash Bay

1. MEC will take monthly gamma readings off of the columns and tanks for one year then go to quarterly sampling.
2. MEC will take quarterly radon daughter samples in selected areas for one year then go to semiannual sampling; it is anticipated that radon will not be a problem in a downflow system since the columns are entirely sealed.
3. Alpha readings and smears for total and removable contamination will be conducted in selected areas on a semiannual basis.

Yellowcake Area in Mill

1. MEC will take quarterly gamma readings in selected area.
2. MEC will take semiannual radon daughter samples in selected areas.
3. Alpha readings and smears for total and removable contamination will be taken in selected areas as needed during decanting and/or barreling.
4. A personal air pump will be hung on the employee doing decanting and or barreling and urine samples will be taken for analysis.

Enclosed is MEC's "Standard Operating Procedures for Yellowcake Decanting". Also enclosed is a check for \$150.00 to cover the license amendment fee.

In order that MEC may transport the ion exchange column skid, resin and other equipment in Texas to Wyoming before the onset of bad weather, MEC is requesting a quick consideration of at least the request to transport the equipment.

Should you have any questions, please contact either Oscar A. Paulson at (307)324-4924 or Danny Roybal at (307)328-1476.

Sincerely,



Danny Roybal

Safety/Environmental Technician

DRR/ss

cc: O. A. Paulson  
J. O. Landreth

STANDARD OPERATING PROCEDURES  
FOR YELLOWCAKE DECANTING

These procedures will be followed by all personnel decanting yellowcake! Any yellowcake produced during this process will be maintained as a slurry.

All personnel working in decanting yellowcake will endeavor to prevent yellowcake from entering the body or contaminating adjacent areas. This will be accomplished by following all rules and practicing good personal hygiene at all times.

All personnel will be restricted from entering the yellowcake area while decanting is taking place, unless entrance is required in the performance of their duty.

All personnel assigned to work on decanting in the yellowcake area will thoroughly clean or remove contaminated clothing before leaving the yellowcake area.

Prior to performing any maintenance or non-routine work the Safety and Environmental Department must be notified.

No material will be removed from the yellowcake area without first being cleaned then inspected by the Safety and Environmental Department.

Disposable coveralls, rubber boots and rubber gloves will be worn at all times when handling wet yellowcake. Respirators will be worn if determined necessary by the Safety and Environmental Department.

All solutions will be kept within spill containment areas. Splashes and spills will be cleaned up as soon as possible.

ALL doors to the yellowcake area will be kept closed at all times. No additional posting will be done since decanting will be in a restricted area of the mill, already posted.