

TETON-NEDCO  
LEUENBERGER IN SITU MINING PROJECT

PACKER TEST REPORT

FOR -

Initial Wells for Pattern 2  
of M Well Field Area

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## TABLE OF CONTENTS

	<u>Page</u>
List of Tables	ii
List of Figures	ii
Introduction	1
Purpose	1
Procedure	2
Results	2

List of Tables

		<u>Page</u>
Table 1	Well Completion Data for Tested Wells	6
Table 2	Packer Test Results	7

List of Figures

Figure 1	Site Facility Layout	4
Figure 2	Location of Injection and Recovery Wells	5

## PACKER TEST REPORT

### INTRODUCTION

Teton-Nedco is beginning the second phase of the Leuenberger In Situ Uranium Mining Research-Development Operation located 12 miles northeast of Glenrock, Wyoming. The operation is authorized by the Wyoming Department of Environmental Quality Research & Development License 2RD and the Nuclear Regulatory Commission Source Material License SUA-1373. Details concerning the project operation and the location of the mining facilities can be referenced in each of the applications submitted to these agencies for the respective licenses.

### PURPOSE

As part of the pre-injection phase of the uranium in situ mining process, all injection wells and recovery wells are tested to demonstrate mechanical integrity of the wells. The tests are designed to detect significant leaks in the wells that may result from holes or cracks in the well casings. If no leaks are detected, the wells are considered to show mechanical integrity and no leakage of injected solutions would be expected through the well casing during operation. If casing leakage is detected during the tests, the well is to be repaired before injection or the well is to be abandoned.

This report summarizes the procedure used and results for the packer tests conducted in six wells of Pattern 2 of the M Well Field area at the Leuenberger Project Site.

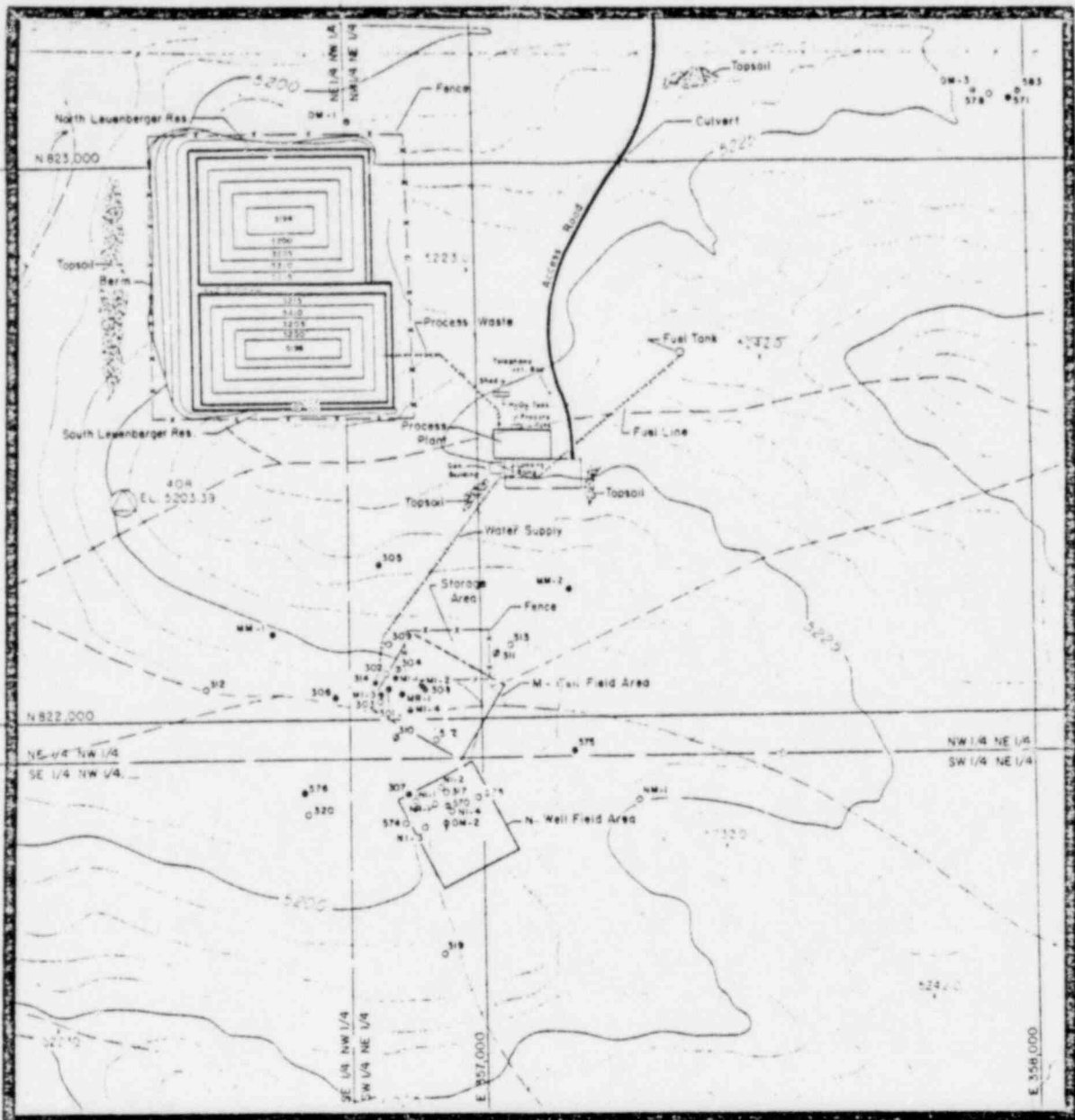
#### PROCEDURE

The packer tests were conducted using two inflatable packers. One packer was placed near the top of the well casing and the other packer was positioned near and above the well screen packer. The inflatable packers are 2.8 feet long with a 3.5 inch OD (not inflated). Each of these packers were pressurized to 100 to 105 psi above static water pressure to make a tight seal between the packer and the well casing. The space between the packers within the well casing was filled with water to the bottom of the upper inflatable packer and additional air pressure was applied between the packers. The well was then shut in and a pressure gauge at the well head was observed for a 10 minute time period to note any drop in pressure between the inflatable packers.

#### RESULTS

Figure 1 shows the location of the M Well Field Area, and Figure 2 shows all the injection and recovery wells within this well field to include the wells tested. Table 1 lists the well completion data for the wells tested, and Table 2 lists the packer test results. No drop in pressure was

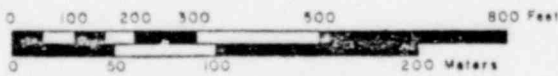
observed during each of the packer tests. The packer test results indicate that each of the wells have demonstrated mechanical integrity to the maximum safe operating pressure listed in Table 2. This maximum will not be achieved during the R&D operation. It is expected that most wells will operate under gravity flow. However, should pressurization become necessary, the injection well head pressure will not exceed 45 psi.



T34N., R.74W.  
Within Section 14

Research & Development  
License Area Boundary

Contour Intervals = 5'



• THE COORDINATES USED ARE AFTER  
THE WYOMING STATE COORDINATE SYSTEM.

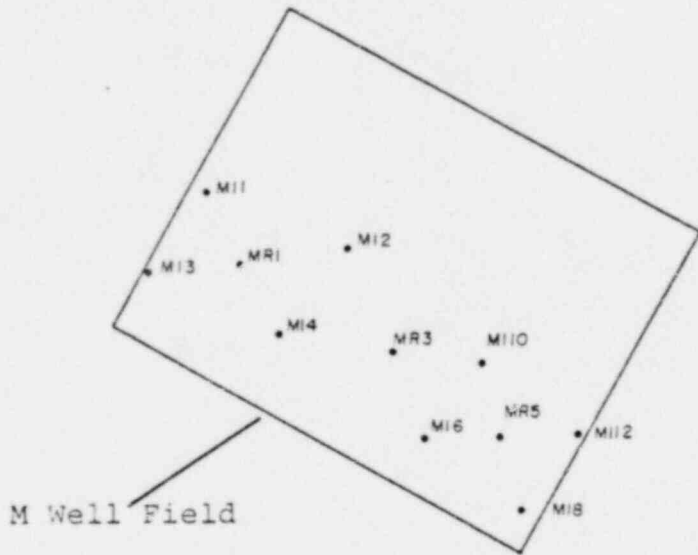
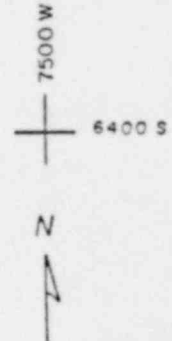
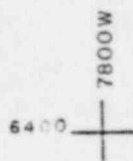
•• ALL DRILL HOLE NUMBERS ARE  
PRECEDED BY A 'PN5-L' INDEX NUMBER.

LEGEND

- ⊕ Upper Idaho Aquifer Well
- ⊖ Lower Idaho Aquifer Well
- ⊕ Confining Layer Below Lower Idaho Aquifer Well
- N Aquifer Well
- ⊕ M Aquifer Well
- Basal Aquifer Well
- ⊕ Abandoned Well Sealed With Cement
- Pipe Line With Use Noted

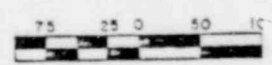
Figure 1  
Site Facility Layout

POOR ORIGINAL



M Well Field

Scale in Feet



LEUENBERGER PROJECT-  
R & D

Date 8/6/80

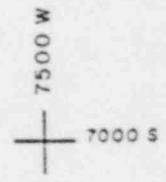


Figure 2  
Location of Injection &  
Recovery Wells



TABLE 1

Well Completion Data for Tested Wells

Field ID	Wyoming Permit Number	Date of Completion Development	Location Coordinates (0,0 pt. is 75' south of NE corner of Sec. 12, T34N, R74W)		Surf. Casing ID (in)	Screen ID (in)	Drill Bit Diam # Screened Inter (in)	Surface Elevation Top of Casing (ft)	Depth Cased Annulus (ft)		Total Depth (Feet)		Open or Screened Interval (ft.)		Screen Packer Depth (ft) from Surface Elev.	Aquifer Repres.
			South	West					Depth	Elev.	Depth	Elev.	Depth	Elev.		
M03	49670	6/25/80	6561.7	7681.3	5	3	10	5201.22	321	4880.22	390	4811.22	321-361	4880.22-4840.22	310	M
		7/2-11/80						5201.72					371-389	4830.22-4812.22		
M05	49670	7/1/80	6599.1	7637.4	5	3	10	5201.80	343.3	4858.5	389	4812.8	355-365	4846.80-4836.80	331	M
		7/2-11/80						5202.15					374-384	4827.80-4817.80		
M06	49670	6/26/80	6599.3	7669.6	5	3	10	5201.01	326.8	4874.21	388	4813.01	355-360	4846.01-4841.01	310	M
		7/2-11/80						5201.61					369-384	4832.01-4817.01		
M08	49670	6/27/80	6629.4	7630.1	5	3	10	5202.13	345	4857.13	383	4819.13	359-364	4843.13-4838.13	337	M
		7/2-11/80						5202.61					375-380	4827.13-4822.13		
M10	49670	6/28/80	6568.2	7644.7	5	3	10	5201.57	320	4881.57	387	4814.57	359-364	4842.57-4837.57	308	M
		7/2-11/80						5202.17					373-383	4828.57-4818.57		
M12	49670	6/27/80	6598.5	7605.8	5	3	10	5202.38	350	4852.38	390	4812.38	358-368	4844.38-4834.38	344	M
		7/2-11/80						5202.98					378-383	4824.38-4819.38		

Field ID numbers have a PN5-L prefix.

TABLE 2

## PACKER TEST RESULTS

Well <sup>1</sup> Number	Date Tested	Depth of Top of Lower Packer (ft)	Total Height of Water Column Above Lower Packer (ft)	Equivalent Pressure (psi)	Pressure Added at Well Head (psi)	Total Pressure at Top of Lower Packer (psi)	Maximum Safe <sup>2</sup> Operating Well Head Pressure (psi)
MR3	8/2/80	298.8	260.8	113.4	70	183.4	53.5
MR5	8/4/80	298.8	284.4	123.7	75	198.7	68.8
MR6	8/4/80	298.8	281.9	122.6	76	198.6	68.7
MR8	8/5/80	319.8	306.9	133.4	70	203.4	64.4
MR10	8/5/80	298.8	282.9	123.0	75	198.0	68.0
MR12	8/5/80	319.8	305.6	132.9	76	208.9	69.9

<sup>1</sup>All well numbers have a PMS-L prefix

<sup>2</sup>Well head injection pressures for the B Zone will not exceed 45 psi during the injection phase of the Bsd operation.