RX

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901
W-6-3

October 1, 1996

Paul C. Thompson
Walsh Engineering & Production Corp.
7415 E. Main Street
Farmington, NM 87402

RE: J. K. Edwards Associates
Frontier A No.1 SWD
Mesa Verde Field
San Juan County, New Mexico

Dear Mr Thompson:

We enclose copies of the Draft Permit, Statement of Basis, and Public Notice for the well above. The Public Notice will be published in the Farmington Daily Times on October 13, 1996, and the public comment period will be open for 30 days past that date.

Please note the requirements regarding step rate test prior to beginning injection, as well as other operating conditions stipulated in Part II.C, and the monitoring and reporting requirements in Part II.D of the permit.

All comments must be submitted in writing before November 13, 1996 to:

David Holguin
EPA Region IX (415) 744-1836
Mail Code W-6-3
75 Hawthorne Street
San Francisco, CA 94105

If no request for a public hearing or no comments requesting significant changes to the draft permit are received, the draft permit will become effective on November 13, 1996. If you or members of the public request significant changes to the draft permit, the comments will be addressed and a revised permit may be issued. The permit would then become effective on December 13, 1996.

If you have any questions regarding administrative procedures or the permit issuance process, please call me at (415) 744 1819.

Sincerely,

for George Robin

George Robin
Environmental Engineer

enclosures

cc:

Lorenda Joe, Acting Director
The Navajo Nation Environmental Protection Administration
P.O. Box 529
Fort Defiance, AZ 86504

District Manager
U.S. Department of Interior
Bureau of Land Management
1235 La Plata Hwy.
Farmington, NM 87401
(with enclosure)

Navajo EPA, GPC Program
P. O. Box 1979
Shiprock, NM 87420-1979
(with enclosure)

Jerry Thomas
Acting Superintendent
Bureau of Indian Affairs, Shiprock Agency
Natural Resources
P.O. Box 966
Shiprock, NM 87420

Genni Denetsone
Supervisor Realty Specialist
Subsurface Minerals Section
Bureau of Indian Affairs, Navajo Area Office
P.O. Box 1060
Gallup, NM 87305

STATEMENT OF BASIS

CLASS II PERMIT APPLICATION

J.K. EDWARDS ASSOCIATES

FRONTIER A NO.1 MESA VERDE FIELD

UIC Permit NN296000011
SE 1/4 Sec. 8, T26N, R12W
San Juan County, New Mexico
Navajo Nation

CONTACTS:

Paul C. Thompson, Agent
Walsh Engineering & Production Corp.
7415 E. Main Street
Farmington, New Mexico 87402

(505) 327-4892

George Robin
Source Water Protection Section
United States Environmental Protection Agency
75 Hawthorne Street, Mail Code W-6-3
San Francisco, CA 94105
(415) 744-1819
(415) 744-1235 fax

BACKGROUND INFORMATION

J. K. Edwards is applying to the EPA for a commercial Class II Underground Injection Control permit to operate a water injection well to dispose of produced brines. The well is in the Mesa Verde gasfield in San Juan County, New Mexico and is on the Navajo Indian Reservation.

The EPA has decided to approve this permit, pending public review and comment, and is now issuing a Draft Permit. The permit will be issued for a period of twenty (20) years unless the permit is terminated for reasonable cause (40 CFR §144.39, 144.40 and 144.41). However, the permit will be reviewed every 5 years.

The source of the injection water will be limited to produced brines from the Fruitland Coal Formation. The total dissolved solids (TDS) content of this water is in the range of from 10,000 to 20,000 parts per million (ppm). The water will be injected back into the Point Lookout Formation at a depth of from 3712 feet to 3856 feet as part of a saltwater disposal project.

J. K. Edwards has notified all interested parties within the ½ mile radius area of review. In addition to the local landowners, land-users and operators, they have notified the Navajo Nation, the Bureau of Land Management, the Bureau of Indian Affairs, and the State of New Mexico.

J. K. Edwards has submitted all the required information and data necessary for an injection permit issuance in accordance with 40 CFR Parts 144, 146, and 147.

This Statement of Basis provides the derivation of the site specific permit conditions and the reasons for them on the basis of the direct implementation regulations promulgated for the Indian Tribal lands on the Navajo Indian Reservation under the UIC program provisions of the Safe Drinking Water Act.

SITE SPECIFIC CONDITIONS

Part II
Section A - Well Construction

Casing and Cementing:

No construction changes will be necessary to operate the well except for placement of cement in the wellbore annulus at 560' to surface. The wellbore schematic diagram can be seen in APPENDIX C. of the permit.

The conductor casing is 40.5 lb/ft, 10 3/4" set at 173' and is cemented with 150 sacks circulated to the surface. The intermediate casing is 26.4 lb/ft, 7-5/8" in diameter and is run from the surface to 3940' and cemented with 250 sacks. Calculated top of cement is 2624'.

A 5 1/2" liner is placed from 3870' to 5100' and cemented with 150 sacks of cement.

The tubing is 2 3/8", plastic lined.

The packer is set at 3608', approximately 100' above the injection zone. The injection zone is overlain by the Menefee, a layer of coal, shale and sandstone of approximately 1000' in thickness.

Formation Logging and Testing:

No additional formation logging is required.

Monitoring Devices:

We are requiring the operator to install one-half inch FIP fittings with cut-off valves on the tubing and the tubing/casing annulus of the well to allow an inspector to take injection pressure measurements.

J. K. Edwards has notified all interested parties within the ½ mile radius area of review. In addition to the local landowners, land-users and operators, they have notified the Navajo Nation, the Bureau of Land Management, the Bureau of Indian Affairs, and the State of New Mexico.

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The packer is set at 3608', approximately 100' above the injection zone. The injection zone is overlain by the Menefee, a layer of coal, shale and sandstone of approximately 1000' in thickness.

Formation Logging and Testing:

A step-rate test is required prior to beginning injection..

Monitoring Devices:

We are requiring the operator to install one-half inch FIP fittings with cut-off valves on the tubing and the tubing/casing annulus of the well to allow an inspector to take injection pressure measurements.

A flow meter will be installed for measuring flow rates and cumulative volumes. The meter will be certified for at least 95% accuracy throughout the range of injection rates used.

A sampling tap will be installed on the injection pump discharge line for the purpose of periodically obtaining representative samples of the injection fluid.

SECTION B - CORRECTIVE ACTION

The applicant submitted the required one-half mile radius Area of Review (AOR) information with the permit application. There are three plugged and abandoned wells and one gas producer within the AOR.

No corrective action is required of the permittee because all of the wells within the AOR have been properly constructed or adequately P&A'd.

SECTION C - WELL OPERATION

Mechanical Integrity:

The construction details and proposed cement placement will satisfy the requirements of 40 CFR §146.08(ii)(c)(2) for demonstrating the absence of significant fluid movement.

A mechanical integrity test (MIT) of the injection casing, tubing, and packer will be conducted prior to commencement of injection operations in the proposed injection well. This test will involve increasing the pressure in the annulus to the lesser of maximum injection pressure or 1000 psi and holding it for 30 minutes with no more than a 5% change in pressure. There must be a pressure differential of at least 300 psi between the tubing and the casing-tubing annulus during the test.

Demonstrations of mechanical integrity of the injection casing, tubing, and packer will also be conducted within 30 days after any workovers or alterations and prior to recommencing injection.

An MIT pressure test of the annulus will also be conducted at least once every five years during the life of the permit.

Confining Zone:

The upper confining zone is the Menefee Formation.

Injection Pressure Limitation:

The maximum injection pressure must be determined by a valid step-rate test, witnessed and approved by an EPA representative, before injection may commence.

Injection Volume (Rate) Limitation:

The maximum injection rate shall be 1000 barrels per day (bpd), which is the rate requested by the applicant. The injection is also limited to a rate that will not cause the injection pressure to exceed the maximum injection pressure at the wellhead.

Injection Well Monitoring Program

The permittee is required to sample and analyze the water quality of the injected fluids at annual intervals. The water samples shall be analyzed for TDS, major ions, pH, specific conductivity, and specific gravity. Similar analyses shall be conducted whenever the source of the injection fluid changes.

Measurements of the injection pressure, annulus pressure, and injection flow rate must be observed weekly amd recorded at least once per month.

SECTION E - PLUGGING AND ABANDONMENT

We have reviewed and approved the P&A plan submitted by the applicant. The P&A plan is incorporated into the permit as Attachment A. The estimated cost of the P&A job is $15,000.

SECTION F - FINANCIAL RESPONSIBILITY

Prior to issuance of the final permit, the applicant will furnish USEPA with a bond in the amount of $15,000, with EPA as beneficiary, to guarantee costs of plugging & abandoning the well, in accordance with the P&A plan, when such becomes necessary.

PUBLIC NOTICE OF INTENT TO ISSUE AN UNDERGROUND INJECTION CONTROL (UIC) CLASS II PERMIT TO J.K. EDWARDS ASSOCIATES

PURPOSE OF PUBLIC NOTICE

The U. S. Environmental Protection Agency (EPA) is soliciting public comments on its proposal to issue a UIC permit authorizing J. K. Edwards Associates to operate an injection well known as Frontier A No.1 for the purpose of produced brine disposal. The well is located in the Mesa Verde field in San Juan County, New Mexico, Section 8, Township 26N, Range 12W.

The address of the applicant is J.K. Edwards Associates, Inc., c/o Walsh Engineering & Production, 7415 E. Main St., Farmington, New Mexico 87402.

BACKGROUND

The proposed injection zone is 3708 feet deep and will inject at a rate based on the fracture pressure of the injection zone. The maximum injection pressure shall not exceed the fracture pressure of the injection zone.

The permit does not allow the injection of hazardous wastes.

J. K. Edwards has submitted all of the information and fulfilled all of the regulatory requirements necessary for the issuance of this draft UIC permit.

The EPA has made a preliminary determination to approve this permit application. This action is being taken as provided by Part C of the Safe Drinking Water Act and attendant regulations.

PUBLIC COMMENTS

All non-proprietary data submitted by the applicant and the Draft Permit prepared by EPA are contained in the administrative record for this injection well. This information is available at the location listed below:

Environmental Protection Agency, Region IX
Source Water Protection Section (W-6-3)
75 Hawthorne Street
San Francisco, CA 94105
Attention: David Holguin
Telephone: (415) 744-1836

A copy of the Draft Permit and Statement of Basis may be requested by contacting Mr. Holguin.

Copies of the above may also be viewed at the following location:

Farmington Public Library, Farmington, NM

Public comments are encouraged and will be accepted, in writing, at the San Francisco office until November 13, 1996. A request for a public hearing should be made in writing and should state the nature of the issues proposed to be raised at the hearing. A PUBLIC HEARING WILL BE HELD ONLY IF SIGNIFICANT INTEREST IS SHOWN.

FINAL PERMIT DECISIONS AND APPEAL PROCESS

After the close of the public comment period the EPA will issue a final permit decision and will notify all those who supplied comments. The final decision may be to issue, deny or modify the permit.

If a Final Permit is issued, it shall become effective immediately if no comments requested a substantial change in the Draft Permit and no substantial changes are made from the Draft Permit to the Final Permit. If substantial changes have been requested or made in the Final Permit, the Final Permit will become effective thirty (30) days after issuance.

Within thirty (30) days after the final permit decision has been issued, any person who filed comments on the Draft Permit, participated in a public hearing, or takes issue with any changes in the Draft Permit, may petition the Director to review the permit decision. Persons interested in appealing the final permit decision are referred to 40 CFR Sections 124.15 through 124.20 for the procedural requirements of the appeal process.

UNDERGROUND INJECTION CONTROL PROGRAM

PERMIT

Commercial Class IID Water Injection Well

Permit No. NN 296000011

Well Name: Frontier A #1 SWD

San Juan County, New Mexico

Navajo Nation
Lease No. SF-080008

Issued to:

J. K. Edwards & Associates
c/o Walsh Engineering & Production Corp.
7415 E. Main St.
Farmington, NM 87402

TABLE OF CONTENTS

PART I. AUTHORIZATION TO OPERATE 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,

J. K. Edwards & Associates
c/o Walsh Engineering & Production Corp.
7415 E. Main St.
Farmington, NM 87402

is hereby authorized to convert and operate a well, commonly known as the Frontier A #1 SWD, to a commercial Class IID water injection well. The well is located in Section 8, T26N, R12W in San Juan County, New Mexico.

Injection shall be for the purpose of a produced water disposal project in the Mesa Verde 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 nineteen (19) 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 twenty (20) 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 Tribal permit.

Issued this _____ day of _____

This permit shall become effective _____

_____
Alexis Strauss, Director
Water Management Division

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 APPENDIX C. and shall be binding on the permittee. The well has been cased and will be cemented to prevent the movement of fluids behind the casing and this casing shall be maintained throughout the operating life of the well.

2. Formation Logging and Testing. The applicant must run an injection step-rate test to obtain a formation fracture pressure. Applicant will obtain pre-approval from USEPA prior to proceeding with step-rate test.

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 permitee 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 Part 144.39.

*"Director", as used herein, refers to the Director, Water Management Division, U.S. EPA Region 9, San Francisco, CA.

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 wells within the area of review (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.

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 into USDWs 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 equal to 1000psi or maximum allowable injection pressure for a period of 30 minutes with no more than a 5 percent change in pressure. Please refer to attached R9 MIT Requirements...Referenced in part (1)(c)on next page. There must be a pressure differential of at least 300psi between the tubing and the casing-tubing annulus throughout the test.

(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 provisions of MECHANICAL INTEGRITY TEST (MIT) PART I: REQUIREMENTS FOR INTERNAL TEST, a copy of which is contained in Appendix B attached hereto, shall be made on a periodic time interval as provided for therein. Mechanical integrity shall also be demonstrated any time that a workover is conducted, the packer becomes unseated or the seal is broken at the wellhead assembly, 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 Point Lookout member of the Mesa Verde formation in the subsurface interval of 3712 to 3856 feet. 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. The injection pressure shall not exceed the formation fracture pressure as determined by a valid step-rate test. Injection may not commence until a step-rate test has been conducted and approved by the EPA. The results of the test will be incorporated into this permit as the maximum allowable injection pressure. This will be a minor permit modification and will not be open for further public comment.

4. Injection Volume (Rate) Limitation.

   (a) The maximum injection rate shall be limited to 1000 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 disposal of water produced in connection with Fruitland Coal gas production.

   (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, specific conductivity and specific gravity

      (ii) whenever there is a change in the source of injection fluids

   (b) Weekly observations 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, 1996 and shall be submitted by January 31, 1997. 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 Schematic 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 permittee shall submit financial statements and other information annually, or as required by EPA, to demonstrate that its financial position remains sound, and that it continues to have adequate financial resources, as determined by EPA, to close, plug, and abandon the injection well in accordance with the approved plugging and abandonment plan.

   b) If financial statements or other information indicate that the permittee no longer has financial resources, according to EPA criteria, to assure that the injection well will be properly plugged and abandoned, then the permittee must make an alternate showing of financial responsibility. This showing must be acceptable to the Director and must be submitted within sixty (60) days after having been notified by EPA of the necessity for making an alternate showing of financial responsibility.

   c) The permittee may, upon its own initiative and upon written request to EPA, change the method of demonstrating financial responsibility from financial

statement coverage to a financial instrument such as a bond, letter of credit, or trust fund. Any such change must be approved by the Director.

2. Insolvency of Financial Institution. In the event that an alternate demonstration of financial responsibility has been approved under (b) or (c) above, 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.

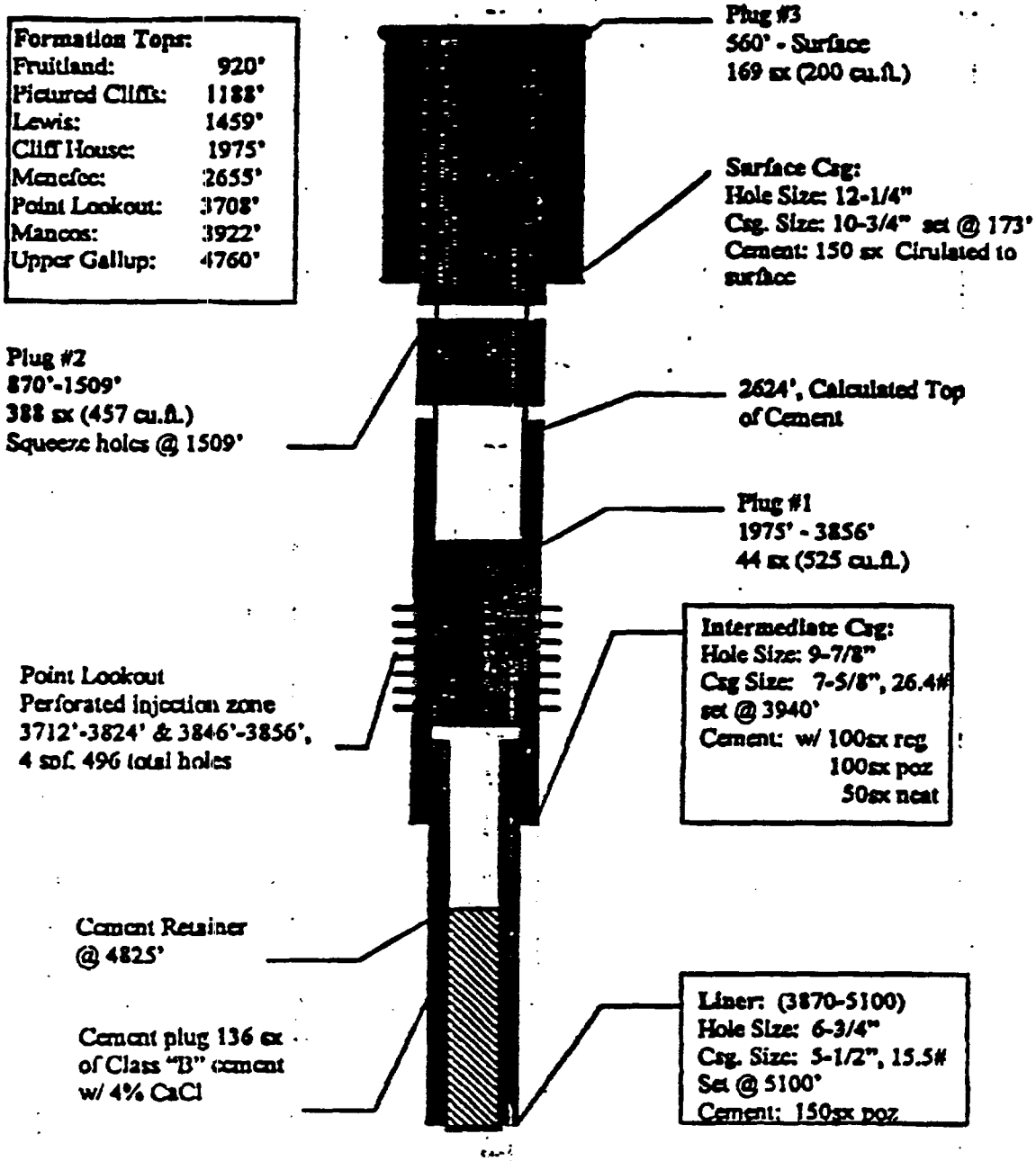
(d) Other Noncompliance. The permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Part II, Section D.1 of this permit.

(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.

WALSH ENGINEERING & PRODUCTION CORP.

Frontier A #1
1750' FSL & 790' FEL
Sec 8 T26N R12W

P & A Status



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

6. MECHANICAL INTEGRITY TEST (MIT) PART I: REQUIREMENTS FOR INTERNAL TEST

APPENDIX C. WELL SCHEMATIC

WALSH ENGINNERING & PRODUCTION CORP.

COMPLETION PROGNOSIS FOR J.K. EDWARDS ASSOCIATES, INC. FRONTIER A NO. 1

Location: SE/4 Section 8 T26N R12W
San Juan County, New Mexico

Date: November 16, 1995
REVISED: September 17, 1996

Field: Mesa Verde

Surface: BLM
Minerals: BLM NM 16470

Elev:	KB 5999'
Elev:	GL 5989'
5-1/2"	@ 5101'
PBTD	@ 5100'

Procedure:

1. Level location, dig reserve pit, and install anchors.

2. MOL and RU completion rig. Hold safety meeting. Blow well down and kill with water, if necessary.

3. Pull polished rod and unseat pump. Pull 2 rods and pump hot water down tubing. Pull and lay down rods and pump. (198 5/8" rods and 12' RWBC pump). ND tubing head and NU BOP. NU 2-3/8" relief line.

4. TOH w/ 164 jts of 2-3/8" tubing. Lay down perforated sub & mud anchor.

5. TIH w/ 2-3/8" tubing and cement retainer. Set retainer at 4825'.

6. Load backside and monitor pressure while pumping 136 sx of Class "B" cement w/ 2% $CaCl_2$ down tubing. Sting out of cement retainer and TOH w/ tubing leaving 4 bbls of cement on top of retainer.

7. Pressure test casing to 600#.

8. RU wireline and run "PET" or "CET" bond log from 3870' to 2870'. Tag cement plug to confirm top of cement plug in 5-1/2" casing. Run repeat w/o pressure & run main pass w/ 500# pressure if needed.

9. If bond looks OK proceed to step 10. If not, shoot 2 holes above cement top and squeeze as necessary.

10. Perforate Ojo Alamo (2 holes) @ 560'. Establish circulation from surface. RIH w/ 2-3/8" tbg. & packer. Set packer approximately 530'. Pump 177sx (150 cu.ft.) of Class "B" cement. Circulate cement to surface. Displace cement out packer w/ water & WOC.

11. Release packer & TOH. RIH w/ bit, casing scrapper & 2-3/8" tubing and drill out cement.

12. Perforate Point Lookout at 4 spf. (3856'-3846' & 3824'-3712' total of 496 holes.)

COMPLETION PROGNOSIS FOR
J.K. EDWARDS ASSOCIATES, INC.
FRONTIER A NO. 1 (continued)

13. RD wireline and PU packer and TIH w/ 2-3/8" tubing and packer. Set packer at 3650'. Swab sample of Mesaverde water to surface. Breakdown perforations w/ 2000 gal of 15% HCl.

14. RU wireline and run injection profile logs. See attached instructions required by NMOCD.

15. PU 7-5/8" X 2-3/8" plastic lined packer on 2-3/8" plastic lined tubing and set packer at approximately 3608'. Circulate corrosion inhibitor into casing annulus before setting packer.

16. Rig down and release rig. Install injection pump and facilities.

17. Run step rate injection test and casing integrity test.

John C. Thompson

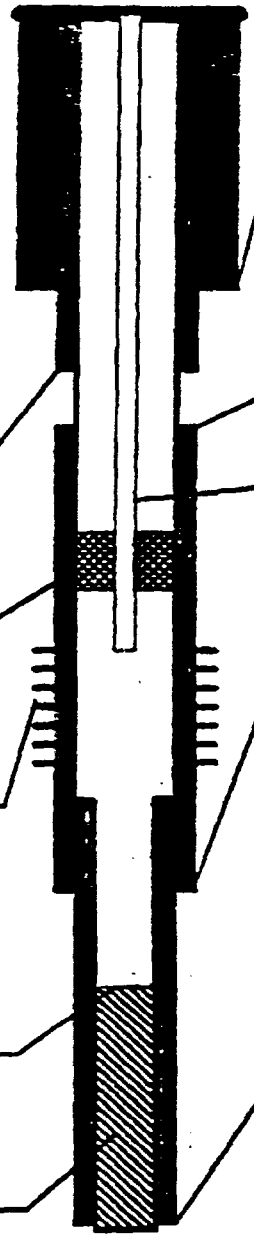
Engineer

WALSH ENGINEERING & PRODUCTION CORP.

Frontier A #1
1750' FSL & 790' FEL
Sec 8 T26N R12W

Disposal Status

Formation Tops:	
Fruitland:	920'
Pictured Cliffs:	1188'
Lewis:	1459'
Cliff House:	1975'
Menefee:	2655'
Point Lookout:	3708'
Mancos:	3922'
Upper Gallup:	4760'



Surface Csg:
Hole Size: 12-1/4"
Csg. Size: 10-3/4" set @ 173'
Cement: 150 sx
Circulated to surface

Ojo Alamo Squeeze
2 holes @ 560'
Cement: 177 sx (150 cu.ft.)
Circulate to Surface

2624', Calculated Top of Cement

2-3/8" plastic lined tubing

Packer set @ 3608'

Point Lookout
Perforated injection zone
3712'-3824' & 3846'-3856',
4 spf. 496 total holes

Intermediate Csg:
Hole Size: 9-7/8"
Csg Size: 7-5/8", 26.4# set @ 3940'
Cement: w/ 100sx reg
100sx poz
50sx neat

Cement Retainer @ 4825'

Cement plug 136 sx of Class "B" cement w/ 4% CaCl

Liner: (3870-5100)
Hole Size: 6-3/4"
Csg. Size: 5-1/2", 15.5#
Set @ 5100'
Cement: 150sx poz

August 23, 1995

J.K. Edwards Associates, Inc.
1401 17th Street, Suite 1400
Denver, Colorado 80202

Attn: Mr. Richard L. Lewis

Re: Recent Application for Authority to Inject - Frontier Well No.A-1

Dear Mr. Lewis:

In reviewing the above referenced application, it became apparent that additional data will be needed. Item VI of the C-108 - "Application for Authority to Inject", states:

> *Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.*

Item VI was left blank on your summary page. Please tabulate in a spreadsheet type format, construction details on those wells which penetrate the zone of interest. It is essential that we have casing, hole size, cement volumes, TOC's and how the TOC was determined. Also, if applicable, please include any plugged well schematics with your application. The schematics of the plugged wells should show all cement sheaths on the outside of all casing strings as well as length and volumes of cement plugs inside the casing.

As soon as this information is received, I will expedite the continued processing of your application. I may be reached at (505) 827-8186.

Very truly yours,

Benjamin E. Stone
Petroleum Engineering Specialist

/BES

File: corr\jke8.23

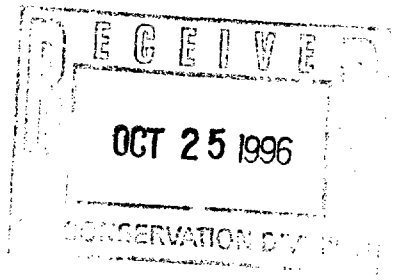
J.K. EDWARDS ASSOCIATES, INC.

OIL & GAS PROPERTIES

1401 17TH STREET / SUITE 1400

DENVER, COLORADO 80202

303/298-1400 FAX 303/298-0757



October 23, 1996

Mr. William J. Lemay, Director
New Mexico Oil Conservation Division
Energy, Minerals and Natural Resources Department
2040 South Pacheco Street
Santa Fe, New Mexico 87505

RE: Amended Administrative Order SWD-583
Frontier No. 1-A Well
Section 8, T26N-R12W
San Juan County, New Mexico

Dear Mr. Lemay:

On September 8, 1995 an Administrative Order was issued granting authority to inject produced water into the Point Lookout formation in the Frontier No. 1-A well, located in the SE/4 of Section 8, T26N-R12W, San Juan County, New Mexico. That order was scheduled to terminate one year from its effective date unless an extension is granted for good cause.

During that one year period an EPA permit was applied for and just recently received, a copy of which is enclosed. We respectfully request a ninety day extension from the September 8, 1996 date until December 7, 1996 to commence injection operations on the subject well.

Thank you for your attention to this request.

Very truly yours,

J. Keith Edwards
President

JKE:alf
Enclosure

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

October 25, 1996

J. Keith Edwards
J.K. Edwards Associates, Inc.
1401 17th Street, Suite 1400
Denver, Colorado 80202

RE: Extension of Division Order SWD-583.

Dear Mr. Edwards,

Reference is made to your recent request for an extension period in which to implement operations as permitted by Division Order SWD-583. My staff has considered the request and we feel an extension is justified at this time.

Division Order SWD-583 is hereby extended for a period of six months. The permit will expire on April 30, 1997. If injection has not been implemented by this date, the authority for injection shall terminate ipso facto. If this occurs, you may be required to submit additional data and other justification to have Division Order SWD-611 reinstated.

Sincerely,

William J. LeMay
Director

WJL/BES

cc: Oil Conservation Division - Aztec
File: SWD-583

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

November 6, 1996

Mr. John Thompson
J.K. Edwards Associates, Inc.
1401 17th Street, Suite 1400
Denver, Colorado 80202

RE: Change in Logging Requirements,
Division Order SWD-583.

Dear Mr. Thompson,

Reference is made to your recent request to relieve logging requirements as outlined by Division Order SWD-583. Your request was based on the fact that your company recently conducted a cement bond log on the subject well. You further stated in your request that the availability of the proper radioactive isotopes has been severely curtailed in recent years in the San Juan Basin Area. My staff has considered your request and while we feel the cement bond log information is valuable, in and of itself, does not qualify to relieve three years of injection profile information as provided by a combination temperature and radioactive tracer log.

Further, we understand that having radioactive isotopes shipped in would make the tracer studies cost prohibitive. You are therefore authorized to substitute your choice of one of the following log combinations for the logs specified in SWD-583.

1) Noise/Temperature Combination (guidelines attached), or,

2) Oxygen Activation Log

In either case, the logs will be conducted at one year, two year and three year intervals after implementation of injection operations.

These logging requirements are hereby made a part of Division Order SWD-583. Please inform the Aztec District Office of your decision as to which log type will be utilized.

Sincerely,

William J. LeMay
Director

WJL/BES

cc: Oil Conservation Division - Aztec
File: SWD-583

OIL CONSERVATION DIVISION

INJECTION WELL MONITORING GUIDANCE

COMBINATION NOISE / TEMPERATURE

(Revised 11/1/96)

NOISE / TEMPERATURE LOG

1) Noise / temperature logs will always be witnessed by a representative of the Division.

2) All log curves shall be started (or finished) at a minimum of 200 feet above the top perforation, and inside the tubing. Temperatures curves shall be run: a) while injecting, and, if the well is on vacuum or goes on vacuum within 30 minutes of shutting in the well at the conclusion of the injecting studies; b) 30 minutes after shut-in, c) 1 hour after shut-in, and d) 2 hours after shut-in. If the well is holding surface pressure at the conclusion of the tracer studies, shut- in temperature curves will be run: b) 1 hour after shut-in, c) 2 hours after shut-in, and d) 24 hours after shut-in. Noise logs shall be run immediately after the injection temperature and after the first and last shut-in temperatures as determined above.

3) Noise depth settings should be pre-determined by:

a) Well Geometry - Perforations, Casing Shoes, Liner Tops, Bottom of Tubing, Etc.

b) Other anomalies identified by the temperature logs.

c) Noise log runs shall start at at the total depth of the well, ideally in a 'no-flow' interval.

d) Perforated and blank pipe intervals should be investigated at settings which will yield sufficient resolution to locate vertical extents of possible channels.

4) After temperature and noise logs have been compiled and interpreted, a representative of the operating company shall immediately notify the Division if any channeling exists. The logging company should be able to qualify the severity of any channeling. Once channel severity has been ascertained, the Division shall make the determination based on the interpretation, whether or not to immediately shut the well in.

5) Copies of all logs shall be forwarded to the District office and the Division office of the Oil Conservation Division. After reviewing the results in the Division office, a final determination shall be made as to how best to bring the well into compliance.