

UNDERGROUND INJECTION CONTROL PROGRAM

DRAFT

PERMIT

Class IIR Water Injection Well

Permit No. NN291000001

Well Name: Navajo #5

San Juan County, New Mexico

Navajo Nation

Issued to:

Grand Resources, Inc.
2250 E. 73rd Street, Suite 400
Tulsa, OK 74136

TABLE OF CONTENTS

PART I.	AUTHORIZATION TO CONSTRUCT AND INJECT	4
PART II.	SPECIFIC PERMIT CONDITIONS	5
A.	WELL CONSTRUCTION	5
1.	Casing and Cementing	5
2.	Formation Logging and Testing	6
3.	Monitoring Devices	6
4.	Proposed Changes and Workovers	6
B.	CORRECTIVE ACTION	6
C.	WELL OPERATION	7
1.	Mechanical Integrity	7
(a)	Method for Demonstrating Mechanical Integrity	7
(b)	Prohibition Without Demonstration	7
(c)	Subsequent Mechanical Integrity Demonstrations	8
(d)	Loss of Mechanical Integrity	8
2.	Injection Intervals	8
3.	Injection Pressure Limitation	9
4.	Injection Volume (Rate) Limitation	9
5.	Injection Fluid Limitation	9
D.	MONITORING, RECORDKEEPING, AND REPORTING OF RESULTS	10
1.	Injection Well Monitoring Program	10
2.	Monitoring Information	10
3.	Recordkeeping	10
4.	Reporting of Results	11
E.	PLUGGING AND ABANDONMENT	11
1.	Notice of Plugging and Abandonment	11
2.	Plugging and Abandonment Plan	11
3.	Cessation of Injection Activities	12
4.	Plugging and Abandonment Report	12
F.	FINANCIAL RESPONSIBILITY	12
1.	Demonstration of Financial Responsibility	12
2.	Insolvency of Financial Institution	12
PART III.	GENERAL PERMIT CONDITIONS	13
A.	EFFECT OF PERMIT	13
B.	PERMIT ACTIONS	13
1.	Modification, Reissuance, or Termination	13

2.	Transfers	14
C.	SEVERABILITY	14
D.	CONFIDENTIALITY	14
E.	GENERAL DUTIES AND REQUIREMENTS	14
1.	Duty to Comply	14
2.	Penalties for Violations of Permit Conditions	15
3.	Need to Halt or Reduce Activity not a Defense	15
4.	Duty to Mitigate	15
5.	Proper Operation and Maintenance	15
6.	Duty to Provide Information	15
7.	Inspection and Entry	15
8.	Records of the Permit Application	16
9.	Signatory Requirements	16
10.	Reporting of Noncompliance	16
	(a) Anticipated Noncompliance	16
	(b) Compliance Schedules	16
	(c) Twenty-four Hour Reporting	16
	(d) Other Noncompliance	17
	(e) Other Information	17
APPENDIX A	- (Plugging and Abandonment Plan)	18
APPENDIX B	- (Reporting Forms and Instructions)	19

PART I. AUTHORIZATION TO CONSTRUCT AND INJECT

Pursuant to the Underground Injection Control Regulations of the U. S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations, Parts 124, 144, 145, 146, 147, and 148,

Grand Resources, Inc.
2250 E. 73rd Street, Suite 400
Tulsa, OK 74136

is hereby authorized to convert an existing oil production well, commonly known as the Navajo #5 well, into service as a Class IIR injection well. The well is located in the SW/4 SE/4 Section 10, T32N, R18W in San Juan County, New Mexico.

Injection shall be for the purpose of a waterflood project in the Mesa Gallup oilfield in accordance with conditions set forth herein.

All conditions set forth herein refer to Title 40 Parts 124, 144, 146, 147, and 148 of the Code of Federal Regulations and are regulations that are in effect on the date that this permit becomes effective.

This permit consists of a total of twenty-two (22) pages and includes all items listed in the Table of Contents. Further, it is based upon representations made by the permittee and on other information contained in the administrative record. It is the responsibility of the permittee to read and understand all provisions of this permit.

This permit and the authorization to inject are issued for a period of ten years unless terminated under the conditions set forth in Part III, Section B of this permit. The permit will expire upon delegation of primary enforcement responsibility for the UIC Class II Program to an appropriate agency of the Navajo Nation, unless the Navajo Nation agency has the appropriate authority and chooses to adopt and enforce this permit as a State permit.

Issued this _____ day of _____

This permit shall become effective _____

DRAFT

SEP 1 1991

Harry Seraydarian, Director
Water Management Division *

* NOTE: The person holding this title is referred to as the "Director" throughout this permit.

PART II. SPECIFIC PERMIT CONDITIONS

A. WELL CONSTRUCTION

1. Casing and Cementing. The construction details submitted with the permit application are incorporated into this permit as Figure 1 and shall be binding on the permittee. The well has been cased and cemented to prevent the movement of fluids behind the casing. The casing and cement have been designed for the life expectancy of the well, and shall be maintained throughout the operating life of the well.

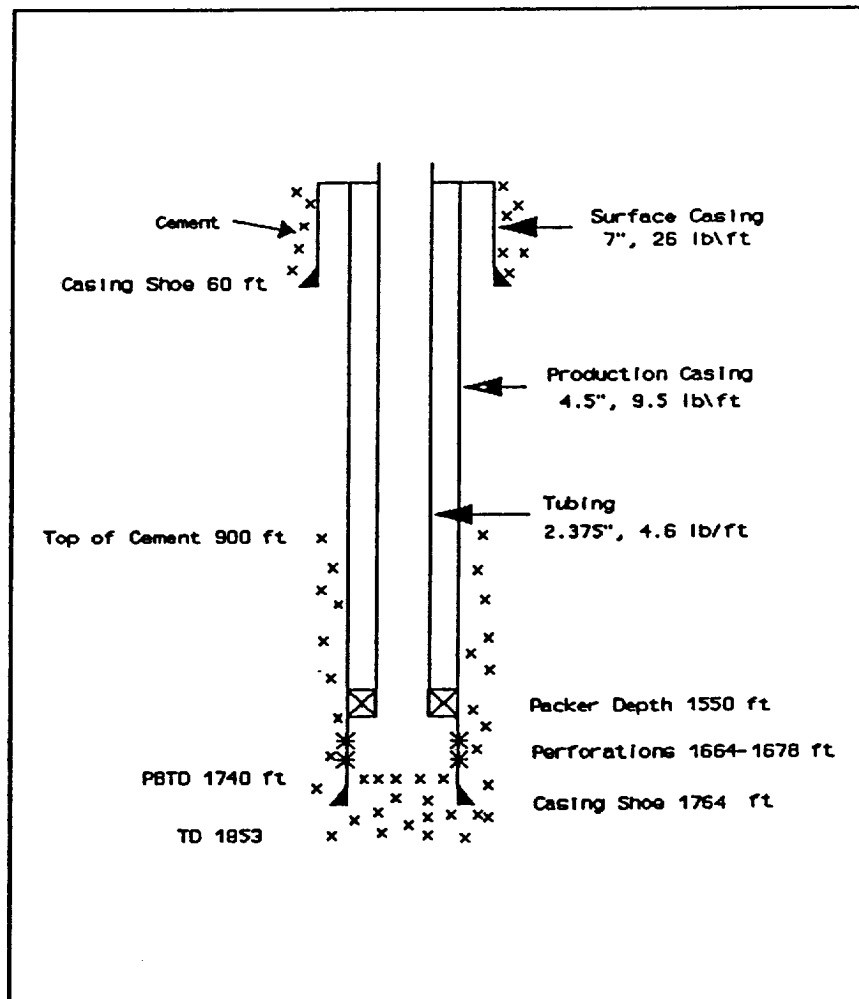


Figure 1 Construction schematic for the well Navajo #5. All depths are in feet below the surface.

2. Formation Logging and Testing. Prior to beginning injection under the authority of this permit, the permittee shall obtain the existing injection formation (aquifer) pressure by an appropriate pressure test method.
3. Monitoring Devices. The operator shall install and maintain in good operating condition:
 - (a) A tap on the discharge line between the injection pump and the wellhead for the purpose of obtaining representative samples of the injection fluids;
 - (b) Two one-half (1/2) inch FIP fittings, isolated by plug or globe valves, and positioned to provide for either (1), the permanent attachment of one-half (1/2) inch MIP gauges, or (2), the attachments for equivalent "quick-disconnect" gauges at the wellhead on the injection tubing and on the tubing/casing annulus. The gauges used shall be of a design to provide (1), a full pressure range of 100 percent greater than the anticipated operating pressure, and (2), a certified deviation accuracy of five (5) percent or less;
 - (c) A flow meter with measured cumulative volumes that are certified for a deviation accuracy of five (5) percent or less throughout the range of injection rates allowed by the permit.
4. Proposed Changes and Workovers. The permittee shall give advance notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted injection well. Any changes in the well construction will require prior approval of the EPA and a permit modification under the requirements of 40 CFR §144.39. In addition, the permittee shall provide all records of well workovers, logging, or other subsequent test data, including required mechanical integrity testing, to EPA within sixty (60) days of completion of the activity. Appendix B contains samples of the appropriate reporting forms. Demonstration of mechanical integrity shall be performed within thirty (30) days of completion of workovers or alterations and prior to resuming injection activities in accordance with Part II, Section C.1.(a) of this permit.

B. CORRECTIVE ACTION

No corrective action will be required on the injection well Navajo #5. The well is properly constructed with the appropriate tubing, casing, packer and cement configurations.

No corrective action will be required on the wells within the AOR. All wells within the AOR are properly constructed or plugged and abandoned according to the provisions of 40 CFR §144.55 and 40 CFR §146.07. Furthermore, no USDW exists within the AOR.

C. WELL OPERATION

1. Mechanical Integrity.

(a) Method for Demonstrating Mechanical Integrity.

- (i) All injection wells must have and maintain mechanical integrity consistent with 40 CFR §146.8. The permittee must show that there are no significant leaks in the casing, tubing and packer and that there is no significant fluid movement through vertical channels adjacent to the injection wellbore.
- (ii) The permittee will demonstrate that no significant leaks exist by means of a shut-in annulus pressure test. The annulus must hold a pressure of 900 psig for a period of 30 minutes with no more than a 5 percent decrease in pressure.
- (iii) The permittee has fulfilled the requirements listed in 40 CFR §146.8 for demonstrating the absence of fluid movement into a USDW through vertical channels adjacent to the injection wellbore. The permittee has submitted proof of an adequate cementing record.

(b) Prohibition Without Demonstration. Injection into this well may begin after the effective date of this permit only if:

- (i) the well has passed a mechanical integrity test in accordance with Part II Section C.1.(a) of this permit and
- (ii) the permittee has received written notice from the Director that the MIT demonstration is satisfactory.

The permittee shall notify the Director of intent to demonstrate mechanical integrity at least 30 days prior to the test.

(c) Subsequent Mechanical Integrity Demonstrations

- (i) A demonstration of mechanical integrity in accordance with Part II Section C.1.(a) shall be made on a periodic time interval not exceeding 5 years. Mechanical integrity shall also be demonstrated any time that a workover is conducted, the construction of the well is modified or when a loss of mechanical integrity becomes evident during operation.
- (ii) It shall be the permittee's responsibility to arrange and conduct the mechanical integrity demonstrations. The permittee shall notify the Director of intent to demonstrate mechanical integrity at least thirty (30) days prior to each such demonstration. Results of the test shall be submitted to the Director as soon as possible but no later than sixty (60) days after the demonstration.
- (iii) In addition to any demonstration made under paragraph (i) above, the Director may require a demonstration of mechanical integrity at any time during the permitted life of the well.

(d) Loss of Mechanical Integrity. If (1), the well fails to demonstrate mechanical integrity during a test, or (2), a loss of mechanical integrity becomes evident during operation, or (3), a significant change in the annulus or injection pressure occurs during normal operating conditions, the permittee shall notify the Director in accordance with Part III, Section E.10 of this permit. Furthermore, injection activities shall be terminated immediately and operation shall not be resumed until the permittee has taken necessary actions to restore integrity to the well and EPA gives approval to recommence injection.

2. Injection Intervals. Injection shall be permitted for the Gallup formation in the subsurface interval of 1664 to 1678 feet KB depth. Injection perforations may be added or squeezed off only within this interval. Alteration of the injection perforations and other rework operations must be properly reported (EPA Form 7520-12) and the well must demonstrate mechanical integrity before injection is resumed.

3. Injection Pressure Limitation.

- (a) The injection pressure shall not exceed 900 psig measured at the wellhead.
- (b) The injection pressure limitation in paragraph (a) may be increased by the Director if the fracture pressure of the injection formation is not exceeded. This demonstration shall be made by performing a valid step-rate injection test in the respective proposed injection zone(s). The Director will determine any allowable increase based upon the step-rate test results and other parameters reflecting actual injection operations.
- (c) Any approval granted by the Director for the increased pressure limitations as stated in paragraph (b) shall be made part of this permit by minor modification without further opportunity for public comment.

4. Injection Volume (Rate) Limitation.

- (a) The maximum injection rate shall be limited to 500 bpd.
- (b) The permittee may request an increase in the maximum rate allowed in paragraph (a). Any such request shall be made in writing to the Director.
- (c) Should any increase in rate be requested, the permittee shall demonstrate to the satisfaction of the Director that the increase in volume will not cause migration of formation or injected fluids into any USDW, nor cause any injected fluids to move beyond the Area of Review boundary.

5. Injection Fluid Limitation.

- (a) The permittee shall not inject any hazardous wastes as defined by 40 CFR §261 at any time during the operation of the facility.
- (b) The well shall be used only for the injection of water from the Entrada formation or produced oilfield brines for the purpose of secondary oil recovery. The TDS of the injected fluid shall not exceed 40,000 ppm.
- (c) Fluids to be injected other than those described in paragraph (b) above shall be limited to occasional minor amounts of well treatment fluids such as dilute acids and corrosion inhibiting fluids. Injection of any fluids other than those described in paragraph (b) above shall be reported to the Director within 30 days.

D. MONITORING, RECORDKEEPING, AND REPORTING OF RESULTS

1. Injection Well Monitoring Program. Samples and measurements shall be representative of the monitored activity. The permittee shall utilize the applicable analytical methods described in Table I of 40 CFR §136.3, or in Appendix III of 40 CFR §261, or, in certain circumstances, other methods that have been approved by the EPA Administrator. Monitoring shall consist of:
 - (a) Analysis of the injection fluids. The analysis shall be performed:
 - (i) annually for Total Dissolved Solids, major ions, pH
 - (ii) whenever there is a change in the source of injection fluids
 - (b) Monthly recordings of injection pressure, annulus pressure, flow rate and cumulative volume.
2. Monitoring Information. Records of any monitoring activity required under this permit shall include:
 - (a) the date, exact place, and the time of sampling or field measurements;
 - (b) the name of the individual(s) who performed the sampling or measurements;
 - (c) the exact sampling method(s) used to take samples;
 - (d) the date(s) laboratory analyses were performed;
 - (e) the name of the individual(s) who performed the analyses;
 - (f) the types of analyses; and
 - (g) the results of such analyses.
3. Recordkeeping.
 - (a) The permittee shall retain records concerning:
 - (i) the nature and composition of all injected fluids until three (3) years after the plugging and abandonment has been carried out in accordance with the Plugging and Abandonment Plan shown in Appendix A,

- (ii) all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation and copies of all reports required by this permit for a period of at least five (5) years from the date of the sample, measurement or report throughout the operating life of the well.
 - (b) The permittee shall continue to retain such records after the retention period specified in paragraphs (a)(i) and (a)(ii) unless it delivers the records to the Director or obtains written approval from the Director to discard the records.
 - (c) The permittee shall maintain copies (or originals) of all pertinent monthly observation records (Part II, Section D.1 of this permit) available for inspection at the lease facility.
4. Reporting of Results. The permittee shall submit an Annual Report to the Director summarizing the results of the monitoring required by Part II, Sections D.1-2. of this permit. Copies of all monthly records on flow rates, volumes, pressures, and injected fluid, and any major changes in the characteristics or sources of injected fluid shall be included in the Annual Report. The first Annual Report shall cover the period from the effective date of the permit through December 31. Subsequently, the Annual Report shall cover the period of January 1 through December 31, and shall be submitted by January 31 of the following year. Appendix B contains Form 7520-11, which may be copied and used to submit the annual summary of monitoring.

E. PLUGGING AND ABANDONMENT

- 1. Notice of Plugging and Abandonment. The permittee shall notify the Director forty-five (45) days before further conversion, workover, or abandonment of the well. The Director may require that the plugging and abandonment be witnessed by an EPA representative.
- 2. Plugging and Abandonment Plan. The permittee shall plug and abandon the well as provided in the Plugging and Abandonment Plan in Appendix A. The EPA reserves the right to change the manner in which the well will be plugged if the well is modified during its permitted life or if the well is not made consistent with EPA requirements for construction and mechanical integrity. The Director may ask the permittee to estimate and to update the estimated plugging cost periodically. Such estimates shall be based upon costs which a third party would incur to plug the well according

to the plan.

3. Cessation of Injection Activities. After a cessation of operations of two (2) years, the permittee shall plug and abandon the well in accordance with the Plugging & Abandonment Plan, unless it:
 - (a) has provided notice to the Director;
 - (b) has demonstrated that the well will be used in the future, and
 - (c) has described actions or procedures, satisfactory to the Director, that will be taken to ensure that the well will not endanger underground sources of drinking water during the period of temporary abandonment.
4. Plugging and Abandonment Report. Within sixty (60) days after plugging the well, the permittee shall submit a report on Form 7520-13 to the Director. The report shall be certified as accurate by the person who performed the plugging operation and the report shall consist of either:
 - (1) a statement that the well was plugged in accordance with the plan, or
 - (2) where actual plugging differed from the plan, a statement specifying the different procedures followed.

F. FINANCIAL RESPONSIBILITY

1. Demonstration of Financial Responsibility. The permittee is required to maintain financial responsibility and resources to close, plug, and abandon the injection well as provided in the plugging and abandonment plan.
 - (a) The subject well is currently covered through July 30, 1992, by a Letter of Credit issued by Western National Bank. The Letter of Credit reference number is 810800 and the Beneficiary is the United States Environmental Protection Agency. The Letter of Credit is automatically renewed by the Bank every year for a period of one year. A Standby Trust Fund has been established at Western National Bank to receive the funds in the case of default.
 - (b) The permittee must provide proof to the EPA of the Letter of Credit renewal every year by June 15.
2. Insolvency of Financial Institution. The permittee must submit an instrument of financial responsibility acceptable to the Director within sixty (60) days after either of the following events occur:

- (a) the institution issuing the bond or financial instrument files for bankruptcy; or
- (b) the authority of the trustee institution to act as trustee or the authority of the institution issuing the financial instrument is suspended or revoked.

PART III. GENERAL PERMIT CONDITIONS

A. EFFECT OF PERMIT

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The permittee, as authorized by this permit, shall not construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR §142 or otherwise adversely affect the health of persons. Any underground injection activity not authorized in this permit or otherwise authorized by permit or rule is prohibited. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any enforcement action brought under the provisions of Section 1431 of the Safe Drinking Water Act (SDWA) or any other law governing protection of public health or the environment for any imminent and substantial endangerment to human health or the environment, nor does it serve as a shield to the permittee's independent obligation to comply with all UIC regulations.

B. PERMIT ACTIONS

1. Modification, Reissuance, or Termination. The Director may, for cause or upon request from the permittee, modify, revoke and reissue, or terminate this permit in accordance with 40 CFR Sections 124.5, 144.12, 144.39, and 144.40. The permit is also subject to minor modifications for cause as specified in 40 CFR §144.41. The filing of a request for a permit modification, revocation and reissuance, or termination or the notification of planned changes or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition.

2. Transfers. This permit may only be transferred after notice is provided to the Director and the permittee complies with the requirements of 40 CFR §144.38. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the SDWA.

C. **SEVERABILITY**

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the remainder of this permit shall not be affected.

D. **CONFIDENTIALITY**

In accordance with 40 CFR Part 2 and 40 CFR §144.5, any information submitted to EPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2 (Public Information). Claims of confidentiality for the following information will be denied:

- The name and address of the permittee,
- Information which deals with the existence, absence, or level of contaminants in drinking water.

E. **GENERAL DUTIES AND REQUIREMENTS**

1. Duty to Comply. The permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, or modification. Such noncompliance may also be grounds for enforcement action under the Resource Conservation and Recovery Act (RCRA).
2. Penalties for Violations of Permit Conditions. Any person who violates a permit requirement is subject to civil penalties, fines, and other enforcement action under the

SDWA and may be subject to such actions pursuant to RCRA. Any person who willfully violates permit conditions may be subject to criminal prosecution.

3. Need to Halt or Reduce Activity not a Defense. It shall not be a defense, for a permittee in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
4. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.
5. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.
6. Duty to Provide Information. The permittee shall furnish the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
7. Inspection and Entry. The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
 - (a) enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;
 - (b) have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - (c) inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

- (d) sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the SDWA any substances or parameters at any location.
- 8. Records of the Permit Application. The permittee shall maintain records of all data required to complete the permit application and any supplemental information submitted for a period of five (5) years from the effective date of this permit. This period may be extended by request of the Director at any time.
- 9. Signatory Requirements. All reports or other information requested by the Director shall be signed and certified by a responsible corporate officer or duly authorized representative according to 40 CFR §144.32.
- 10. Reporting of Noncompliance.
 - (a) Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
 - (b) Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than thirty (30) days following each schedule date.
 - (c) Twenty-four Hour Reporting.
 - (i) The permittee shall report to the Director any noncompliance which may endanger health or the environment. Information shall be provided within twenty-four (24) hours from the time the permittee becomes aware of the circumstances by telephoning the EPA project officer. The following information shall be included in the verbal report:
 - (A) Any monitoring or other information which indicates that any contaminant may cause endangerment to an underground source of drinking water.
 - (B) Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

- (ii) A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
- (d) Other Noncompliance. The permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Part II, Section D.1 of this permit.
- (e) Other Information. Where the permittee becomes aware that it failed to submit all relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Director, the permittee shall submit such facts or information within two (2) weeks of the time such information becomes known.

APPENDIX A - (Plugging and Abandonment Plan)

1. Plugging & Abandonment Plan


 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 WASHINGTON, DC 20460

PLUGGING AND ABANDONMENT PLAN

NAME AND ADDRESS OF FACILITY

NAME AND ADDRESS OF OWNER/OPERATOR

 GRAND RESOURCES, INC.
 2250 E. 73rd Street, Suite 400
 Tulsa, OK 74136

 LOCATE WELL AND OUTLINE UNIT ON
 SECTION PLAT - 640 ACRES

STATE COUNTY

NM San Juan

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

SE ¼ OF SW ¼ OF SE ¼ SECTION 10 TOWNSHIP 32N RANGE 18W

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

 Surface Location 440 ft. from (N/S) S Line of quarter section
 and 1980 ft. from (E/W) E Line of quarter section

TYPE OF AUTHORIZATION

- ☒ Individual Permit
☐ Area Permit
☐ Rul.

Number of Wells 1

WELL ACTIVITY

- ☐ CLASS I
☒ CLASS II
☐ Brine Disposal
☒ Enhanced Recovery
☐ Hydrocarbon Storage
☐ CLASS III

Lease Name Navajo

Well Number #5

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
7 5/8"	24#	60'	60'	9-7/8"
4 1/2"	9.5#	1700'	1200'	6 1/2"

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- ☒ The Balance Method
☐ The Dump Bailer Method
☐ The Two-Plug Method
☐ Other

CEMENTING TO PLUG AND ABANDON DATA:

	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)	4 1/2"	6 1/2"					
Depth to Bottom of Tubing or Drill Pipe (ft.)	1650'	100'					
Sacks of Cement To Be Used (each plug)	25	50					
Slurry Volume To Be Pumped (cu. ft.)	30	65					
Calculated Top of Plug (ft.)	1400	surf					
Measured Top of Plug (if tagged ft.)	—	—					
Slurry Wt. (Lb./Gal.)	13#	13#					
Type Cement or Other Material (Class III)	Poz	Poz					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (If any)

From	To	From	To
1664'	1678'		

Estimated Cost to Plug Wells

\$ 5,000

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE (Please type or print)

Jana M. Ray - Operations Mgr.

SIGNATURE

DATE SIGNED

05/01/91

APPENDIX B - (Reporting Forms and Instructions)

1. EPA Form 7520 -7: APPLICATION TO TRANSFER PERMIT
2. EPA Form 7520-10: WELL COMPLETION REPORT
3. EPA Form 7520-11: ANNUAL WELL MONITORING REPORT
4. EPA Form 7520-12: WELL REWORK RECORD
5. EPA Form 7520-13: PLUGGING RECORD


 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 WASHINGTON, DC 20460

APPLICATION TO TRANSFER PERMIT

NAME AND ADDRESS OF EXISTING PERMITTEE		NAME AND ADDRESS OF SURFACE OWNER																																																																	
LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES <div style="text-align: center;">N</div> <table border="1" style="width: 100%; height: 150px; border-collapse: collapse;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> <div style="text-align: center;">S</div> <div style="position: absolute; left: -20px; top: 50%; transform: translateY(-50%);">W</div> <div style="position: absolute; right: -20px; top: 50%; transform: translateY(-50%);">E</div>																																																																	STATE	COUNTY	PERMIT NUMBER
SURFACE LOCATION DESCRIPTION <div style="display: flex; justify-content: space-between;"> 1/4 OF 1/4 OF 1/4 SECTION TOWNSHIP RANGE </div>																																																																			
LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT Surface Location _____ ft. from (N/S) _____ Line of quarter section and _____ ft. from (E/W) _____ Line of quarter section																																																																			
WELL ACTIVITY <input type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> Class III <input type="checkbox"/> Other		WELL STATUS <input type="checkbox"/> Operating <input type="checkbox"/> Modification/Conversion <input type="checkbox"/> Proposed																																																																	
Lease Name _____		TYPE OF PERMIT <input type="checkbox"/> Individual <input type="checkbox"/> Area Number of Wells _____ Well Number _____																																																																	
NAME(S) AND ADDRESS(ES) OF NEW OWNER(S)		NAME AND ADDRESS OF NEW OPERATOR																																																																	

Attach to this application a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them.

The new permittee must show evidence of financial responsibility by the submission of surety bond, or other adequate assurance, such as financial statements or other materials acceptable to the director.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE (Please type or print)	SIGNATURE	DATE SIGNED
--	-----------	-------------



**COMPLETION REPORT FOR BRINE DISPOSAL,
HYDROCARBON STORAGE, OR ENHANCED RECOVERY WELL**

Form Approved
OMB No. 2040-0042
Approval expires 9-30-91

NAME AND ADDRESS OF EXISTING PERMITTEE

NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT — 640 ACRES

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

1/4 OF

1/4 OF

1/4 SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY

TYPE OF PERMIT

☐

Brine Disposal

☐

Individual

☐

Enhanced Recovery

☐

Area

☐

Hydrocarbon Storage

Number of Wells _____

Estimated Fracture Pressure
of Injection Zone

Anticipated Daily Injection Volume (Bbls)

Injection Interval

Average

Maximum

Feet

to Feet

Anticipated Daily Injection Pressure (PSI)

Depth to Bottom of Lowermost Freshwater Formation
(Feet)

Average

Maximum

Type of Injection Fluid (Check the appropriate block(s))

☐ Salt Water

☐ Brackish Water

☐ Fresh Water

☐ Liquid Hydrocarbon

☐ Other

Lease Name

Well Number

Name of Injection Zone

Date Drilling Began

Date Well Completed

Permeability of Injection Zone

Date Drilling Completed

Porosity of Injection Zone

CASING AND TUBING

CEMENT

HOLE

OD Size

Wt/Ft — Grade — New or Used

Depth

Sacks

Class

Depth

Bit Diameter

INJECTION ZONE STIMULATION

WIRE LINE LOGS, LIST EACH TYPE

Interval Treated

Materials and Amount Used

Log Types

Logged Intervals

Complete Attachments A — E listed on the reverse.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please type or print)

DATE SIGNED

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

NAME AND ADDRESS OF EXISTING PERMITTEE

NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT — 540 ACRES

N									
S									

W E

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

1/4 OF

1/4 OF

1/4 SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY

TYPE OF PERMIT

☐ Brine Disposal☐ Individual☐ Enhanced Recovery☐ Area☐ Hydrocarbon Storage

Number of Wells _____

Lease Name

Well Number

INJECTION PRESSURE

TOTAL VOLUME INJECTED

TUBING — CASING ANNULUS PRESSURE
(OPTIONAL MONITORING)

MONTH

YEAR

AVERAGE PSIG

MAXIMUM PSIG

BBL

MCF

MINIMUM PSIG

MAXIMUM PSIG

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please type or print)

SIGNATURE

DATE SIGNED


 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 WASHINGTON, DC 20460

WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE

NAME AND ADDRESS OF CONTRACTOR

 LOCATE WELL AND OUTLINE UNIT ON
 SECTION PLAT — 640 ACRES

N					
S					

W E

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

1/4 OF

1/4 OF

1/4 SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY

- ☐ Brine Disposal
☐ Enhanced Recovery
☐ Hydrocarbon Storage

Lease Name

Total Depth Before Rework

Total Depth After Rework

Date Rework Commenced

Date Rework Completed

TYPE OF PERMIT

☐ Individual☐ Area

Number of Wells _____

Well Number

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD — AFTER REWORK (Indicate Additions and Changes Only)

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

 DESCRIBE REWORK OPERATIONS IN DETAIL
 USE ADDITIONAL SHEETS IF NECESSARY

WIRE LINE LOGS. LIST EACH TYPE

Log Types

Logged Intervals

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please type or print)

SIGNATURE

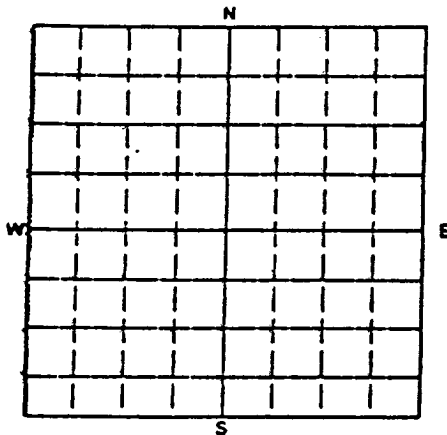
DATE SIGNED

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

PLUGGING RECORD

NAME AND ADDRESS OF PERMITTEE

NAME AND ADDRESS OF CEMENTING COMPANY

LOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT — 640 ACRES

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

1/4 OF

1/4 OF

1/4 SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

TYPE OF AUTHORIZATION

- ☐ Individual Permit
☐ Area Permit
☐ Rule

Number of Wells _____

Lease Name

Describe in detail the manner in which the fluid was placed and the method used in introducing it into the hole

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE

WELL ACTIVITY

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- ☐ CLASS I
☐ CLASS II
☐ Brine Disposal
☐ Enhanced Recovery
☐ Hydrocarbon Storage
☐ CLASS III

- ☐ The Balance Method
☐ The Dump Bailer Method
☐ The Two-Plug Method
☐ Other

CEMENTING TO PLUG AND ABANDON DATA:

	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)							
Depth to Bottom of Tubing or Drill Pipe (ft.)							
Sacks of Cement To Be Used (each plug)							
Slurry Volume To Be Pumped (cu. ft.)							
Calculated Top of Plug (ft.)							
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)							
Type Cement or Other Material (Class III)							

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS

From	To	From	To

Signature of Cementer or Authorized Representative

Signature of EPA Representative

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
 (REF. 40 CFR 122.22)

NAME AND OFFICIAL TITLE (Please type or print)

SIGNATURE

DATE SIGNED