Docket 40-8768

PDR

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396-55

KERR-McGEE CORPORATION

KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

June 26, 1981

ENVIRONMENT AND HEALTH MANAGEMENT DIVISION

Mr. Ross A. Scarano, Chief
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

RE: SUA-1387, Docket #40-8768
Q-Sand R&D License

Dear Mr. Scarano:

In accordance with License Condition No. 12 of SUA-1387, we are notifying you that within six (6) weeks we plan to commence mining operations.

The information required by License Conditions 21, 22, 28, 51b, 51d and 62 are attached to demonstrate compliance. Would you please issue license amendments as required by the respective conditions. We expect to complete the other requirements requiring submissions in the very near future.

In order to initiate NRC review of this information, we have enclosed an amendment fee of $150.00.

If you need additional information, please contact me.

Very truly yours,

W. J. Shelley

W. J. Shelley, Vice President
Nuclear Licensing & Regulation

WJS:jt

Enclosures

cc: Mr. Walter Ackerman, WDEQ
U.S. Nuclear Regulatory Commission
Region IV, Office of Inspection and Enforcement

Acct - 1129

Applicant .....
Check No. 111213 .....
Amount/Fee Category 150.00 (C.A.)
Type of Fee Paper SL (C.A.)
Date Check Rec'd. 7/10/81 .....
Received By .....

10206

KERR-McGEE NUCLEAR CORPORATION

INTERNAL CORRESPONDENCE

TO W.J. Shelley

DATE June 25, 1981

FROM M.D. Freeman

SUBJECT Responses to NRC
Q Sand License Conditions

Attached are the originals for responding the following NRC license conditions.

Condition 21	- Radon survey - 1 page
Condition 22	- Gamma survey - 1 page
Condition 28	- Traffic pattern - 2 pages
Condition 29	- Plant ventilation - 2 pages
Condition 51 b.	- Liner QA program - 2 pages with 50+ page attachment
Condition 51 d.	- Pond QA program - 2 pages
Condition 62	- Cost breakdown on bonds - 12 pages

NRC has advised that we do have to submit an amendment fee with each transmittal to them; however, one transmittal can cover any number of license condition responses.

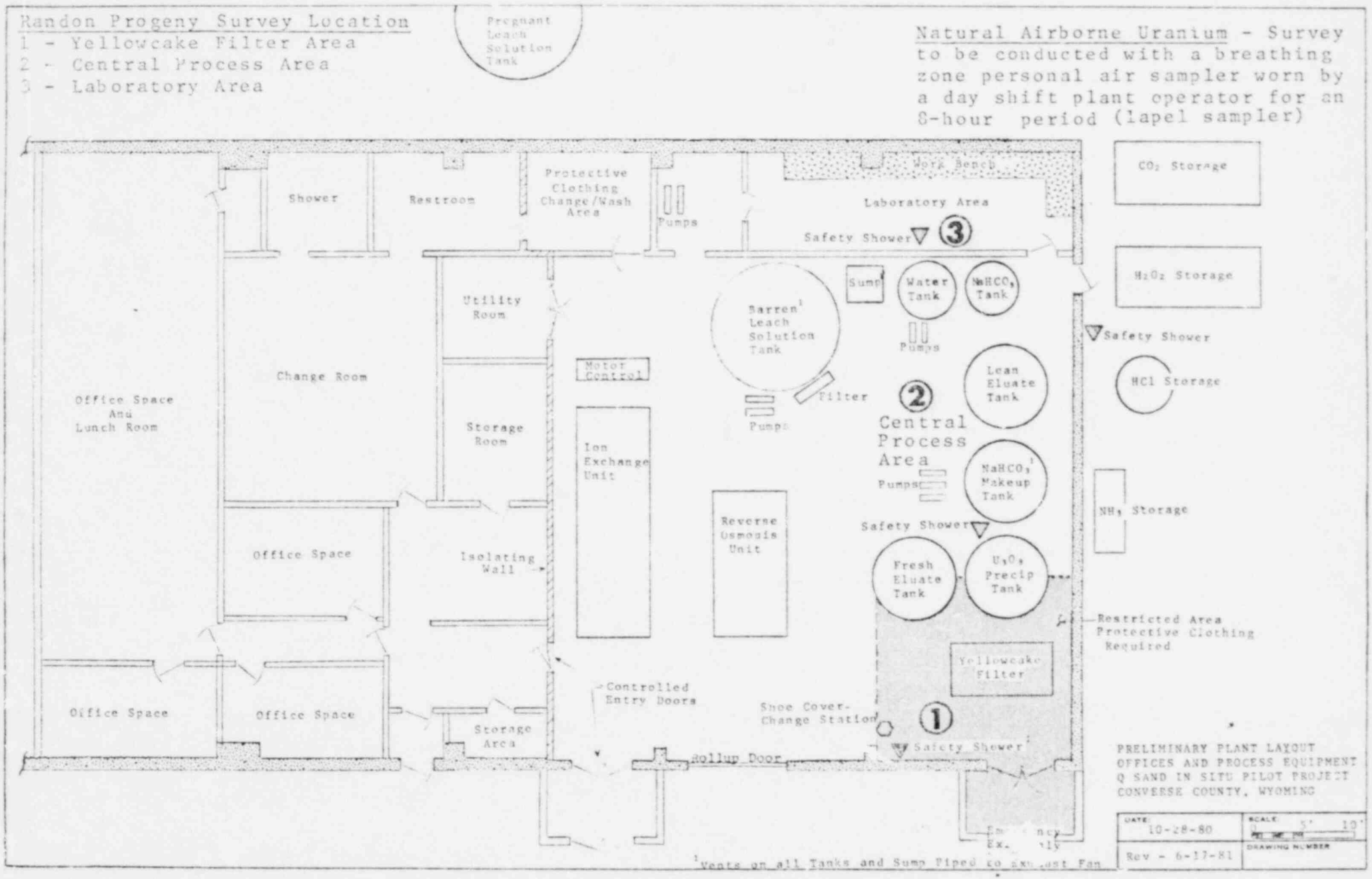
M.D. Freeman

kb

Survey Location Designations
Radon Progeny And Airborne Uranium
Q Sand ISL Project
NRC License SUA - 1387 - Condition 21

Randon Progeny Survey Location
1 - Yellowcake Filter Area
2 - Central Process Area
3 - Laboratory Area

Natural Airborne Uranium - Survey to be conducted with a breathing zone personal air sampler worn by a day shift plant operator for an 8-hour period (lapel sampler)

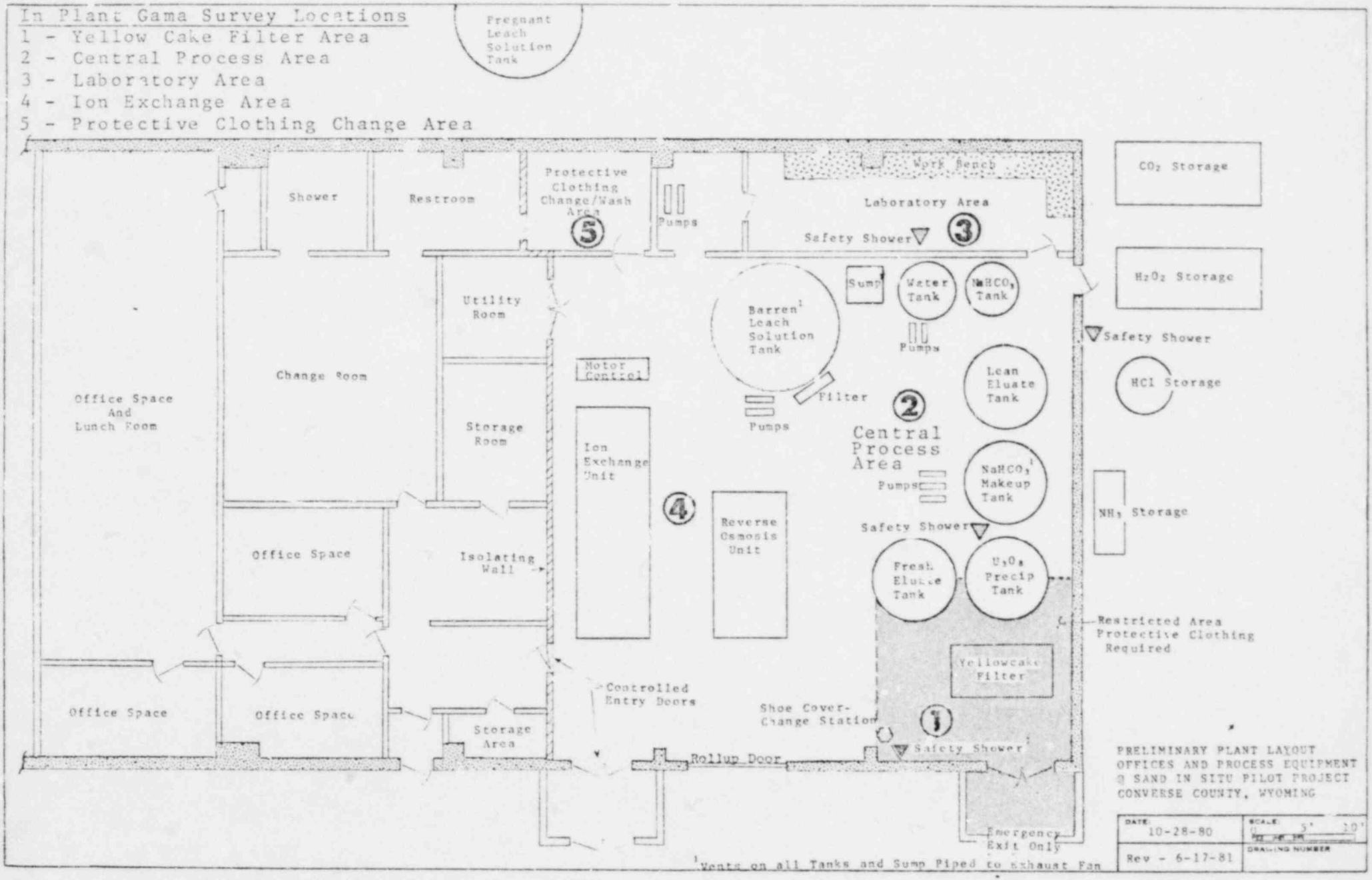


PRELIMINARY PLANT LAYOUT
OFFICES AND PROCESS EQUIPMENT
Q SAND IN SITU PILOT PROJECT
CONVERSE COUNTY, WYOMING

DATE	SCALE
10-28-80	5' 10'
Rev - 6-17-81	DRAWING NUMBER

[1] Vents on all Tanks and Sump Piped to exhaust Fan

Survey Location Designations
Gamma Radiation Surveys
Q Sand ISL Project
NRC License SUA-1387 Condition 22



Facility Modifications to Improve Traffic Pattern
Q Sand ISL Project
NRC License SUA-1387 - Condition 28

Facility modifications to be implemented to improve traffic patterns in the process area include the following

1. Designation of a restricted area requiring protective clothing in the yellowcake processing area.

2. Conversion of the restroom facility located in the northwest (upper left) corner of the process area into a protective clothing change/wash area (see attached sketch).

3. Installation of a doorway between the protective clothing change/wash area and the restroom leading to the existing change room.

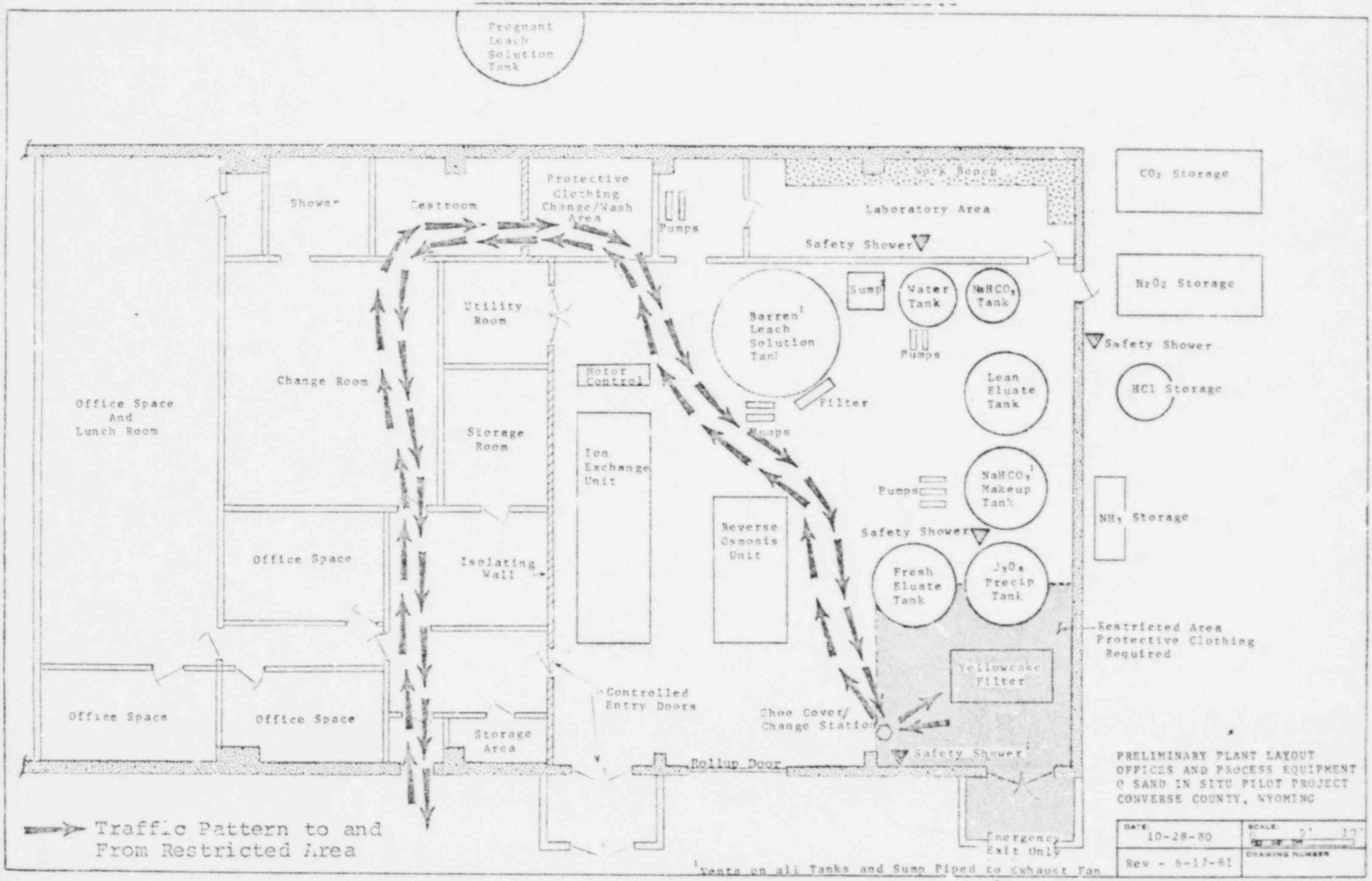
4. Limit use of the entry doors near the yellowcake process area in the southeast (lower right) corner of the process area for emergency exits only.

5. Restricted use of the entry doors in the southwest (lower left) corner of the process area to ensure that all operator and maintenance personnel who work in the restricted yellowcake handling area go through the protective clothing change area (where protective clothing will be removed) and the existing change room before entering the office area or exiting the building.

6. Operator and maintenance personnel leaving the yellowcake process area will be required to change shoes or boots, or to wear shoe covers while going from the restricted area to the protective clothing change area.

It is believed that the above facility modification and procedures will restrict unnecessary traffic in the process area and will provide the facilities needed to keep employee exposure to a minimum. The basic traffic pattern for the operators and maintenance personnel that enter the restricted yellowcake processing area is indicated on the attached sketch, "Required Operator/Maintenance Traffic Pattern, Before and After Entering Restricted Area".

Required Operator/Maintenance Traffic Patterns
Before and After Entering Restricted Area
Q Sand ISL Project
NRC License SUA - 1387 - Condition 28



Plant Ventilation System

Q Sand ISL Project

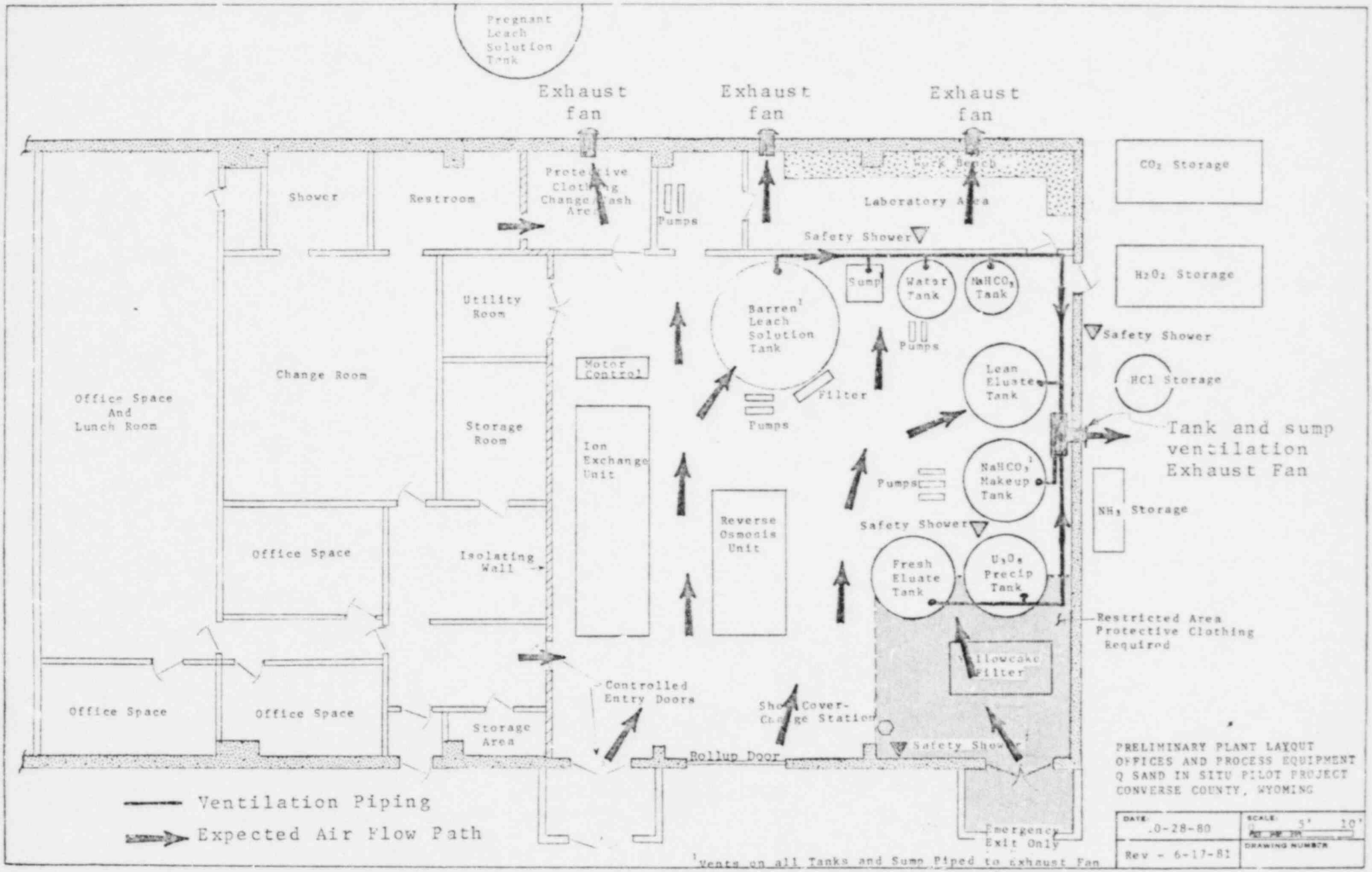
NRC License SUA - 1387 - Condition 29

The ventilation systems for the ISL plant office/change area and the plant process area are two separate systems, and the areas are separated by a solid floor-to-roof wall except for doorways. The office side of the facility is a positive pressure system where the heating and cooling systems take outside air and force it into the duct work distribution system with blowers. The process area is a negative pressure system in which exhaust fans mounted in the exterior walls pull air from the process area and discharge it outside. With these two systems, if there is any leakage through the isolating wall or doorways, it will be from the office side into the process side. The expected air flow paths and the location of the process area vent fans are indicated on the attached sketch.

The office cooling system consists of a single two-speed evaporative cooler, rated at 4200 cfm/6300 cfm, that feeds outside air directly into a duct work system that distributes it to the various offices. The blower on the office heating system is rated at 3000 cfm and brings outside air in through a section of 30 inch by 18 inch duct. The process area exhaust system consists of four wall mounted exhaust fans. The largest of these units, which is rated at 2640 cfm, takes suction from the various tanks and the sump through a piping system and exhausts it outside the building (see attached sketch). The other three exhaust fans are mounted in the wall opposite the roll-up door, approximately 11 feet above the floor level. Two of these exhaust fans are rated at 693 cfm each and the third fan is rated at 255 cfm.

Based on rated capacities, the exhaust fans can move 4281 cfm of air which would result in one air exchange in about 11 minutes or 5 turnovers per hour. With this exhaust system, it is expected that the airborne radioactivity levels will average 0.05 working levels or less of radon progeny and 0.02 milligrams per cubic meter or less of natural uranium. If monitoring data indicate that the current ventilation system cannot maintain the airborne radioactivity levels at or below the expected levels, additional exhaust fans or larger exhaust fans will be installed to increase ventilation in the process area.

Ventilation System and Expected Air Flow Paths
Q Sand ISL Project
NRC License SUA - 1387 - Condition 29



[1]Vents on all Tanks and Sump Piped to exhaust Fan

Quality Assurance Program
Evaporation Pond Liner Installation
Q Sand R&D In-Situ Leach Project
Converse County, Wyoming
NRC LICENSE SUA-1387 - CONDITION 51 b.
NRC Docket No. 40-8768

The evaporation pond will be lined with a hypalon liner installed in accordance with the suppliers recommendation. Attached is a letter to Watersaver Company, Inc. of Denver, Colorado, who will supply the hypalon liner, specifying the expected composition of the waste water stream. Also attached is Watersaver's response and a copy of their "Hypalon Information Manual". The manual includes a partial list of users, the manufactures engineering specifications, results of compatibility testing with various materials, manufactures quality control procedures, and a liner installation manual.

The quality assurance program for the liner installation includes the following:

1. The hypalon liner will be factory fabricated so that only one field seam will be required in each cell of the pond.

2. A manufacturer's or supplier's representative familiar with the installation and field seaming procedures will be on site to monitor installation and to insure proper procedures are being utilized.

3. There will be no pipes or drain lines penetrating the liner in the pond area.

4. All field seams shall have a minimum overlap of six inches and all field seams will be air lance tested over the entire length of the seam.

5. In preparation for lining, the pond area will be inspected and all sharp rocks, roots, and other foreign material will be removed. A layer of sand will then be spread uniformly over the bottom and up the inside slope of the pond.

6. After the panels are initially placed but before applying adhesive the full length of the field seam will be inspected to insure sufficient overlap and that wrinkles are kept to a minimum.

7. Walking on the hypalon liner during installation will be kept to a minimum and driving on the liner shall be prohibited.

8. All persons required to work on the liner during installation shall wear shoes with protrusion-free soles, such as rubber soled work shoes.

9. The outer edges of the liner shall not be buried in the anchor trench until after the field seam has been completed.

10. Prior to using the pond for waste water, each cell will be filled with sufficient mine water to cover the bottom area for a minimum of 24 hours, and the leak detection system will be monitored to insure there are no leaks indicated.

QUALITY ASSURANCE PROGRAM
EVAPORATION POND CONSTRUCTION
Q SAND IN SITU R&D PROJECT
CONVERSE COUNTY, WYOMING
NRC LICENSE SUA-1387 - CONDITION 51 d.
NRC DOCKET NO. 40-8768

The quality assurance program for excavation, testing and compaction of the sub-grade, and the placement, compaction, and moisture control for the fill and embankment areas will include the following:

1. A qualified soils engineering or consulting firm, such as Chen and Associates of Casper, Wyoming, will be retained to monitor the construction of the pond and to conduct on site tests to insure proper moisture content, placement procedures, and compaction of material placed in the subgrade and embankments.

2. A qualified field engineer from the consulting firm will be on site everyday that the contractor is placing and/or compcompacting material for the sub-grade and/or embankments.

3. Pre-construction soil tests to determine optimum moisture content for compaction and other construction characteristics shall be conducted as needed by a qualified laboratory.

4. The field engineer will test the construction materials as needed to insure it is suitable for construction and shall visually inspect the material stockpile and total work area at frequent intervals throughout the day to insure proper handling of the materials.

5. The field engineer shall inspect the bottom area of the pond after it has been cut to grade but prior to final compaction to insure there are no sand lenses or pockets in the bottom. If any sand lenses exist they shall be removed and replaced with compacted clay or sandy clay material.

6. The field engineer shall test each compacted lift of the subgrade and embankments at four to six locations to insure that the compaction and moisture content of the compacted lift meet the construction specifications. A nuclear density unit or equivalent method will be used for determining the density and moisture. Material used for constructing the embankments shall be compacted to 95 percent of maximum dry density and shall be placed within +2 percent of optimum moisture content. Individual lifts shall be limited to no more than 12 inches of loose material.

7. The field engineer shall prepare and submit a daily report on the construction and test results to Kerr-McGee's Superintendent of Operations.

8. Kerr-McGee's Superintendent of Operations or his representative shall inspect the construction site and review the field engineer's test data daily during construction.

9. The field engineer shall notify Kerr-McGee's Superintendent of Operations of the test results on any compacted lift that does not meet specifications. Any area failing to meet specifications will be reworked and compacted prior to placing additional lifts in that area.

10. After final grading and compaction and prior to placement of the sand fill covering the leak detection system, Kerr-McGee's Superintendent of Operations or his representative and the field engineer shall conduct a joint inspection of the evaporation pond embankments, bottom area, and slopes. Kerr-McGee's Superintendent of Operations shall approve the construction prior placement of the sand layer inside the pond.

11. The sand layer shall be spread uniformly over the bottoms and up the slopes of the two cells in the pond. The sand shall be placed over the bottom of the cells to a minimum thickness of six inches.

12. After the sand layer has been placed in each cell, the leak detection system for that cell will be tested. Kerr-McGee's Superintendent of Operations or his representative shall witness testing of the leak detection system and shall approve the finished grade of the sand layers prior to installation of the pond liner.

Reclamation Performance Bonds
Kerr-McGee South Powder River Basin Operations
Q Sand ISL Project
NRC License SUA 1387 - Condition 62

License condition 62 requires submittal of copies of Kerr-McGee's surety instrument covering reclamation of the site and a cost breakdown for those instruments. Kerr-McGee currently has two reclamation bonds posted with the Wyoming DEQ. The bonds are in the amount of $4,296,200 and $67,800. The smaller bond was established to cover incremental reclamation costs associated with the Q sand ISL project and another R&D test program for areas that are outside the disturbed areas covered by mining permit 304C which is bonded for $4,296,200.

Ten copies each of the surety bonds were mailed to NRC on May 1, 1981-attention Mr. John Linehan. Cost breakdowns for these instruments are attached. It should be noted that although a $4,296,200 bond is posted for the permit 304C area, the current calculated bond requirement is only $2,777,972; therefore, we are currently over bonded in this area by about $1.5 million.

6/22/81

Reclamation Performance Bond 297[illegible]0-2202
Incremental Reclamation Bond Costs Breakdown
Q Sand ISL Project
NRC License SUA 1387 - Condition 62

A breakdown of costs included in the $67,800 incremental reclamation performance bond submitted earlier is as follows:

A. One Acre Q Sand ISL Project
DEQ License 5RD

1.	Ground Water Cleanup	$41,000
2.	Plug and Cap Wells	6,000
3.	Removal of Surface Facilities	4,000
4.	Reclaims Disturbed Areas	2,000
5.	Contingency	8,000
	Subtotal	$61,000

B. R&D Program in the Bill Smith mine 6,800
DEQ License 4RD

Total $67,800

6/22/81

Reclamation Performance Bond 188 98 10 589
Reclamation Bond Cost Breakdown
Wyoming DEQ Permit 304C
NRC License SUA 1387 - Condition 62

Attached is a detailed breakdown of the reclamation cost estimate prepared by Kerr-McGee as part of the annual reclamation report submitted to the Wyoming Department of Environmental Quality in March 1981. A summary of the major cost categories are as follows:

1.	Bill Smith Mine Costs in Excess of Salvage Value	$ 53,076
2.	Surface Mine 28-33 Area	1,502,591
3.	Surface Mine 3-10 Area and Mill Haul Road	859,961
	Sub Total	$2,415,628
4.	Contingency @ 15%	362,344
	Total Required Bond	$2,777,972
	Current Bond Amount	4,296,200
	Excess Bond Posted	$1,518,228

6/22/81

Revised January, 1981

17. ESTIMATED RECLAMATION COSTS - BILL SMITH MINE

Disposal of buildings, shop and shaft equipment is considered to be offset by salvage value	$ 0
Plugging of the shaft	8,000
Stoping, contouring:	
(a) Settling ponds	
D-9 dozer 100 hrs. @ $60/hour	6,000
Pond Stabilization	4,000
(b) Rip, cover building foundations	
D-9 dozer 40 hrs. @ $60/hour	2,400
Scraper 2400 C.Y. @ $.70/C.Y.	1,680
(c) Backslope	
D-9 dozer 30 hrs. @ $60/hour	1,800
(d) Rip compacted areas, levelling	
Motor Grader 90 hrs. @ $40/hour	3,600
Distribution of topsoil from piles	
9,000 C.Y. @ $.70/C.Y.	6,300
Seeding, fertilizing, mulching (including access)	
50.78 Acres @ $380/acre	19,296
Bill Smith Mine Total	$53,076

Revised January, 1981

17. ESTIMATED RECLAMATION COSTS - 28-33 MINE

GRADING, CONTOURING, BACKFILLING, SLOPING

Spoil Pile (Completed)		$ 0
Ore Pad (16.42 Acres)		
Scraper - Contouring	2220 C.Y. @ $.70/C.Y.	1,554
Motor Grader	10 hrs. @ $40/hour	400
Treatment Plant, Settling Ponds (3.68 Acres)		
Dozing, levelling (D-9)	30 hrs. @ $60/hour	1,800
Motor Grader	10 hrs. @ $40/hour	400
Partial backfill Phase II, slope walls, through drainage to west		
Backfill	1,590,000 C.Y. @ $.70/C.Y.	1,113,000
Slope walls	833 dozer hrs. @ $60/hour	50,000
Cut channel for through drainage	124,829 C.Y. @ $.70/C.Y.	87,380
Shop Area (8.57 Acres)		
Disposal of buildings (offset by salvage value)		0
Rip foundations, levelling (D-9)	30 hrs. @ $60/hour	1,800
Cover foundations	3055 C.Y. @ $.70/C.Y.	2,139
Access Road		
Rip roadbed, sloping, levelling with motor grader	53 hrs. @ $40/hour	2,120
	Sub-Total	$1,260,593

Revised January, 1981

17. ESTIMATED RECLAMATION COSTS 28-33 MINE (Cont'd)

DISTRIBUTION OF TOPSOIL

Spoil Pile (Completed)		$ 0
Ore Pad - 16.4 Acres		
	39,633 C.Y. @ $.70/C.Y.	27,743
$BaCl_2$ Plant, Ponds - 3.7 Acres		
	8,941 C.Y. @ $.70/C.Y.	6,259
Phase I (Backfilled from Phase II) - 33.28 Acres		
	80,426 C.Y. @ $.70/C.Y.	56,298
Phase II plus Phase III layback, sloped with outlet to west, partially backfilled - 38.01 Acres		
	91,857 C.Y. @ $.70/C.Y.	64,300
Shop Area - 8.6 Acres		
	23,139 C.Y. @ $.70/C.Y.	16,197
Contractor area plus haul roads - 6.46 Acres		
	10,467 C.Y. @ $.70/C.Y.	7,285
Access Road (roadsides done)		
1/2 roadbed - 12.7 Acres	20,461 C.Y. @ $.70/C.Y.	14,323
	Sub-Total	$192,405

Revised January, 1981

17. ESTIMATED RECLAMATION COSTS 28-33 MINE (Cont'd)

SEEDING

Seeding, fertilizing, mulching		
119.15 Acres @ $380/Acre		$ 45,277
Seeding, fertilizing topsoil areas #1, 2, & 3		
16.6 Acres @ $260/Acre		4,316
	Sub-Total	$ 49,593
	28-33 Mine Total	$1,502,591

Revised January, 1981

17. ESTIMATED RECLAMATION COSTS 3-10 MINE AREA - MILL HAUL ROAD

GRADING, CONTOURING, BACKFILLING, SLOPING

Spoil Pile		
D-9 Dozer	40 hrs. @ $60/hour	$ 2,400
Motor Grader	20 hrs. @ $40/hour	800
Ore Pad		
Cover material	42,727 C.Y. @ $.70/C.Y.	29,909
Motor Grader	10 hrs. @ $40/hour	400
Treatment Plant		
Dozing, levelling, D-9	30 hrs. @ $60/hour	1,800
Motor Grader	10 hrs. @ $40/hour	400
Complete backfill in Phase I, slope walls, through drainage to north		
Backfill	532,048 C.Y. @ $.70/C.Y.	372,434
Slope walls	150 dozer hrs. @ $60/hour	9,000
Cut channel for through drainage	42,667 C.Y. @ $.70/C.Y.	29,867
Partial backfill North Trainer pit, through drainage to south	131,829 C.Y. @ $.70/C.Y.	92,280
Slope walls	50 dozer hrs. @ $60/hour	3,000
Cut channel for through drainage	31,794 C.Y. @ $.70/C.Y.	22,256

Revised January, 1981

17. ESTIMATED RECLAMATION COSTS 3-10 MINE AREA - MILL HAUL ROAD
(Cont'd)

Access Roads, Mill Haul Road

Rip roadbed, sloping, levelling

Motor Grader	75 hrs. @ $40/hour	$ 3,000
	Sub-Total	$567,546

Revised January, 1981

17. ESTIMATED RECLAMATION COSTS 3-10 MINE AREA - MILL HAUL ROAD (Cont'd)

DISTRIBUTION OF TOPSOIL

Spoil Pile (3-10 Mine) - 26.0 Acres	
62,833 C.Y. @ $.70/C.Y.	$ 43,983
Ore Pad - 13.26 Acres	
32,045 C.Y. @ $.70/C.Y.	22,432
Treatment Plant - 3.7 Acres	
8,941 C.Y. @ $.70/C.Y.	6,259
Phase I of Pit, Trainer Pits - 45.18 Acres	
109,185 C.Y. @ $.70/C.Y.	76,430
Pit outlets for thru drainage - 5.5 Acres	
13,292 C.Y. @ $.70/C.Y.	9,304
Access Roads, Mill Haul Road - 47.5 Acres	
(Roadsides done) 76,528 C.Y. @ $.70/C.Y.	53,570
Sub-Total	$211,978

Revised January, 1981

17. ESTIMATED RECLAMATION COSTS 3-10 MINE AREA - MILL HAUL ROAD
(Cont'd)

SEEDING

Seeding, fertilizing, mulching	
197.22 Acres @ $380/acre	$ 74,943
Seeding, fertilizing topsoil areas	
21.13 Acres @ $260/acre	5,494
Sub-Total	80,437
Total 3-10 Mine, Mill Road	$859,961

Revised January, 1981

17. SUMMARY OF RECLAMATION COSTS

Bill Smith Mine		$ 53,076
28-33 Mine, Access Road		1,502,591
3-10 Mine, Mill Road		859,961
	Total	$2,415,528