

CONFIDENTIAL

Re

CONFIDENTIAL

Release Date

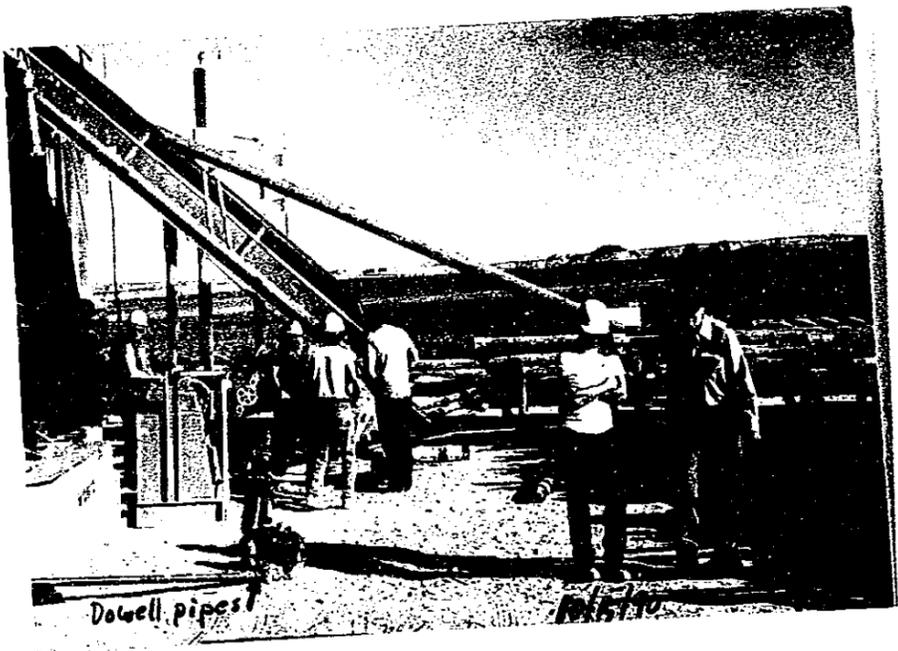
JUN 26 1992  
JUN 21 1992

SHIELDS EXPLORATION CO., 12-24 Federal  
SE $\frac{1}{4}$ , NE $\frac{1}{4}$  24-41N-1W, Coconino 859

Photos

P/N

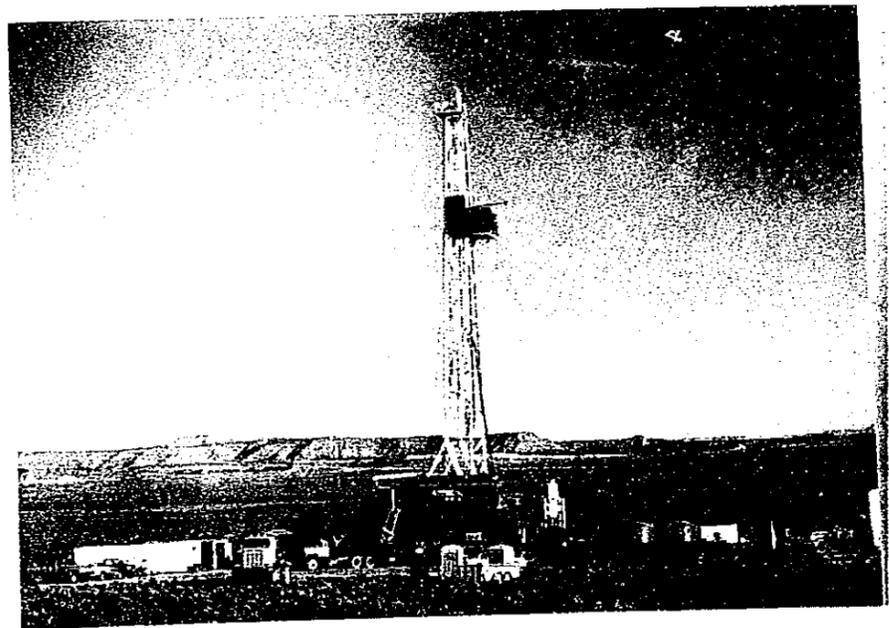
859



Dowell pipes

R15110

Grace Ris 174



Grace Rig 174



Jane Dee Hull  
Governor

State of Arizona  
**Arizona Geological Survey**

416 W. Congress, Suite 100  
Tucson, Arizona 85701  
(520) 770-3500



Larry D. Fellows  
Director and State Geologist

September 29, 1997

Margaret M. Shields  
Shields Exploration Company  
320 Bellino Drive  
Pacific Palisades, CA 90272

Re: Shields Exploration Company  
\$25,000 Oil Drilling Blanket Bond #KO 01 75 675  
Insurance Company of North America

Dear Ms. Shields:

Records of the Oil and Gas Conservation Commission of the State of Arizona show that Shields Exploration Company has no outstanding drilling or plugging obligations in Arizona. As a result, this letter constitutes written permission by the Commission to terminate liability under the bond.

Please advise if we may be of further service.

Sincerely,

Steven L. Rauzi  
Oil & Gas Program Administrator

*file 859*

SHIELDS EXPLORATION CO.

320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

September 24, 1997

Mr. Steven L. Rauzi  
Oil & Gas Program Administrator  
Arizona Geological Survey  
416 W. Congress, Suite 100  
Tucson, Arizona 85701

Re: Shields Exploration Company  
\$25,000 Oil Drilling Blanket Bond #KO 01 75 675  
CIGNA Co. - Insurance Company of North America

Dear Mr. Rauzi:

Thank you for bringing this matter to our attention.

Shields Exploration Company requests permission to  
be released from liability under the referenced  
bond.

Thank you for your cooperation.

Sincerely,

*Margaret M. Shields*

Margaret M. Shields  
Secretary-Treasurer

MMS/nr





Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

416 W. Congress, Suite 100  
Tucson, Arizona 85701  
(520) 770-3500



Larry D. Fellows  
Director and State Geologist

August 28, 1997

Mr. Jay M. Shields  
Shields Exploration Company  
320 Bellino Drive  
Pacific Palisades, CA 90272

Re: Shields Exploration Company  
\$25,000 Oil Drilling Blanket Bond #KO 01 75 675  
CIGNA Co. - Insurance Company of North America

Dear Mr. Shields:

In accordance with Arizona statutes, the Arizona Geological Survey now provides administrative and staff support to the Arizona Oil and Gas Conservation Commission.

The Commission's records show that Shields Exploration Company maintains the referenced bond and yet has no outstanding drilling or plugging obligations in Arizona. A copy of the referenced bond is enclosed.

We have no record of written permission by the Arizona Oil and Gas Conservation Commission to terminate liability under the bond.

Please advise me in writing of your desire to be released from liability under the bond.

Sincerely,

Steven L. Rauzi  
Oil & Gas Program Administrator

enclosure

ARIZONA GEOLOGICAL SURVEY 416 W. CONGRESS, SUITE 100, TUCSON, AZ 85701

**FAX**

State of Arizona  
Arizona Geological Survey  
416 W. Congress, Suite 100  
Tucson, Arizona 85701  
(520) 770-3500



Larry D. Fellenz  
Director and State Geologist

Date: 11-9-96

Number of pages including cover sheet: 5

To: Don Bills  
USGS-Flagstaff

Phone: 520-556-7142

Fax phone: 520-556-7169

CC:

From: Steve Rauzi

Phone: (520) 770-3500

Fax phone: (520) 770-3505

REMARKS:  Urgent  For your review  Reply ASAP  Please comment

Completion reports for Copague and  
Shields wells, permits 713 and 859



Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

416 W. Congress, Suite 100  
Tucson, Arizona 85701  
(520) 770-3500



Larry D. Fellows  
Director and State Geologist

October 26, 1995

Mr. Rod Shepherd  
Hunt Oil Company  
1445 Fountain Place  
Ross at Field  
Dallas, Texas 75202-2785

*file 859*

Dear Rod:

I trust you received the completion reports for the Shields 12-24 Federal and the Medallion 1-21 Federal wells that I faxed to you earlier this afternoon. I annotated Ed Heylmun's picks onto Medallion's completion report because they were recorded in some notes he left in the Medallion file. He is a local consulting geologist.

The other information we discussed is enclosed. This includes The Dual Induction/SFL, Compensated Neutron-Litho-Density, and segment of mud log for the deepening of the Shields well in October 1990. Since I'll be out of the office between November 6 and 24, let me know right away if I may be of additional assistance.

Sincerely,

*Steve*

Steven L. Rauzi  
Oil & Gas Program Administrator

Enclosures

LILLIS, P.G., PALACAS, J.G., and WARDEN, A.  
U.S. Geological Survey, Denver, CO

#### A Precambrian-Cambrian Oil Play in Southern Utah

The potential of the Precambrian Chuar Group as a petroleum source rock in southern Utah and northern Arizona resulted in the drilling of two wildcat wells in 1994. Both wells penetrated the Cambrian Tapeats Sandstone (the target reservoir rock) and presumably Precambrian rocks. The first well, Burnett Federal 36-1, was drilled east of Kanab, Utah (sec.36, T.34S., R.3W.) to a total depth of 5,365 ft and encountered Precambrian(?) reddish-brown sedimentary rocks at 4,790 ft. The Tapeats Sandstone had live oil shows and minor CO<sub>2</sub>(?) gas shows. The second well, BHP Federal 28-1, was drilled near Capitol Reef (sec.28, T.33S., R.7E.) to a total depth of 6,185 ft and encountered the Tapeats Sandstone at 5,922 ft and Precambrian(?) phyllite at 6,125 ft. The upper Paleozoic rocks had abundant live oil/tar shows, and the Cambrian Bright Angel Shale and Tapeats Sandstone had numerous oil shows. There were no gas shows in the well except for a large CO<sub>2</sub> gas kick in the Tapeats Sandstone. A drill-stem test from 5,950 to 6,185 ft yielded mostly CO<sub>2</sub> (92%) and nitrogen gas (6%) and minor amounts of helium, argon, hydrogen, and methane. The  $\delta^{13}\text{C}$  of the CO<sub>2</sub> is -3.9 per mil PDB. The chemical composition of the extracted oil in the Cambrian sandstones is significantly different than oils produced from the Upper Valley field (upper Paleozoic reservoirs) and the tar sands that are widespread throughout southern and central Utah. However, the oil composition is similar in several aspects to the composition of some of the Precambrian Chuar Group bitumen extracts from the Grand Canyon area in Arizona. The encouraging features of both wells are the good reservoir characteristics and oil shows in the Tapeats Sandstone. In the BHP well the oil appears to be a new oil type, possibly derived from Precambrian or Cambrian source rocks.

*file 859*

Memo: Shields Exploration 12-24 Federal  
Permit No. 859

From: <sup>SLR</sup> Steven L. Rauzi  
Oil & Gas Program Administrator

Date: April 3, 1995

According to John Haas, Bureau of Land Management, the Shields 12-24 well has been plugged and abandoned. He advised that a copy of the plugging record would be provided to this office at a later date.

Memo: Shields Exploration 12-24 Federal  
Permit No. 859

From: *SLR* Steven L. Rauzi  
Oil and Gas Program Administrator

Date: February 10, 1995

Mr. John Haas, BLM, called on Tuesday, February 7 to advise that Mr. Shields has arranged to plug and abandon the 12-24 well this weekend and to review the plugging plan. He noted that the tubing in the hole is stuck so they planned to perforate and squeeze cement through the tubing. Mr. Haas planned to be on site to witness the plugging operation.

Mr. Jay Shields called on Thursday, February 9 to advise of the plugging of his well this weekend and to review the plugging plan. I advised Mr. Shields that since Mr. Haas planned to witness the operation I would not be there and that a copy of the final plugging report submitted to the BLM would be satisfactory for our file.



Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

845 North Park Avenue, #100  
Tucson, Arizona 85719  
(602) 882-4795  
July 12, 1994



Larry D. Fellows  
Director and State Geologist

John H. Sass  
U.S. Geological Survey  
2255 North Gemini Drive  
Flagstaff, Arizona 86001

*file 859*

Dear John:

Information on the Shields well that we talked about this afternoon is in the public domain. I will telecopy the completion report for this well to you after I write this note. Formation tops and general lithology as reported by the operator are on the form.

With respect to the Alpine geothermal well, several individuals and companies interested in the oil shows in this well have made inquiries with this office as to the current status of the well. Its too bad a sample cannot be easily collected from the top of the fluid column behind the drill rod. In light of the bleeding oil in the core at about 4,025 feet, there may very well be a film of live oil at the top of that fluid column.

Also with respect to the Alpine hole, a copy of my recent open-file report on the oil shows in the hole, a copy of the preliminary geochemical report on the core from that hole, and several photographs of the bleeding oil at about 4,025 feet are enclosed.

Do not hesitate to contact us if we can be of any assistance as your project on the geothermal hole near Alpine progresses.

Sincerely,

Steven L. Rauzi  
Oil & Gas Program Administrator

Enclosure



Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

845 North Park Avenue, #100  
Tucson, Arizona 85719  
(602) 882-4795



Larry D. Fellows  
Director and State Geologist

October 19, 1993

Mr. James G. Palacas  
U.S. Geological Survey  
Denver Federal Center  
Box 25046, MS 971  
Denver, Colorado 80225-0046

Dear James:

It was good to hear from you. I have enclosed a copy of the mud log through the Tapeats and Chuar rocks in the Shields Federal 12-24 well. BHP Petroleum had some of the samples run and the results of that analysis are also enclosed. Keep in mind that the samples, especially the core chips, must have been cut at least six or seven ways to accommodate all of the "partners" in the hole.

Sincerely,

Steven L. Rauzi  
Oil & Gas Program Administrator

Enclosures



Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

845 North Park Avenue, #100  
Tucson, Arizona 85719  
(602) 882-4795



Larry D. Fellows  
Director and State Geologist

July 13, 1993

Jay M. Shields, President  
Shields Exploration Company  
320 Bellino Drive  
Pacific Palisades, California 90272

Re: Shields Federal #12-24, T. 41 N., R. 1 W., sec. 24,  
Coconino County, Arizona  
State Permit #859.

Dear Mr. Shields:

I received your letter of July 6, 1993, wherein you requested an extension of the observational status on the referenced well. As indicated in our telephone discussion on June 28, 1993, I brought this matter up with the Commission in their meeting on March 12, 1993, and they were willing to grant you a one-year extension if you so requested. This letter will serve as the Commission's approval to extend the observational status for one year to July 1994.

Let me take this opportunity to remind you to notify this office of any work, tests, or observations that you conduct on the well during the period of extension.

Sincerely,

Steven L. Rauzi  
Oil & Gas Program Administrator

**SHIELDS EXPLORATION CO.**

320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

JUL 9 1993

July 6, 1993.

Mr. Steven Rauzi  
Oil & Gas Administration  
845 North Park Avenue  
Tucson, AZ 85719

Ref: Extension of Well SF 12-24  
Observational Status Category

Dear Mr. Rauzi:

Reference my telephone call of June 28, I am formally requesting an Extension of the Observational Status Category for the subject SF 12-24 Well for the period of one year, and in accord with the decision of the Arizona Oil & Gas Commission. Their decision is appreciated.

I am also filing with the BLM a request for the extension of the Temporary Abandonment Category for the period of one year and from July 11, 1993.

The Wellsite, at last report, is in good shape with help from this year's rains. In my call of June 28, we brought you up to date. Shields Exploration would like to request that the confidentiality of data supplied be maintained as we continue to hold our Lease Block and seek support for further drilling.

Your acknowledgement of this Request and approval of the Observational Status for the one year period will be appreciated and you will be kept advised of any pertinent developments as per the Regulations of the Oil & Gas Commission and State of Arizona.

Sincerely,

SHIELDS EXPLORATION COMPANY

*Jay M. Shields*  
JAY M. SHIELDS, President



Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

845 North Park Avenue, #100  
Tucson, Arizona 85719  
(602) 882-4795



Larry D. Fellows  
Director and State Geologist

June 10, 1993

Ms. Nancy Humphries  
Burnett Oil Company  
801 Cherry Street, Suite 1500  
Fort Worth, Texas 76102

Dear Ms. Humphries:

Enclosed is the information you requested, 15 sundry reports on the Shields 12-24 well from January 1987 to June 1988 and 12 sundry reports on the Shields 249 well from December 1984 to plug and abandon on February 6, 1990.

Let me know if I can be of further assistance.

Sincerely,

*Steven L. Rauzi*

Steven L. Rauzi  
Oil & Gas Program Administrator

by Fed Express

959



Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

845 North Park Avenue, #100  
Tucson, Arizona 85719  
(602) 882-4795



Larry D. Fellows  
Director and State Geologist

June 8, 1993

Ms. Leslie Hathorn  
Burnett Oil Company  
801 Cherry Street, Suite 1500  
Fort Worth, Texas 76102

859

Dear Ms. Hathorn

Enclosed is the well completion report for Shield's Exploration Company No. 12-24 Federal well that you requested this morning.

Let me know if I can be of further assistance.

Sincerely,

Steven L. Rauzi  
Oil & Gas Program Administrator

**SHIELDS EXPLORATION CO.**

320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

March 8, 1993

MAR 9 1993 P/N 859

Mr. Steven Rauzi  
Oil & Gas Administrator, Arizona Oil and Gas Program  
845 North Park Avenue - #100  
Tucson, Arizona 85719

Dear Mr. Rauzi:

Reference your request for an update of the Shields Federal #12-24 Well, T41N - R1W, Sec 24, the Well continues in the category of Temporary Abandonment and is monitored by Russell Palmer (Ormsby Drilling, Fredonia, AZ).

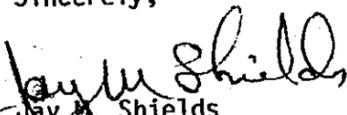
On December 21, 1992 during a brief break in the weather, Rusty was able to move his light rig in and briefly swab the top 50 feet of fluid. The level was found at 1650 feet after swabbing.

We are attending to environmental matters related to the well site in accord with BLM requirements. It has been a very good year for our lease area and our seeding appears to have done very well.

We are currently negotiating with Companies for the drilling of another Well on our Lease Block. The serious problems of the larger Oil Companies and the Industry appear to have lessened.

We may want to request another extension of our observational status from July 11, 1993 and would appreciate the cooperation of the Board and your Department in this matter.

Sincerely,

  
Jay M. Shields  
JMS/mm



Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

845 North Park Avenue, #100  
Tucson, Arizona 85719  
(602) 882-4795



Larry D. Fellows  
Director and State Geologist

February 11, 1993

Jay M. Shields, President  
Shields Exploration Company  
320 Bellino Drive  
Pacific Palisades, California 90272

Re: Shields Federal #12-24, T. 41 N., R. 1 W., sec. 24,  
Coconino County, Arizona  
State Permit #859.

Dear Mr. Shields:

We have not received a report on the status of the referenced well since we granted your request to continue the observational status to July 11, 1993. What observations have been made? What is the present condition of the wellhead and location?

I intend to discuss the current status of this well with the Commission in their next meeting on March 12, 1993. I will ask the Commission if they are agreeable to a further extension should you request one. In order for the Commission to make an informed decision, I request that you provide me with a report on the current status of this well and indicate what your plans are for the continued extension of the observational status.

I look forward to hearing from you at your earliest convenience.

Sincerely,

Steven L. Rauzi  
Oil & Gas Program Administrator

TRANSMITTAL  
LETTER

*file 859*

FROM: *Tom Uphoff*  
BHP PETROLEUM (AMERICAS) INC.  
5847 San Felipe, Suite 3600  
Houston, Texas 77057  
Telephone (713) 780-5000

DATE 9-17-92

SHIPPED BY US MAIL

TO: *Steve Rauzi*  
OIL & GAS Program Administrator  
ARIZONA GEOLOGICAL SURVEY  
845 N. Park, # 100  
Tucson, AZ 85719

DESCRIPTION

*GEOCHEM Rpt from DGSI:*

*"GEOCHEMICAL ANALYSIS OF CAMBRIAN  
AND PRE-CAMBRIAN SAMPLES, SHIELDS  
FEDERAL #12-29, COCONINO COUNTY,  
ARIZONA"*

PLEASE ACKNOWLEDGE RECEIPT OF MATERIAL BY SIGNING AND RETURNING COPY TO:

Received By: *Steven L. Rauzi*

Date Received *9/21/92*

ORIGINAL

5847 San Felipe Suite 3600  
Houston, Texas 77057  
Telephone: (713) 780-5000  
FAX (713) 780-5172  
Telex 9108813603



September 15, 1992

Mr. Steven L. Rauzi  
Oil and Gas Program Administrator  
Arizona Geological Survey  
845 North Park, #100  
Tucson, Arizona 85719

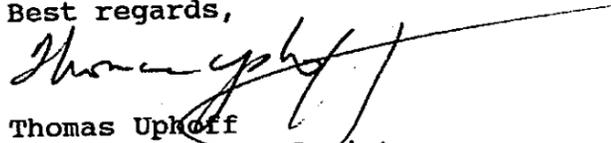
*file 859*

Dear Steve:

As per our phone conversation this afternoon, please find attached a copy of the DGSi geochemical report: "Geochemical Analysis of Cambrian and Pre-cambrian Samples, Shields Federal #12-24, Coconino County, Arizona." BHP Petroleum requests this information be kept confidential by the Arizona Geological Survey for the maximum time allowed, understood to be one year. Please acknowledge receipt of this information by signing and returning one copy of the accompanying transmittal letter.

I enjoyed talking with you today and hope to get a chance to visit the survey my next trip out west.

Best regards,

  
Thomas Uphoff  
Senior Staff Geologist  
BHP Petroleum (Americas) Inc.

TU:pm

**CONFIDENTIAL**

Release Date 9-21-93



WE MAKE GEOCHEMISTRY WORK

8701 New Trails Drive  
The Woodlands, Texas 77381

SHIPMENT TRANSMITTAL

Ship To: ARIZONA GEOLOGICAL SURVEY  
845 NORTH PARK AVENUE #100  
TUCSON, ARIZONA 85719  
ATTN: MR. RON MEERS

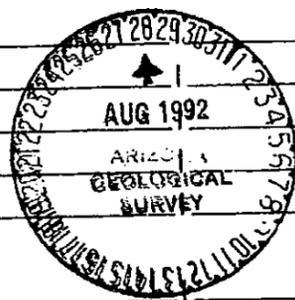
859

P. O. NO. \_\_\_\_\_

DATE 08/21/1992<sup>2</sup>

\*\*\*\*\*

PROJECT NO.	NO. of SAMPLES	WELL NAME	NO. of BOXES
92/2307	all original		
	samples & 2 washed		
	samples.		1



Please acknowledge receipt of the above sample material by signing and returning the duplicate copy of this transmittal.

THANK YOU

**SHIELDS EXPLORATION CO.**

320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272

PHONE (310) 459-2490

July 2, 1992.

(310)

Subject: Extension of Temporary  
Abandonment Status.  
Well SF #12-24 Well,  
Sec. 24, T41N-R1W, AZ

Mr. G. William Lamb  
District Manager  
Bureau of Land Management  
Arizona Strip District Office  
390 North 3050 East  
St. George, Utah 84770

BLM Received  
Arizona Strip District Office

JUL 08 1992

St. George, Utah  
10:08 A.M.

Dear Mr. Lamb:

With reference to 43 CFR Ch II (10-1-90), DOI-BLM, and to Paragraph 3162.3-4c, Shields Exploration is requesting an Extension of the TEMPORARY ABANDONMENT STATUS of the Subject Well for the period of one Year from July 11, 1992 to July 11, 1993.

The geological reasons for maintaining the current Status include the further testing of the oil shows in the Paleozoic formations below the 7" casing set at 2960' and also the top of the Proterozoic Chuar Group based on further information from the USGS indicating the probability of O/G source & reservoir beds scattered throughout the 5000'+ Chuar Supergroup of sandstones and shales, and a confirmation of the definite presence of *Chuarina Circularis* fossils in the 12-24 Well cores taken below 4900'. These carbonized fossils indicate that the top of the Chuar section is not far from the top of the Supergroup and therefore that the White Sage locale has a maximum amount for these source & reservoir beds at depth. A photograph of the *Chuarina Circularis* fossils is enclosed (confidential for now) taken by the UCLA Professor who has been working with us and is Director of the Committee for the Study of the Origins of Life, a worldwide organization.

*J. William Schopf?*

Current Status of the 12-24 Well has not been changed since our Application for Temporary Abandonment in July of 1991 and as per the attached Well Report.

Enclosed also is a Sundry Notice Update of the Well based on a Lease Check made by Mr. Cloyd Swapp for Shields Exploration Company on May 29 1992.

Our plans are to present a proposal based on new data and geology, to interested parties as soon as possible looking to perhaps some further testing of the 12-24 Well and then working toward location of a new Drill Site....

Sincerely,

*Raymond Shields*  
SHIELDS EXPLORATION COMPANY



Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

845 North Park Avenue, #100  
Tucson, Arizona 85719  
(602) 882-4795



Larry D. Fellows  
Director and State Geologist

June 26, 1992

Jay M. Shields, President  
Shields Exploration Company  
320 Bellino Drive  
Pacific Palisades, California 90272

Re: Shields Federal #12-24, Sec. 24, T41N-R1W, State Permit #859.

Dear Mr. Shields:

This will grant permission to your request for the continuation for one year of the "observational status" of the referenced well, which you have classified as "temporarily abandoned" with the Bureau of Land Management.

As of June 21, 1992, we cannot maintain the continuation of the confidential status on this well. *Arizona Revised Statutes* (A.R.S.) § 27-522.B provides for a six-month period of confidentiality after which well data shall be open to public inspection. *Arizona Administrative Code* (A.A.C.) R12-7-128.A provides for an additional six-month period during which such information shall be kept confidential. Our records show that you requested confidential status on this well on June 21, 1991.

Also note that R12-7-127.B requires the operator to give the Commission written notice detailing the proposed activity prior to reentering any temporarily abandoned well.

Copies of A.R.S. § 27-522, A.A.C. R12-7-128, and A.A.C. R12-7-127 are enclosed.

Sincerely,

Steven L. Rauzi  
Oil & Gas Program Administrator

Enclosures



Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

845 North Park Avenue, #100  
Tucson, Arizona 85719  
(602) 882-4795



Larry D. Fellows  
Director and State Geologist

June 23, 1992

Ben Donegan  
Donegan Resources, Inc.  
3224 Candelaria NE  
Albuquerque, New Mexico 87107

Re: Permit 859, Samples 4200'-5436' including core chips 4968'-4998'

Dear Mr. Donegan:

In reference to the Oil and Gas Conservation Commission's Sample Policy, as adopted 11/21/86, item 6(c), this letter provides permission to run geochemical tests on the necessary amount of sample. All sample remaining after these tests, and the results of these tests, shall be handled as specified in the Sample Policy.

Sincerely,

*Steven L. Rauzi*

Steven L. Rauzi  
Oil & Gas Program Administrator

Enclosures: Sample Policy

**STATE OF ARIZONA**  
**OIL & GAS CONSERVATION COMMISSION**  
**SAMPLE POLICY**

The Oil and Gas Conservation Commission hereby adopts the following as its policy regarding samples and cores. In the declaration policy "samples" is meant to include rotary and cable tool cuttings, chips, cores, core slabs, and core chips.

1. Samples received by the Commission under A.A.C. R12-7-121 shall be preserved and maintained in good order.
2. A record or file shall be kept indicating the location of samples from each well.
3. Samples are to be maintained for use as a public library.
4. Samples may be examined on the premises by any person requesting to do so. Reasonable notice for retrieval of the samples may be required.
5. Samples may be loaned for use off-premises to any responsible person at the discretion of the Commission.
6. Users of samples shall take reasonable and customary measures to maintain the integrity and volume of each individual sample and shall not mix samples together.
  - a. Users may use ordinary tests for mineralogical determination. Acid shall not be placed in the bulk sample, rather, one or two individual grains may be removed to a separate container for acid tests.
  - b. Solvents shall not be placed in the bulk sample, rather, one or two individual grains may be removed to a separate container for solvent tests.
  - c. In no case shall bulk solvent extraction, pyrolysis, or other destructive tests be run on any samples without prior permission of the Commission.
7. Users shall return all individual samples to their original containers. If the container is damaged beyond use, a new container shall be provided.
8. Users shall replace all samples in order from top of the hole down in the original sample box.
9. Users shall provide the Commission, within 30 days of their completion, copies of all logs, paleontological and other reports, maturation studies, source rock analysis, and any other study or analysis made possible by use of samples from the Commission's library. The Commission shall grant a six-month confidentiality period if so requested by the owner of the report and may grant one six-month extension of the period of confidentiality if so requested.

ADOPTED AS REVISED BY THE OIL AND GAS CONSERVATION COMMISSION ON 11/21/86

Ben Donegan  
checking out following logs  
from Shields Exploration Co.  
Federal 12-29 well  
Section 29, 91N, 1W  
Cochise Co, Arizona

- |   |                  |                                     |
|---|------------------|-------------------------------------|
| ① | Columbus Logging | Hydrocarbon Log                     |
| ② | Schlumberger     | MSD Log                             |
| ③ | "                | Dual Induction/SFL to 3172          |
| ④ | "                | Borehole Compensated Sonic to 2172' |
| ⑤ | "                | Compensated Neutron Litho-Dens. to  |
| ⑥ | "                | Compensated Sonic to 4930           |
| ⑦ | "                | Cyberlook                           |
| ⑧ | "                | Dual Induction SFL to 4930          |
- OK SLR

Also I made 20 Xerox Copies

Returned 6-23-92  
Received Credit for Ben Donegan

**SHIELDS EXPLORATION CO.**

320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

Re: Request for Extension  
Observational Status

June 21, 1992

Mr, Steven Rauzi  
Oil & Gas Administrator, Arizona Oil and Gas Program  
845 North Park Avenue - #100  
Tucson, Arizona 85719

Dear Mr. Rauzi:

As discussed previously, I am requesting an extension of the Observational Status Category from June 21, 1992 for six months, or for one Year as allowed by the BLM in their Temporary Abandonment Category. When the T/A is received(from July 11, 1992), I will send along a copy.

There has been no change in the status of the Shields Exploration Co. Well #12-24. On May 21st, Mr. Cloyd Swapp, formerly with the BLM, St. George, Utah, went out to the White Sage Lease at our request and to inspect the #12-24 Well site in Sec. 24, T41N - R1W. He reported that there was no sign of tempering with the wellhead or the tubing lines or the tank and no evidence of tracks in the immediate area.

Cloyd also reported that there was a good growth of grasses apparently from our seeding last year and helped by the recent rains in the Strip Country.

Your help in maintaining the confidentiality of our operations, particularly in these times of distress of the oil companies, will be appreciated.

We trust all goes well and the favor of an approval of the application for Observational Status is requested.

Yours Sincerely,

  
Jay M. Shields, President  
SHIELDS EXPLORATION COMPANY



Encl: Formal Request for extension of Observational Status Category  
Form 4 & Chart

BEN DONEGAN  
Consulting Geologist  
3224 Candelaria NE  
Albuquerque, New Mexico 87107

505 884-2780

March 23, 1992

Mr. Steve Rauzi  
Oil and Gas Conservation Commission  
Arizona Geological Survey  
845 N. Park, #110  
Tucson, Arizona 85719

Dear Steve:

As a followup to our meeting in your office on February 14, 1992, this letter is to confirm our request to you for the loan for off-premises use of a set of the samples of drill cuttings and cores, if any, from the deepening last year from 3,025 feet to the total depth of 5,700 feet of the Shields Exploration 12-24 Federal test well (Section 24, T. 41 N., R. 1 W., Coconino County, Arizona) as soon as the period of confidentiality for these samples has ended.

We, of course, agree to comply with the provisions of the Oil & Gas Conservation Commission "Sample Policy" adopted on November 21, 1986 (copy enclosed).

Very truly yours,

*Ben Donegan*  
Ben Donegan

BD/nc

SHIELDS EXPLORATION CO.

320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

August 15, 1991.

Re: Form #4, O/G CC

Mr. Steve Rauzi, O/G Program Administrator  
Arizona Geological Survey  
845 North Park Avenue - #100  
Tucson, Arizona 85719

Dear Mr. Rauzi:

Reference our recent telephone conversation, I am enclosing a copy of my correspondence with Mr. Brennan dated June 21, 1991. These copies should be in your files. Form 4, providing for the Observational Status, apparently was overlooked in the confusion of change and I do not have a signed copy in the my file. I will need this approval which, was agreed to by Mr. Brennan, as soon as possible.

I would still agree to the date of June 21, 1991 as the logical beginning of the change in Status of the 12-24 Well Operational to Observational and formally request the Observational Status for the period of six months from that date to December 21, 1991. I would also like to indicate at this time that I intend to apply for an extension of an additional six months (to June 21, 1992), all as provided in the Rules and Regulations of the Arizona Oil and Gas Conservation Commission in 1982.

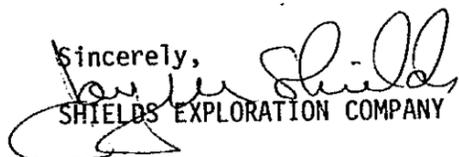
As we have discussed, this Well is very important to the Oil Industry and to Science and as data accumulates further tests are likely which could lead to additional exploration. We, of course, request confidentiality in all matters related to the Well.

In submitting Form 4 for your signature, we have shown good faith by submitting the Logs and Ditch Samples and now need the Form 4 executed for our files. Please note the Attachment to the Form related to the Observational Status and also to the DOI-BLM approval of a Temporary Abandonment Status for the 12-24 Well.

We expect to provide information on the status of the Well and Location as needed and via the customary Sundry Notices.

We wish you success in your new position.

Sincerely,

  
SHIELDS EXPLORATION COMPANY

Encl: Copy of June 21, 1991 Brennan letter and Form 4 enclosures



State of Arizona  
**Arizona Geological Survey**

845 North Park Avenue, #100  
Tucson, Arizona 85719  
(602) 882-4795

Larry D. Fellows  
Director and State Geologist

August 14, 1991

Jay M. Shields  
Shields Exploration Company  
320 Bellino Drive  
Pacific Palisades, CA 90272

RE: Shields Exploration 12-24 Federal  
State Permit No. 859

Dear Jay:

I am writing to acknowledge receipt of:  
Dual Ind & Sonic 2960-3187  
CN-LD-GR, Cyber, Dual Ind, Sonic, & MSD Dip 2960-4940  
Mud Log 3196-5436

Our records show that you requested confidential status on the 12-24 well on June 21, 1991. Contact me if this is not in agreement with your records. We have not yet received the AZGS sample set. I am looking forward to receipt of the Arizona Geological Survey set of your cuttings and core chips.

Sincerely,

Steven L. Rauzi  
Oil & Gas Program Administrator

SHIELDS EXPLORATION CO.  
320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

June 21, 1991.

AZ OIL & GAS  
CONSERVATION COMMISSION

JUN 24 1991

Mr. Dan Brennan, Executive Secretary  
Arizona O/G Conservation Commission  
5150 North 16th Street Suite B-141  
Phoenix, Arizona 85016

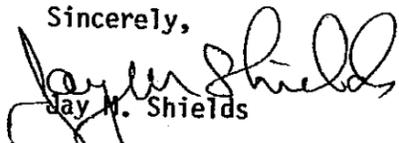
Dear Mr. Brennan:

Reference our recent telephone discussion, enclosed find your Form No. 4 filled out accordingly. I have also added an attached sheet of explanation and a listing of the logs required.

A copy of this letter and attachment are included in the package of logs going out today under separate cover.

I want to emphasize my requirement for CONFIDENTIALITY of all logs provided, as well as the core and ditch samples which are being packed today.

Sincerely,

  
Jay M. Shields

SHIELDS EXPLORATION COMPANY



**Oil and Gas Conservation Commission**

STATE OF ARIZONA

5150 N. 16th STREET, SUITE B-141  
PHOENIX, ARIZONA 85016  
PHONE: (602) 255-5161

June 11, 1991

Mr. Jay Shields, President  
Shields Exploration Company  
320 Bellino Drive  
Pacific Palisades, Calif. 90271

RE:#859 Shields 12-24 Federal

Dear Jay,

We have received your sundry notice dated June 3, 1991. I hope you can get your locations seeded before the summer rains hit in that area.

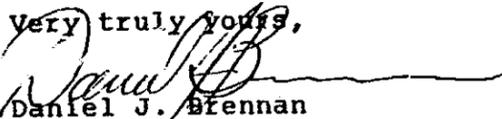
It is now over six months since you released the rig on this hole. And in your report of April 5, 1991 you reported receiving the "core samples to include with ditch samples." On April 19 you reported receiving the "Schlumberger extra logs." To date we have received neither ditch samples, core samples, nor logs.

The well has been prepared for observation for several months, according to your reports. Our rules require the filing of a completion report, complete with samples and copies of "all logs and surveys of any description" within 30 days of completion. You have not done this.

You are in violation of the laws and rules of the State of Arizona. Please file the completion report, complete with the required samples and logs by June 26, 1991. Your failure to file this report will require me, on June 27, 1991, to refer the matter to the Attorney General for appropriate action

I am looking forward to receiving the report and supporting materials.

Very truly yours,

  
Daniel J. Brennan  
Executive Director

Encl:Form 4



**Oil and Gas Conservation Commission**  
STATE OF ARIZONA

5150 N. 16th STREET, SUITE B-141  
PHOENIX, ARIZONA 85016  
PHONE: (602) 255-5161

December 17, 1990

Mr. Jay Shields  
Shields Exploration Co.  
320 Bellino Drive  
Pacific Palisades, CA 90272

RE: Shields 12-24 Federal  
Sec 24 T41N-R1W  
Permit No. 859

Dear Jay:

We have received your Sundry Notice for the period ending December 7, 1990. Thank you for sending it in promptly.

However, it still does not contain the required information and is in part misleading.

The misleading part is in "Check Appropriate Box" section. You have typed at the "other" space "Deepening #12-24 to 5700." As you have previously reported, the deepening has been accomplished. Now you are doing something else.

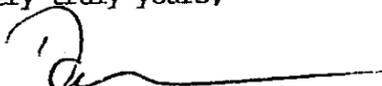
The paragraph on operations does not describe what happened in the hole during the reporting period. If nothing happened--that is, there were no operations will drill pipe or wire line, please say so.

You are very good at reporting your plans.

As I mentioned before, your capitalized statement "SF #12-24 Continues on Operational Status" carries no weight unless backed up by relevant activity. Please discontinue this statement on our reports, at least.

We are looking forward to the results of your proposed down-hole activity.

Very truly yours,

  
Daniel J. Brennan  
Executive Director



**Oil and Gas Conservation Commission**

STATE OF ARIZONA

5150 N. 16th STREET, SUITE B-141  
PHOENIX, ARIZONA 85016  
PHONE: (602) 255-5161

November 28, 1990

Mr. Jay Shields  
Shields Exploration Co.  
320 Bellino Drive  
Pacific Palisades, CA 90272

RE: Shields 12-24 Federal  
Sec 24 T41N-R1W  
Permit No. 859

Dear Jay:

We have received your Sundry Notice dated November 23, 1990 for the 12-24 well.

Once again, I have to emphasize that your reports do not communicate the desired information.

During the period covered by the report on how many days were there operations in the hole, either by wire line or with drill pipe? This must be reported clearly.

Despite your capitalized statement that the well is on "operational status," we do not consider it to be so unless there are actual operations in the hole.

Please refile the report. It is not necessary to say "Monitoring well daily." I don't know what that means, and you don't spell it out. What rig is over the hole is irrelevant. "Problem with bailing line" doesn't convey much information. What kind of problem? Is it snarled up like fishing line or can't you get any?

We are looking forward to receiving informative reports.

Very truly yours,

Daniel J. Brennan  
Executive Director



**Oil and Gas Conservation Commission**

STATE OF ARIZONA

5150 N. 16th STREET, SUITE B-141  
PHOENIX, ARIZONA 85016  
PHONE: (602) 255-5161

November 15, 1990

Mr. Jay Shields  
Shields Exploration Co.  
320 Bellino Drive  
Pacific Palisades, CA 90272

RE: Shields 12-24 Federal  
Sec 24 T41N-R1W  
Permit No. 859

Dear Mr. Shields:

We have not been receiving your weekly sundry reports in a timely manner. Yesterday we received your report for the period ending November 11, 1990. This was for a period of 11 days, not a week.

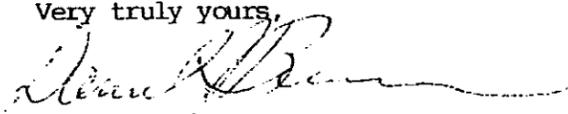
All operators are required (R12-7-179) to file a weekly sundry report on operations at every well. The report should contain information enabling us to understand exactly what was going on at the well. Phrases such as "John Doe was on site" or "Making plans," or "working on old well sites" do not tell us that operations were truly in progress on a well.

Rule 12-7-192 requires operators to make and keep records to substantiate reports required by the Commission.

You have been in violation of the rule requiring weekly reports. Please file your reports in a timely manner in the future.

Repeated failure to comply will require us to request intervention by the Attorney General in the courts. We do not want to do this, but will, if necessary.

Very truly yours,

  
Daniel J. Brennan  
Executive Director

cc: Four Seasons Motel  
22 North 300 West  
Kanab, UT 84741



**Oil and Gas Conservation Commission**

STATE OF ARIZONA

5150 N. 16th STREET, SUITE B-141  
PHOENIX, ARIZONA 85016  
PHONE: (602) 255-5161

*Permit 859*

October 19, 1990

Mr. Jay Shields  
Shields Exploration Co.  
320 Bellino Drive  
Pacific Palisades, CA 90272

RE: Shields 12-24  
Sec 24, T41N-R1W  
Permit No. 859

Dear Mr. Shields,

Now that you have commenced deepening of your 12-24 well, we are sending you the forms which you will find necessary to file relative to completion of the well.

Enclosed are copies of rules bearing on completions.

If you complete the well as a producer, no reports beyond the weekly sundry report are required until the end of the completion work. Within 30 days after the end of completion work you must file Form 4 along with copies of all logs and surveys of any description (Rule 12-7-121.)

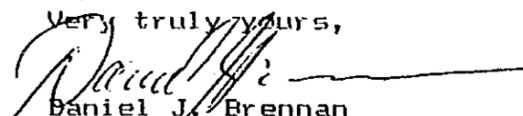
If the well is not completed as a producer, and the rig is removed from over the hole, the hole must be mudded and cemented unless authorization to the contrary has been granted by the Commission (Rule 12-7-126.) If authorization is granted, the well must be completed in some way and a form 4 and logs filed as for a producing completion.

If the well is declared a dry hole or authorization to delay mudding and cementing is not granted, the well must be plugged and abandoned following the procedures in Rules 12-7-126 and 127. This means that operators have to file a plan for plugging, (Form 9) and have it approved prior to beginning plugging operations. Within 30 days after completion of plugging operations, operators must file Form 10, along with copies of all logs and surveys .

I hope you have to file a form 4 and am enclosing copies for your use. Just in case you do not have a producer I am also sending along copies of Forms 9 and 10. It might be a good idea to complete a form 9 and send it back right away in case you do have to plug the hole. That would save you money on rig waiting time at the end.

Best wishes on the success of this effort.

Very truly yours,



Daniel J. Brennan  
Executive Director

Encls: Forms  
CC: 4 Seasons, Kanab, Utah

DJB/ms



**Oil and Gas Conservation Commission**

STATE OF ARIZONA

5150 N. 16th STREET, SUITE B-141  
PHOENIX, ARIZONA 85016  
PHONE: (602) 255-5161

September 28, 1990

Ms. Linda Zappia  
Bond Department  
Cigna Property and  
Casualty Companies  
P. O. Box 11001  
Orange, CA 92668

Dear Ms. Zappia:

This is to inform you that my acknowledgement of the request by Cigna to limit liability under the bond of Shields 1981 Program, Bond No. K00175625 in the amount of \$25,000 for oil well drilling is hereby revoked.

Under terms of Rule R12-7-103, bonds in the principal sum of \$25,000 "cover all wells." The Rule does not provide for limitation of liability.

Bonds are released only after full compliance with all statutes and regulations, and plugging and abandoning of the wells covered by the bonds.

Please acknowledge receipt of this notice by signing at the place indicated on the enclosed copy and returning it in the enclosed prepaid return envelope.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Daniel J. Brennan".

Daniel J. Brennan  
Executive Director

Enclosures

P/N 859

**SHIELDS EXPLORATION CO.**

320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

September 26, 1990

Mr. Daniel Brennan  
Arizona Oil & Gas Commission  
5150 North 16th St., B-141  
Phoenix, Arizona 85016

Dear Mr. Brennan:

Reference our recent discussion about bonds. I am enclosing a letter indicating that the Lease Number on our bonds has been changed to #24237. Also enclosed is a copy of an earlier communication from the bonding company INA, indicating that we are covered on all wells included on the subject bond. We also have a blanket bond for drilling covering all this Lease.

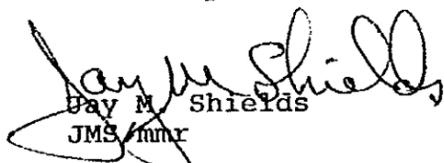
The Cigna letter of 9/12/89 only referred (somewhat ambiguously) to additional coverage and not to existing coverage. We have been, and we are now, clearly covered for any past or present drilling.

In addition, I have been advjsed both by the BLM and your office that the statement of termination was not acceptable in the first place, as we all know that you cannot terminate the terms and conditions of an existing bond. We also draw your attention to the Arizona Performance Bond covering the subject lease and the statement highlighted "otherwise it shall remain in full force and effect". I have spent the summer working with my bondsman to obtain the necessary change in the Lease Number, which has just now finished processing, and I think that the foregoing should be sufficient evidence of the current coverage of the bond as it applies to the deepening of my well #12-24.

The situation has developed very rapidly. Over the last two weeks, we have been able to finalize contribution agreements with the four major companies and we are now ready to go. Due to heavy pressure from rapidly increasing drilling activity, we need to start operations next week. Your cooperation will now be most appreciated.

We will keep you advised with the usual sundry notices and by phone. Needless to say we are running a Tite Hole and appreciate your cooperation.

Sincerely,

  
Jay M. Shields  
JMS/mmnr

Enclosures: cc Cigna letter, cc Stuart Wright (Bondsman) letter,  
cc Performance Bond, cc INA Rider.



STUART A. WRIGHT & ASSOCIATES

Insurance Services

September 24, 1990

Mr. Jay Shields  
Shields 1981 Program  
320 Bellino Drive  
Pacific Palisades, CA 90272

Re: Bond No: K001175705

Dear Jay:

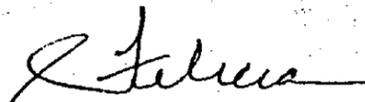
This letter serves as confirmation of the following amendment to the above mentioned bond.

1. A 10456 is amended to read A 24237.

I anticipated receiving the actual endorsement in about a week and will express mail it to you when I get it.

If you should have any questions or if I can be of assistance in any way, please call me.

Sincerely,

  
Felicia Connors

FMC/ms

Enc.



STUART A. WRIGHT & ASSOCIATES

STATE

Insurance Services

July 3, 1990

Mr. Jay Shields  
Shields 1981 Program  
320 Belling Drive  
Pacific Palisades, CA 90272

Re: Renewal of the following bonds:

1. Bond #K00175675 (State of Arizona Gas & Oil)
2. Bond #K00175705 (U.S. Dept. of the Interior)

Dear Mr. Shields:

Enclosed please find two invoices in the total amount of \$350.00 due and payable prior to 8/21/90 for the above mentioned bonds.

Please note that these bonds are continuous therefore there are no renewal bonds issued.

If you should have any questions or if I can be of assistance in any way, please call me.

Sincerely,

Felicia Connors

FMC/ms

Enc.

SHIELDS EXPLORATION CO.  
320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

June 14, 1990

Dear Dan:

Re: APDS  
B109 + A2

Just a note so this can  
get in the mail.

John Branch called today and  
we covered the ground. It would  
appear that the "Tank" idea will  
work --- I am going to amend  
the enclosed B109-APD re the  
heavy foam contained in mud tanks  
Ever onward and 'thex'!

Jay M. Shields  
Shields, Engr.



United States Department of the Interior

BUREAU OF LAND MANAGEMENT  
ARIZONA STRIP DISTRICT OFFICE  
390 NORTH 3050 EAST  
ST. GEORGE, UTAH 84770

**TAKE  
PRIDE IN  
AMERICA**  
**AZ OIL & GAS  
CONSERVATION COMMISSION**

MAY 25 1990

IN REPLY REFER TO:

A-24237  
(010)

MAY 28 1990

Mr. Jay M. Shields  
Shields Exploration Co.  
320 Bellino Dr.  
Pacific Palisades, CA 90272

RE: Oil and Gas Lease A-24237, Well No. 12-24,  
T. 41 N. R. 1 W., sec. 24, NE

Dear Mr. Shields:

We are in receipt of your Application for Permit to Deepen (APD) for the above referenced well. Due to the fact that this APD submission is essentially the same as that approved in June of 1989 for the same well, no on-site meeting will be required in conjunction with the processing of this APD. We anticipate being able to complete the processing of this APD by June 15, 1990. Please be advised, however, that we will be unable to approve this APD until such time as you have secured an acceptable bond covering operations on this lease.

We also wish to advise you that in addition to approval of this APD by the State of Arizona Oil and Gas commission, approval for construction and use of the reserve pit may also be required by the Arizona Department of Environmental Quality. You are encouraged to contact these agencies as soon as possible to ascertain what if any additional State permits are required.

If you have any questions concerning this matter, please contact Mr. John Branch of this office at (801) 673-3545.

Sincerely,

*William G. Wells*  
for G. William Lamb  
District Manager

cc: AZ-921  
Arizona Oil and Gas Commission  
Arizona Department of Environmental Quality



**Oil and Gas Conservation Commission**  
STATE OF ARIZONA

5150 N. 16th STREET, SUITE B-141  
PHOENIX, ARIZONA 85016  
PHONE: (602) 255-5161

December 15, 1989

Ms. Linda Zappia  
Bond Department  
CIGNA Property and Casualty Companies  
1120 West La Veta Avenue  
Orange, CA 92668

Dear Ms. Zappia:

Once again we have received a copy of your letter dated October 31, 1989 re: Shields 1981 Program K00175675 - Oil Well Drilling. (Copy enclosed.)

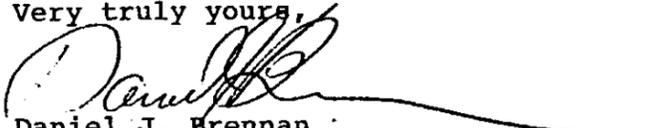
As you may recall, we have previously declined to sign and return a copy of this letter, because it is not clear to me what the letter means. As you may recall, on November 2, 1989, I spoke with you on the telephone in this regard. I followed up with a letter of the same date (copy enclosed).

If my understanding of our conversation as put forth in my letter of November 2, 1989 is correct, please let me know, by endorsing and returning a copy of the letter with a statement to that effect, dated and signed by an authorized representative of the company.

Alternatively, you may wish to write a new letter clearly explaining the intent of your letter of October 31. The key to my understanding is the word "additional." Does this mean for an extended period of time as the word "terminated" could be thought to imply, or does it mean for an increased number of wells? If you can clear that up in writing, we will be able to acknowledge your intent as requested.

Thank you for your assistance.

Very truly yours,

  
Daniel J. Brennan  
Executive Director

Enclosures



**Oil and Gas Conservation Commission**

STATE OF ARIZONA

5150 N. 16th STREET, SUITE B-141  
PHOENIX, ARIZONA 85016  
PHONE: (602) 255-5161

November 2, 1989

Ms. Linda Zappia  
Bond Department  
CIGNA Property and  
Casualty Companies  
1120 West La Veta Avenue  
P. O. Box 11001  
Orange, CA 92668

Dear Ms. Zappia:

Pursuant to our conversation today, I am returning your letter of October 31, 1989. The intent of the letter is not obvious to a disinterested person. It seems to say that you are discontinuing Mr. Shields' bond.

As I understand it, you have told me that the intent of the letter is to decline to accept bonding liability on any additional wells Mr. Shields may drill in Arizona, but that you are continuing the bond for the existing unplugged wells.

If this is a correct understanding, please write us a new letter which clearly states the company's position.

Thank you for your cooperation.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Daniel J. Brennan".

Daniel J. Brennan  
Executive Director

Enclosure

**SECOND REQUEST**

CIGNA Property and Casualty Companies

1120 West La Veta Avenue  
P.O. Box 11001  
Orange, CA 92668  
(714) 647-2700

SECURITY REQUEST

AZ OIL & GAS  
CONSERVATION COMMISSION

**CIGNA**

October 31, 1989

DEC 1 1989

State of Arizona  
Oil & Gas Conservation Commission  
5150 N. 16th St., Suite B 141  
Phoenix, Arizona 85016

Re: Shields 1981 Program  
K00175675 - Oil Well Drilling

Gentlemen:

We, Insurance Company of North America, executed the above bond effective August 21, 1980, in the amount of five thousand dollars (\$5,000) and subsequently increased to twenty five thousand dollars (\$25,000). A copy of bond No. K00175675 is enclosed for your reference.

We, as Surety, elect to have additional coverage under this bond become inapplicable thirty (30) days after your receipt of this letter. Please acknowledge your acceptance and date of termination of additional coverage by signing the bottom copy of this letter, and returning to this office. A self-addressed prepaid return envelope is enclosed for your convenience.

Sincerely,

INSURANCE COMPANY OF NORTH AMERICA

Linda Zappia  
Bond Department

LZ:el

cc: Shields 1981 Program  
Stuart A. Wright & Associates

Additional coverage under bond No. K00175675  
is hereby terminated effective \_\_\_\_\_.  
State of Arizona  
Conservation Commission

By: \_\_\_\_\_  
(Authorized Representative)

Date: \_\_\_\_\_



**Oil and Gas Conservation Commission**

STATE OF ARIZONA

3110 N. 19th AVENUE, SUITE 190

PHOENIX, ARIZONA 85015

PHONE: (602) 255-5161

May 25, 1989

Mr. Jay M. Shields, President  
Shields Exploration Company  
320 Bellino Drive  
Pacific Palisades, CA 90272

Re: Shields Federal #12-24  
State Permit #859

Dear Mr. Shields:

We are in receipt of your letter of May 22, 1989, in which you applied for a permit to re-enter and deepen the SF #12-24. Your letter indicates the following enclosures: a) Application for Permit to Re-Enter, b) Survey Plat, c) Designation of Operator, d) Organization Report, and e) Company check in the amount of \$25.00 for APR Filing Fee. All enclosures were accounted for except the \$25.00 Company check which was not found.

In as much as the SF #12-24 was never plugged and abandoned, but was in shut-in status, your proposed operations are considered to be a deepening of an already permitted well and not a re-entry of an abandoned (i.e. old) well. Thus, issuance of a new permit (and the \$25.00 filing fee) is not necessary. All other forms are in order. However, your deepening operation will continue to be subject to the stipulations under State Permit #859 issued on September 17, 1986 (copy enclosed).

You have this Commission's approval to proceed with your deepening program as stated on the above mentioned Application for Permit to Re-Enter dated May 20, 1989, and on U. S. Department of Interior Application to Deepen dated May 1, 1989.

We wish you every success in your deepening endeavor.

Sincerely,

A handwritten signature in cursive script that reads "Steven L. Rauzi".

Steven L. Rauzi  
Oil & Gas Specialist

SLR:lr  
Encl.

SHIELDS EXPLORATION CO.  
320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

AZ OIL & GAS  
CONSERVATION COMMISSION

MAY 24 1989

May 22, 1989.

Mr. Daniel Brennan  
Secretary, Arizona Oil and Gas Conservation Commission  
State of Arizona  
3110 North 19th Avenue, Suite 190  
Phoenix, Arizona 85015

Dear Mr. Brennan:

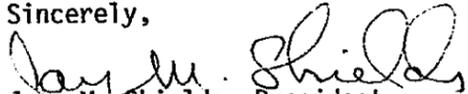
As previously discussed, we are now applying for a Permit to Re-Enter and deepen our Shields Federal #12-24 Well from the existing TD of 3183' to approximately 5700'. In accordance with the requirements of the Commission, the following documents are enclosed:

- a) Application for Permit to Re-Enter the SF 12-24.
- b) Survey Plat of Well Location by Phil Drake, RLS, AZ. The 80-acre Drill Site is the S $\frac{1}{2}$ NE $\frac{1}{4}$  of Section 24, T41N - R1W, GS&RBM. See Plat.
- c) Designation of Operator - Shields Exploration Company
- d) Organization Report
- e) Company Check in the amount of \$25.00 for APR Filing Fee

On file in your Office is a Performance Bond for \$25,000.00.

We are looking forward to working with you and your Staff. The required Notices and Reports will be filed on a timely basis and telephone communication will be used where indicated.

Sincerely,

  
Jay M. Shields, President

Encl: As Above (a) thru (e)

copies to well files 816, 817, 775, 853, 814, 859

**SHIELDS EXPLORATION CO.**  
320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

Mr. Dan Brennan  
Secretary, Arizona Oil and Gas Conservation Comm.  
3110 North 19th Avenue Suite 190  
Phoenix, Arizona 85015

Dear Mr. Brennan:

In reply to Rudy Ybarra's letter of July 22nd and with reference to recent telephone conversations with you and Mr. Ybarra concerning the abandonment of additional shallow Wells drilled by Shields Exploration Company on the White Sage Prospect, we have checked our records and enclose a Well Location Map showing the status of each Well. Listed below are the Wells and our plans for the shallow ones that have not yet been abandoned.

Our records indicate that the Travis Federal 1-24 and the Shields Federal #1-24, #2-24, #4-24, #5-24 and the #1-19 are P&A. The record does not confirm the status of the #1-23 and it will be checked on site.

The Shields Federal #11-24 and #6A-24 have been kept in the Temporary Abandonment category pending final analysis and decisions regarding the results of the deepening of the #1-19A Well (Feb 1988). We will now plan to abandon the #11-24 and the 6A-24 and, if not already officially abandoned, the #1-23 at such time as we next commence operations on the White Sage Lease.

It is most important to our present and future plans to maintain the Shields Federal #2-19 and #11-24 Deeper Tests in their current shut-in status.

I would like to take this opportunity to thank you, Mr. Ybarra and the Oil and Gas Commission for the help and cooperation provided down through the years. We look forward to a successful conclusion recognizing that the finding of commercial oil on the Frontier is important to us all.

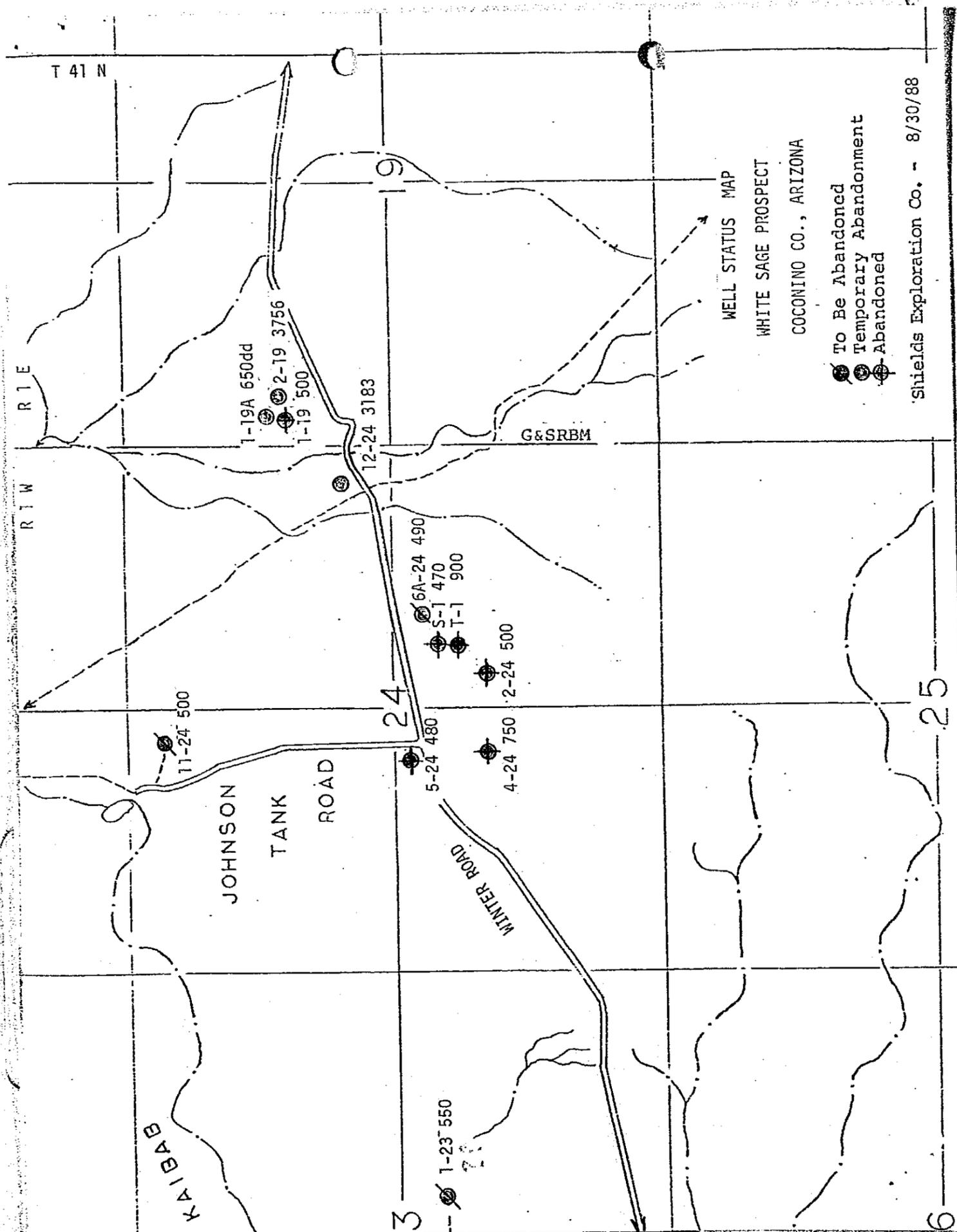
Sincerely,

Jay M. Shields

*Jay M. Shields*

Enc: Well Location Map - White Sage Prospect

Well #	Account #	
Shields 1-24	715	2-19 853
Travis 1-24	703	12-24 - 859
Shields 2-24	771	
" 4-24	772	
" 5-24	774	
" 1-19	853	
" 1-23	816	
" 11-24	817	
6A-24	775	



T 41 N

R 1E  
R 2E  
R 3E

JOHNSON  
TANK  
ROAD

WINTER  
ROAD

G&SRBM

WELL STATUS MAP

WHITE SAGE PROSPECT

COCONINO CO., ARIZONA

- To Be Abandoned
- ⊙ Temporary Abandonment
- ⊗ Abandoned

Shields Exploration Co. - 8/30/88

KAI BAB

3

25

6

SHIELDS EXPLORATION CO.  
320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

RECEIVED  
OCT 17 1986  
O & G CONS. COMM.

Mr. Rudy Ybarra  
Oil & Gas Cons. Comm.  
State of Arizona  
Phoenix, AZ 85015

Re: Copy  
APD-BCM  
SF # 12-24  
Your Permit  
# 859

Dear Mr. Ybarra:

I thought you might like to  
add the enclosed to your Shields  
File.

Continuing to work toward  
a drilling date of 2-3 weeks - Hope  
weather holds -

Regards to you and Mr. Brennan -

Sincerely,

Jay M Shields

note - I heard from  
Medallion!?

Encl: BCM data (supplemental) for APD



**Oil and Gas Conservation Commission**  
STATE OF ARIZONA  
3110 N. 19th AVENUE, SUITE 190  
PHOENIX, ARIZONA 85015  
PHONE: (602) 255-5161

September 22, 1986

Mr. Jay M . Shields  
Shields Exploration Co.  
320 Bellino Drive  
Pacific Palisades, CA 90272

Dear Mr. Shields:

Enclosed please find Receipt No. 2701 covering the \$25 filing fee,  
copies of your approved Applications for Permit to Drill and Permit  
to Drill No. 859.

Also enclosed are miscellaneous instruction sheets concerning samples  
and other Commission requirements and forms.

Sincerely,

*R.A. Ybarra*  
R. A. Ybarra  
Enforcement Director

Encl.

lr

SHIELDS EXPLORATION CO.  
PACIFIC PALISADES, CA

DETACH AND RETAIN THIS STATEMENT  
IF ATTACHED CHECK IS IN PAYMENT OF ITEMS DESCRIBED BELOW.  
IF CORRECT PLEASE NOTIFY US PROMPTLY. NO RECEIPT DESIRED.

DATE	INVOICE NUMBER	DESCRIPTION	AMOUNT	DEDUCTIONS		NET AMOUNT
				PARTICULARS	AMOUNT	
9/15/86		To: OIL AND GAS CONSERVATION COMMISSION, STATE OF ARIZONA		FILING FEE SHIELDS FEDERAL #12-24	\$25.00	\$25.00

SHIELDS EXPLORATION CO.  
320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

RECEIVED  
SEP 18 1986  
O & G CONS. COMM.

September 15, 1986

Mr. Daniel Brennan, Secretary  
Oil and Gas Conservation Commission  
State of Arizona  
3110 N. 19th Avenue, Suite 190  
Phoenix, Arizona 85015

Re: SHIELDS FEDERAL #12-24, C SE/4 NE/4, T41N-R1W, COCONINO CO., AZ.

Dear Mr. Brennan:

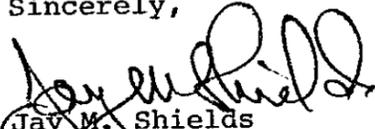
As previously discussed, we are now ready to apply for a Drilling Permit for the Shields Federal #12-24, a new Location. In accordance with the requirements of the Commission, I enclose the following forms and documents:

1. SHIELDS FEDERAL #12-24 (MISSISSIPPIAN-DEVONIAN TEST)
  - a) Application for Permit to Drill including Survey Plat of Location by Phil Drake, RLS., AZ. The 80-acre drill site will be S/2 NE/4 of Section 24, T41N-R1W. See Plat.
  - b) Designation of Operator
  - c) Organization Report
  - d) Ck in the amount of \$25.00 for Filing Fee for Well SF #12-24.

On file in your office is a Performance Bond for \$25,000.

We will look forward to working with you and your staff.

Sincerely,

  
Jay M. Shields  
JMS/mm

Enclosures: For SHIELDS FEDERAL #12-24  
cc (2 each) Application for Permit to Drill &  
Survey Plat  
cc (2 each) Designation of Operator  
cc Organization Report  
CK for \$25.00, Filing Fee

SHIELDS EXPLORATION CO.  
320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

*Seals A2 Copy*

RECEIVED  
SEP 18 1986  
O & G CONS. COMM.

September 8, 1986

Mr. Cloyd Swapp  
Bureau of Land Management  
196 East Tabernacle  
St. George, Utah 84770

Dear Mr. Swapp:

As previously discussed, we are now ready to apply for a Drilling Permit for the Shields Federal #12-24, a new location. Enclosed are the Application to Drill Form plus supporting documents in triplicate as required, covering the proposed Mississippian-Devonian wildcat test for oil, the Shields Federal #12-24, to be located in the C SE/4 NE/4 of Section 24, T41N-R1W, Coconino Co., Arizona.

In view of my previous operations (Travis #1-24 and eight Shields Federal wells, it is my hope that Environmental and other stipulations will also apply to this well, and that the required permit will issue so that I might commence operations in early October.

On file in your office, in accordance with 43 CFR 3104, is bond number KO 01 74 70 5 in the sum of \$10,000, accepted by Mario Lopez, Phoenix.

I understand that the Application to Drill requirements are the same as previously administered by the USGS (MMS).

Your assistance will be greatly appreciated.

Sincerely,

Jay M. Shields  
JMS/mmr

Enclosures: 1) Form 9-331C; 2) Survey Plat; 3) Drilling Site Map; 4) Form 9-1123; 5) Geological and Drilling Operations statement (Supplemental to Form 9-331C; 6) Contour and Location Map; 7) USGS Area Map; and 8) Approval of Operations.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS

Executed in Duplicate

Bond Serial No. KO 01 75 67 5

That I, Jay M. Shields

of the County of Los Angeles in the State of California

as principal, and Insurance Company of North America

of 4050 Wilshire Boulevard, Los Angeles, California 90010

AUTHORIZED TO DO BUSINESS WITHIN the State of Arizona.

as surety, are held and firmly bound unto the State of Arizona and the Oil and Gas Conservation Commission, hereinafter referred to as the "Commission", in the penal sum of \$5,000.00 and no/100 (\$5,000.00) lawful money of the United States, for which payment, well and truly to be made, we bind ourselves, and each of us, and each of our heirs, executors, administrators or successors, and assigns jointly and severally, firmly by these presents.

The conditions of this obligation are that, whereas the above bounden principal proposes to drill a well or wells for oil, gas or stratigraphic purposes in and upon the following described land situated within the State, to-wit:

NW 1/4 of the SE 1/4 of Section 24, T 41 N - R 1 W, COCONINO COUNTY, STATE OF ARIZONA

(May be used as blanket bond or for single well)

NOW, THEREFORE, if the above bounden principal shall comply with all the provisions of the Laws of this State and the rules, regulations and orders of the Commission, especially with reference to the requirements of A.R.S. § 27-518, providing for the proper drilling, casing and plugging of said well or wells, and filing with the Oil and Gas Conservation Commission all notices and records required by said Commission, then in the event said well or wells do not produce oil or gas in commercial quantities, or cease to produce oil or gas in commercial quantities, this obligation is void; otherwise it shall remain in full force and effect.

Whenever the principal shall be, and declared by the Oil and Gas Conservation Commission in violation of the Laws of this State and the rules, regulations and orders of the Commission, the surety shall promptly:

- 1. Remedy the violation by its own efforts, or
2. Obtain a bid or bids for submission to the Commission to remedy the violation, and upon determination by the Commission and the Surety of the lowest responsible bidder, arrange for a contract between such bidder and the Commission, and make available as work progresses sufficient funds to pay the cost of remedying the violation; but not exceeding, including other costs and damages for which the surety may be liable hereunder, the amount set forth in the first paragraph hereof.

Liability under this bond may not be terminated without written permission of this Commission.

WITNESS our hands and seals, this 21st day of August, 1980

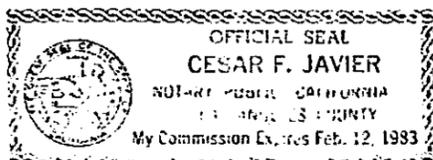
Jay M. Shields

STATE OF CALIFORNIA

COUNTY OF Los Angeles } ss.

On this 1st day of September in the year 1980

before me Cesar F. Javier a Notary Public in and for the STATE OF CALIFORNIA personally appeared John C. Ingersoll known to me to be the person whose name is subscribed to the within instrument as the Attorney-in-Fact of the INSURANCE COMPANY OF NORTH AMERICA, and acknowledged to me that he subscribed the name of the INSURANCE COMPANY OF NORTH AMERICA thereto as surety and his own name as Attorney-in-Fact.



Cesar F. Javier
Notary Public in and for the State of California

**INA**

INSURANCE COMPANY OF NORTH AMERICA  
PHILADELPHIA, PA. 19101

Rider to be attached to and form a part of Bond Number KO 01 75 675

on behalf of JAY M. SHIELDS  
(Name) \_\_\_\_\_ (Principal),

and in favor of State of Arizona  
(Address) \_\_\_\_\_ (Obligee),

executed by the INSURANCE COMPANY OF NORTH AMERICA, as  
Surety in the amount of TWENTY FIVE THOUSAND AND NO/100 (\$ \_\_\_\_\_ )

Dollars, effective January 7, 1982 19 \_\_\_\_\_

The Principal and the Insurance Company of North America hereby consent to changing the said bond as follows:

Name of Principal amended to read:

**SHIELDS 1981 PROGRAM**

It is further understood and agreed that this bond covers all wells included in Lease #A 10457, all located in T 41 N-R I W, Coconino County, Arizona.

Nothing herein contained shall vary, alter or extend any provision or condition of the bond other than as above stated.

Signed, Sealed and dated this 5th day of February, 19 82.

INSURANCE COMPANY OF NORTH AMERICA  
By *Edward W. Sullivan*

STATE OF ARIZONA

OIL AND GAS CONSERVATION COMMISSION

PERMIT 859

REPORT ON PROPOSED OPERATIONS

Shields Exploration Company

320 Bellino Drive

Pacific Palisades, CA 90272

Phoenix

ARIZONA

September 18, 1986

Your Shields Exploration Company proposal to drill well 12-24 Federal  
A.P.I. No. 02-005-20032, Section 24, T. 41N, R. 1W, G&SR B. & M.,  
Wildcat field, Coconino County, dated 9/15/86, received 9/18/86 has been examined in conjunction with records  
filed in this office.

THE PROPOSAL IS APPROVED PROVIDED:

1. The cement fill behind the 7" casing is extended to protect the water interval at  $\pm 1700'$ .
2. Blowout prevention equipment shall be installed, used, maintained, and tested in a manner necessary to assure well control throughout the drilling, completion, or abandonment of the well.
3. Samples of all cores and cuttings, taken at maximum intervals of ten feet, shall be shipped or mailed, charges prepaid to:
  - a. Oil & Gas Conservation Commission, Phoenix office.
  - b. Bureau of Geology & Mineral Technology, University of Arizona, 845 N. Park, Tucson, AZ 85719.
4. The status of completed drilling operations (Form 25) shall be completed and filed with the Commission on a timely basis.
5. THIS COMMISSION SHALL BE NOTIFIED:
  - a. Immediately when drilling operations commence.
  - b. To witness the running and cementing (displacement method) of the 9 5/8" casing.
  - c. To inspect the installed blowout prevention equipment prior to drilling below the shoe of the 9 5/8" casing at 500'.

BOND KO 01 75 67 5 BLANKET

D. J. BRENNAN, Executive Director

By R. A. Yhanna  
Enforcement Director

A copy of this report and the proposal must be posted at the well site prior to commencing operations.

Records for work done under this permit are due within 30 days after the work has been completed or the operations have been suspended.



# PERMIT TO DRILL

This constitutes the permission and authority from the  
**OIL AND GAS CONSERVATION COMMISSION,  
STATE OF ARIZONA,**

To: SHIELDS EXPLORATION COMPANY  
(OPERATOR)

to drill a well to be known as

12-24 Federal

(WELL NAME)

located 3300' f S. Line/660' f E. Line

Section 24 Township 41N Range 1W, Coconino County, Arizona.

The SE $\frac{1}{4}$ , NE $\frac{1}{4}$  of said

Section, Township and Range is dedicated to this well.

Said well is to be drilled substantially as outlined in the attached Application and must be drilled in full compliance with all applicable laws, statutes, rules and regulations of the State of Arizona.

Issued this 17 day of September, 1936.

**OIL AND GAS CONSERVATION COMMISSION**

By [Signature]  
EXECUTIVE DIRECTOR  
Enforcement

PERMIT 00859

RECEIPT NO.

A.P.I. NO. 02-005-20032

State of Arizona  
Oil & Gas Conservation Commission  
Permit to Drill

FORM NO. 27

COUNTY Coconino AREA \_\_\_\_\_ LEASE NO. A10457

WELL NAME Shields Exploration Company, 12-24 Federal

LOCATION SE NE SEC 24 TWP 41N RANGE 1W FOOTAGE 3300' f SL, 660' f EL  
 ELEV 5026' GR \_\_\_\_\_ KB \_\_\_\_\_ SPUD DATE 12/2/86 STATUS TA P+A TOTAL DEPTH 5436'  
 COMP. DATE 3/27/95

CONTRACTOR

CASING SIZE	DEPTH	CEMENT	LINER SIZE & DEPTH	DRILLED BY ROTARY	XX
10 3/4"	441'	150sx (to surface)		DRILLED BY CABLE TOOL	
7"	2960'	110sx		PRODUCTIVE RESERVOIR	
				INITIAL PRODUCTION	

FORMATION TOPS	DEPTHS	SOURCE		REMARKS
		L.L.	E.L.	
PERMIAN KAIBAB LS	0-520			
" TORONEAP LS	520-840			
" COCONINO SS	840-870			
" HERMIT SH	870-1480			
" SUPAI FM	1480-2180			
PENN CALLVILLE LS	2180-2420			
MISS REDWALL LS	2420-3260			
DEV MARTIN FM	3260-3744			
CAMB MUAV LS	3744-4250			
CAMB BRIGHT ANGEL	4250-4450			
CAMB TAPEATS SS	4450-4760			
PRECAM CHUAR GROUP	4760-5436			

ELECTRIC LOGS	PERFORATED INTERVALS	PROD. INTERVALS	SAMPLE LOG YES(3200-5436)
DISFL, BHCSONIC (4/15/87)	NONE		SAMPLE DESCRP. YES
DISFL, BHCSONIC, NLDC,			SAMPLE NO. 1873 (8 BOXES)
MSDIP, CYBERLOOK (10/27/90)			CORE ANALYSIS YES 4968-98
			DSTs NO

REMARKS Drilled to 3183' 12/86 & 1/87. Deepened to 5436' 10/90. APP. TO PLUG \_\_\_\_\_  
 PLUGGING REP. \_\_\_\_\_  
 COMP. REPORT 6/91

WATER WELL ACCEPTED BY \_\_\_\_\_  
 BOND CO. Insurance Company of North America *filed 775* BOND NO. KO 01 75 67 5 Blanket  
 BOND AMT. \$ 25,000 CANCELLED 9-29-97 DATE \_\_\_\_\_ ORGANIZATION REPORT X  
 FILING RECEIPT \_\_\_\_\_ LOC. PLAT \_\_\_\_\_ WELL BOOK \_\_\_\_\_ PLAT BOOK \_\_\_\_\_  
 API NO. 02-005-20032 DATE ISSUED 9/18/86 DEDICATION SE $\frac{1}{4}$ , NE $\frac{1}{4}$ , Sec. 24

PERMIT NUMBER 859

COUNTY Coconino AREA \_\_\_\_\_ LEASE NO. A10457

WELL NAME Shields Exploration Company, 12-24 Federal

LOCATION SE NE SEC 24 TWP 41N RANGE 1W FOOTAGE 3300' f SL, 660' f EL  
 ELEV 5026' GR \_\_\_\_\_ KB \_\_\_\_\_ SPUD DATE 12/2/86 STATUS TA P+A TOTAL \_\_\_\_\_  
 COMP. DATE 3/27/95 DEPTH 5436'

CASING SIZE	DEPTH	CEMENT	LINER SIZE & DEPTH	DRILLED BY ROTARY
10 3/4"	441'	150sx (to surface)		XX
7"	2960'	110sx		
				DRILLED BY CABLE TOOL _____
				PRODUCTIVE RESERVOIR _____
				INITIAL PRODUCTION _____

FORMATION TOPS	DEPTHS	SOURCE		REMARKS
		L.L.	E.L.	
PERMIAN KAIBAB LS	0-520			
" TOROWEAP LS	520-840			
" COCONINO SS	840-870			
" HERMIT SH	870-1480			
" SUPAI FM	1480-2180			
PENN CALLVILLE LS	2180-2420			
MISS REDWALL LS	2420-3260			
DEV MARTIN FM	3260-3744			
CAMB MUAV LS	3744-4250			
CAMB BRIGHT ANGEL	4250-4450			
CAMB TAPEATS SS	4450-4760			
PRECAM CHUAR GROUP	4760-5436			

ELECTRIC LOGS	PERFORATED INTERVALS	PROD. INTERVALS	SAMPLE LOG YES(3200-5436)
DISFL, BHCSONIC (4/15/87)	NONE		SAMPLE DESCRP. YES
DISFL, BHCSONIC, NLDC,			SAMPLE NO. 1873 (8 BOXES)
MSDIP, CYBERLOOK (10/27/90)			CORE ANALYSIS YES 4968-98
			DSTs NO

REMARKS Drilled to 3183' 12/86 & 1/87. Deepened to 5436' 10/90. APP. TO PLUG \_\_\_\_\_  
 PLUGGING REP. \_\_\_\_\_  
 COMP. REPORT 6/91

WATER WELL ACCEPTED BY \_\_\_\_\_  
 BOND CO. Insurance Company of North America *filed 775* BOND NO. KO 01 75 67 5 Blanket  
 BOND AMT. \$ 25,000 CANCELLED 9-29-97 DATE \_\_\_\_\_ ORGANIZATION REPORT X  
 FILING RECEIPT \_\_\_\_\_ LOC. PLAT \_\_\_\_\_ WELL BOOK \_\_\_\_\_ PLAT BOOK \_\_\_\_\_  
 API NO. 02-005-20032 DATE ISSUED 9/18/86 DEDICATION SE 1/4, NE 1/4, Sec. 24

PERMIT NUMBER 859

859

DRILL STEM TEST

NO.	FROM	TO	RESULTS
1	3080'	3110'	Small amount of water
2			Unsuccessful
3	3141'	3183'	60 feet of water

CORE RECORD

NO.	FROM	TO	RECOVERY	REMARKS
1	3070'	3075'	5'/5'	
2	4970'	5000'	26'/30'	
3	4968'	4998'	26'/30'	

REMEDIAL HISTORY

DATE STARTED - COMPLETED	WORK PERFORMED	NEW PERFORATIONS

ADDITIONAL INFORMATION

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Request Confidentiality

WELL COMPLETION OR RECOMPLETION REPORT <input checked="" type="checkbox"/> WELL LOG <input checked="" type="checkbox"/> Other - Explain						
DESIGNATE TYPE OF COMPLETION:						
New Well <input type="checkbox"/>	Work-Over <input type="checkbox"/>	Deepen <input type="checkbox"/>	Plug Back <input type="checkbox"/>	Same Reservoir <input type="checkbox"/>	Different Reservoir <input type="checkbox"/>	Oil <input type="checkbox"/>
Observation St. See Attachment						
DESCRIPTION OF WELL AND LEASE						
Operator SHIELDS EXPLORATION COMPANY			Address 320 BELLINO DRIVE			
Federal, State or Indian Lease Number or name of lessor if free lease FEDERAL A 24237			Well Number SF 12-24	Field & Reservoir White Sage Prospect		
Location SE/4 SE/4 NE/4			County COCONINO COUNTY			
Sec. TWP-Range or Block & Survey Section 24, T41N - R1W, G & SRB MERIDIEN						
Date spudded 4/14/87	Date total depth reached 10/26/90	Date completed, ready to produce Dry	Elevation (DF, RKB, RT or Gr.) Gr 5040 feet	Elevation of casing hd. flange 5042 feet		
Total depth 5436	P.B.T.D. Caved, fill to	4/60	Single, dual or triple completion? none		If this is a dual or triple completion, furnish separate report for each completion.	
Producing interval (s) for this completion -----			Rotary tools used (interval) Surface to 5436 TD		Cable tools used (interval) -----	
Was this well directionally drilled? No	Was directional survey made? No		Was copy of directional survey filed? -----		Date filed -----	
Type of electrical or other logs run (check logs filed with the commission) SEE ATTACHED					Date filed -----	
CASING RECORD						
Casing (report all strings set in well - conductor, surface, intermediate, producing, etc.)						
Purpose	Size hole drilled	Size casing set	Weight (lb./ft.)	Depth set	Sacks cement	Amt. pulled
Surf. String	15"	10 3/4"	32.75	441	150 sx to surf.	0'
Intermediate	9 5/8"	7"	23.00	2960	110 sx	0'
TUBING RECORD			LINER RECORD			
Size 2 3/8 in.	Depth set 4557 ft.	Packer set at 4557 ft.	Size NONE in.	Top ---- ft.	Bottom ---- ft.	Sacks cement -----
PERFORATION RECORD			ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD			
Number per ft.	Size & type	Depth Interval	Am't. & kind of material used		Depth Interval	
None	----	-----	-----		-----	
INITIAL PRODUCTION						
Date of first production None		Producing method (indicate if flowing, gas lift or pumping - if pumping, show size & type of pump): -----				
Date of test None	Hrs. tested ----	Choke size -----	Oil prod. during test ----- bbls.	Gas prod. during test ----- MCF	Water prod. during test ----- bbls.	Oil gravity -- *API (Corr)
Tubing pressure -----	Casing pressure -----	Cal'ed rate of Production per 24 hrs.	Oil ----- bbls.	Gas ----- MCF	Water ----- bbls.	Gas-oil ratio -----
Disposition of gas (state whether vented, used for fuel or sold): -----						
CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the <u>PRESIDENT</u> of the <u>SHIELDS EXPLORATION COMPANY</u> (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.						
Date June 21, 1992		Signature <i>Jay M. Shields</i> Jay M. Shields				
Release Date 6-21-92		CONFIDENTIAL <i>see letter of 6-26-92</i>				
Permit No. 859	STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION Well Completion or Recompletion Report and Well Log Form No. 4 File One Copy					

SHIELDS EXPLORATION CO.

320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

June 21, 1992

ATTACHMENT TO STATE OF ARIZONA, OIL AND GAS CONSERVATION COMMISSION  
FORM 4, DATED JUNE 21, 1992.

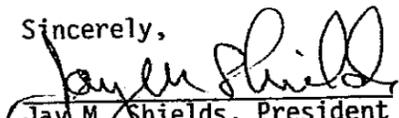
FORMAL REQUEST FOR EXTENSION OF OBSERVATIONAL STATUS  
Addendum to 'Designate Type of Completion' Under Box Other-Explain

'As provided by the Arizona O/G Conservation Commission, Well SF 12-24  
will be held on Observational Status for possible further testing of  
the Pre-Cambrian Proterozoic Chuar Formation, Paleozoic Formations, and  
Additional USGS Temperature Surveys.

'As provided by the DOI-BLM, the SF Well 12-24 is now held on a  
Temporary Abandonment Status allowing for testing and observation.  
An Extension of this Status is scheduled commencing July 11, 1992.'

In accord with State of Arizona Provisions, Shields Exploration requests  
that all material submitted be held in Confidential Files, Arizona O/G  
Commission Regulations permitting. There have been no changes in the  
information provided by the 1991 Form 4 attached.

Sincerely,

  
Jay M. Shields, President  
SHIELDS EXPLORATION COMPANY

Encl: Form 4 and Chart of Formations Penetrated

Request Confidentiality

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG							
DESIGNATE TYPE OF COMPLETION: <input type="checkbox"/> Other—Explain							
New Well <input type="checkbox"/>	Work-Over <input type="checkbox"/>	Deepen <input type="checkbox"/>	Plug Back <input type="checkbox"/>	Same Reservoir <input type="checkbox"/>	Different Reservoir <input type="checkbox"/>	Oil <input type="checkbox"/>	Gas <input type="checkbox"/>
Observation St. See Attachment							
DESCRIPTION OF WELL AND LEASE							
Operator SHIELDS EXPLORATION COMPANY				Address 320 BELLINO DRIVE			
Federal, State or Indian Lease Number or name of lessor if free lease FEDERAL A 24237				Well Number SF 12-24		Field & Reservoir White Sage Prospect	
Location SE/4 SE/4 NE/4				County COCONINO COUNTY			
Sec. TWP-Range or Block & Survey Section 24, T41N - R1W, G & SRB MERIDIEN							
Date spudded 4/14/87	Date total depth reached 10/26/90	Date completed, ready to produce Dry	Elevation (DF, RKB, RT or Gr.) Gr 5040 feet		Elevation of casing hd. flange 5042 feet		
Total depth 5436	P.B.T.D. Caved, fill to	4/60	Single, dual or triple completion? none		If this is a dual or triple completion, furnish separate report for each completion.		
Producing interval (s) for this completion -----				Rotary tools used (interval) Surface to 5436 TD		Cable tools used (interval) -----	
Was this well directionally drilled? No		Was directional survey made? No		Was copy of directional survey filed? -----		Date filed -----	
Type of electrical or other logs run (check logs filed with the commission) SEE ATTACHED						Date filed -----	
CASING RECORD							
Casing (report all strings set in well — conductor, surface, intermediate, producing, etc.)							
Purpose	Size hole drilled	Size casing set	Weight (lb./ft.)	Depth set	Sacks cement	Amt. pulled	
Surf. String	15"	10 3/4"	32.75	441	150 sx to surf.	0'	
Intermediate	9 5/8"	7"	23.00	2960	110 sx	0'	
TUBING RECORD				LINER RECORD			
Size 2 3/8 in.	Depth set 4557 ft.	Packer set at 4557 ft.	Size NONE in.	Top ----- ft.	Bottom ----- ft.	Sacks cement -----	Screen (ft) -----
PERFORATION RECORD				ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD			
Number per ft.	Size & type	Depth Interval		Am't. & kind of material used		Depth Interval	
None	-----	-----		-----		-----	
INITIAL PRODUCTION							
Date of first production None		Producing method (indicate if flowing, gas lift or pumping—if pumping, show size & type of pump.) -----					
Date of test None	Hrs. tested -----	Choke size -----	Oil prod. during test ----- bbls.	Gas prod. during test ----- MCF	Water prod. during test ----- bbls.	Oil gravity --- *API (Corr)	
Tubing pressure -----	Casing pressure -----	Cal'ed rate of Production per 24 hrs.	Oil ----- bbls.	Gas ----- MCF	Water ----- bbls.	Gas-oil ratio -----	
Disposition of gas (state whether vented, used for fuel or sold): -----							
CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the <u>PRESIDENT</u> of the <u>SHIELDS EXPLORATION COMPANY</u> (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.							
Date JUNE 21, 1991				Signature <i>Jay M. Shields</i> Jay M. Shields			
CONSERVATION COMMISSION CONFIDENTIAL Release Date 859				STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION Well Completion or Recompletion Report and Well Log Form No. 4 File One Copy			

**DETAIL OF FORMATIONS PENETRATED**

Age	FORMATION	TOP	BOTTOM	DESCRIPTION*
PERMIAN-	KAIBAB LM	0	520	Limestone, dolomites, thin sds & shales, anhy. Shows O/G
"	TOROWEAP LM	520	840	"
"	COCONINO SS	840	870	SS, wh, rded-sub-ang, poss por.
"	HERMIT SH	870	1480	SH, red, muddy, some ss, fine-gr, red stain.
"	SUPAI FM	1480	2180	SS, red to wh, f-m gr, gen. por, some red sh.
PENN	CALLVILLE LM	2180	2420	LM, wh to grey, den, some ss.
MISS	REDWALL LM	2420	3260	LM, wh to lt grey, oolitic&foss in pt, hd DOLO, tan, xln, por in pt, some LM interbed 3030-3110 swab & pumped water, shows O/G also frac Lm @ 3160-90.
DEVONIAN	MARTIN FM	3260	3744	LM, lite tan to dkbr, mostly dense, foss in pt- DOLLO, tan, xln in pt, some Anhy, tite 3230-3365.
CAMBRIAN	TONTO GRP MUAV LM	3744	4250	LM, vari-color, mostly tite, hd&den, O/Gsh @ 4424-4444 some sdy zones, fine, rd-ang.
CAMBRIAN	BRIGHT ANGEL SH	4250	4450	SH, greys, br, green, beds wh to tan Ls, some yel-br Dolo and SS beds, oil sh in sltst, rdbr.
CAMBRIAN	TAPEATS SS	4450	4760	SS, clear, fgr to silty, tite. SS 4700-4760 fgr, por in pt, shows oil. interbedded with rd&gr SH, plat
PRE-CAMBRIAN	CHUAR GRP	4700	5436	SS, cl-reddish, vf-med gr, rded-angular, por in pt, O.S. Interbedded with SH. SH, red-br to blk-dkgrey, por, hydroscopic. O.S.

\* Show all important zones of porosity, detail of all cores, and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries.

**INSTRUCTIONS:**

Attach drillers log or other acceptable log of well.

This Well Completion or Recompletion report and well log shall be filed with the State of Arizona Oil & Gas Conservation Commission not later than thirty days after project completion.

Form No. 4

**DETAIL OF FORMATIONS PENETRATED**

Age	FORMATION	TOP	BOTTOM	DESCRIPTION*
PERMIAN-	KAIBAB LM	0	520	Limestone, dolomites, thin sds & shales, anhy. Shows O/G
"	TOROWEAP LM	520	840	" "
"	COCONINO SS	840	870	SS, wh, rded-sub-ang, poss por.
"	HERMIT SH	870	1480	SH, red, muddy, some ss, fine-gr, red stain.
"	SUPAI FM	1480	2180	SS, red to wh, f-m gr, gen. por, some red sh.
PENN	CALLVILLE LM	2180	2420	LM, wh to grey, den, some ss.
MISS	REDWALL LM	2420	3260	LM, wh to lt grey, oolitic&foss in pt, hd DOLo, tan, xln, por in pt, some LM interbed 3030-3110 swab & pumped water, shows O/G also frac Lm @ 3160-90.
DEVONIAN	MARTIN FM	3260	3744	LM, lite tan to dkbr, mostly dense, foss in pt- DOLo, tan, xln in pt, some Anhy, tite 3230-3365.
CAMBRIAN	TONTO GRP MUAV LM	3744	4250	LM, vari-color, mostly tite, hd&den, O/Gsh @ 4424-444 some sdy zones, fine, rd-ang.
CAMBRIAN	BRIGHT ANGEL SH	4250	4450	SH, greys, br, green, beds wh to tan Ls, some yel-br Dolo and SS beds, oil sh in sltst, rdbr.
CAMBRIAN	TAPEATS SS	4450	4760	SS, clear, fgr to silty, tite. SS 4700-4760 fgr, por in pt, shows oil. interbedded with rd&gr SH, plat
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\* Show all important zones of porosity, detail of all cores, and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries.

**INSTRUCTIONS:**

Attach drillers log or other acceptable log of \_\_\_\_\_.

This Well Completion or Recompletion report and well log shall be filed with the State of Arizona & Gas Conservation Commission not later than thirty days after project completion.

SHIELDS EXPLORATION CO.  
320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

ATTACHMENT

June 21, 1991

ATTACHMENT TO STATE OF ARIZONA, OIL AND GAS CONSERVATION COMMISSION,  
FORM 4, dated June 21, 1991. FORMAL REQUEST

Addendum to: Designate Type of Completion - Box=Other-Explain.

'As provided by the Arizona O/G Conservation Commission, Well SF 12-24 will be held on Observational Status for possible further testing of the Pre-Cambrian Proterozoic Chuar Formation, Paleozoic Formations, and other Temperature Surveys to TD by the USGS.'

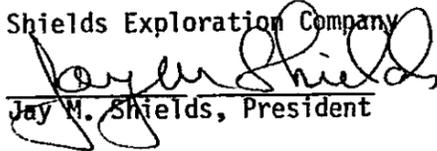
'As provided by the DOI-BLM, the SF Well 12-24 is to be held on a Temporary Abandonment Status allowing for testing and observation on a one-year basis.'

In accord with State of Arizona Provisions, Shields Exploration requests that all material submitted at this time be held in Confidential Files.

AZ OIL & GAS  
CONSERVATION COMMISSION

JUN 24 1991

Shields Exploration Company

  
Jay M. Shields, President

Encl: Logs: Dual Ind. & Somic 2960-3187; CN-LD-GR, Cyber, Dual Ind, Sonic, & MSD Dip 2960-4940

**CONFIDENTIAL**

Release Date 6-21-92

UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
ARIZONA STATE OFFICE

IN REPLY REFER TO:  
Well No. 12-24  
Lease No. A-24237

April 4, 1995

Memorandum

To: Files  
Well No. 12-24, Lease No. A-24237

From: John Haas, Petroleum Engineer

Subject: Witness of Plugging of Well No. 12-24, Lease No. A-24237, Shields Exploration

*file 859*

On Saturday, March 25, 1995, I arrived on site at approximately 7:55 a.m. Three rigs were on location--Schlumberger detonating truck with mast, Dowell cementing truck and Dowell cement transport truck. Plans call for open hole bottom plug, intermediate casing plug and surface plug. Following is summary of plugging sequence.

- Bottom, open hole plug to be set from PBD at 4760' to 4200'. Pump through existing 2-3/8 inch tubing which is to be left in place since stuck. Use Class G cement with yield of 1.15 cubic feet/sk, water requirements of 4.97 gals. Additions to cement include 25 lbs. D-127 Fluid Loss Additive and 94 lbs. CaCl<sub>2</sub>. Displace with 16 BBL water; mix and pump 11 BBL cement (54 sacks) at 15.8 ppg; inject at approximately 2,000 psi at rate of 2 BBL/min.

8:15 a.m. Schlumberger unit rigged over well--measured free water at approximately 1760'. Dowell nipples into stuffing box.  
9:00 a.m. Water truck arrives. Water obtained from City of Fredonia.  
10:00 a.m. Lead with 16 BBL water.  
10:15 a.m. Begin inject cement slurry at 2 BBL/min. at 2,000-2,500 psi.  
10:25 a.m. Displace 11 BBL cement slurry. Pressured back at approximately 650-700 psi. Bottom hole plug completed.

- Plug 7" intermediate casing stub set at 2960'. Set plug from 3020' - 2700'. Use Class G cement with yield 1.15 cubic feet/sk, water requirement of 4.97 gals. Add to cement 200 lbs. CaCl<sub>2</sub>, perforate 2-3/8 inch tubing at approximately 3000; lead with 10 BBL water; mix and pump 14 BBL cement (66 sk) at 15.8 ppg; squeeze at approximately 2000 psi at 2 BBL/min.

11:00 a.m. Schlumberger representative conducts safety meeting - ensures 2-way radios off, advises people where to go.  
11:15 a.m. Schlumberger loads and arms bomb in 2-3/8 inch tubing set at approximately 3000'. Detonates.  
12:30 p.m. Lead with 10 BBL water.  
12:38 p.m. Mix cement and additive.  
12:45 p.m. Begin to squeeze cement slurry at 2000 psi at 2 BBL/min.  
1:03 p.m. Displace 14 BBL (66 sacks). Intermediate plug completed.

- 50' Surface plug. Discussed method to set 50' surface plug in all annulus. Decided to use setting plug in 2-3/8 inch tubing, perforate and then squeeze

cement in 2-3/8" and 7" casing. Would then attempt to circulate water between 10-3/4" surface casing and 7" intermediate casing to determine if could get returns to surface. Called Jay Shields for confirmation through mobile phone. Okay received. Setting plug had to be brought in from Farmington. Equipment cleaned. Left site at 3:45 p.m. Returned to Kanab.

- 7:30 a.m. Sunday, March 26, 1995. Schlumberger runs 2-3/8 setting plug at 140' in tubing and seats.
- 8:30 a.m. Schlumberger readies perforation bomb.
- 8:50 a.m. Dowell tests setting plug at 650 psi - pressure holds.
- 8:55 a.m. Schlumberger conducts brief safety meeting.
- 9:00 a.m. Run perforating gun to 50' and discharge.
- 9:35 a.m. Fill intermediate casing and tubing with H2O and displace air.
- 10:00 a.m. Mix and squeeze Class G cement between 2-3/8" tubing, and 7" intermediate casing and fill 2-3/8" tubing. Squeeze 2 1/2 BBL (12.5 sacks) @15.8 ppg. No additives.
- 10:05 a.m. Cement slurry returned to surface.
- 10:10 a.m. Connect to stub on 10-3/4" casing. Run H2O between 10-3/4 and 7" casing @ 2 BBL/min @ 10 psi--no return.
- 10:45 a.m. Decided to shut down operation and use concrete ready-mix with sand and cement slurry to run between 7" and 10-3/4" casing.

Discussed plans for operation on Monday or Tuesday to complete the surface plug. Cleaned up rigs. Units pulled off the site at approximately 1:00 p.m.

- 8:00 a.m. Monday, March 27, 1995. Contacted Rusty Palmer, operator's representative, and Messrs. Gene Mitchell and Bill Key regarding backhoe, welding and cementing mix and operation. Said would be on site approximately 12:00 p.m. with cement truck coming approximately 3:00 p.m.
- 1:00 p.m. Began backhoe excavation around well head so could cut all casing below bradhead and 3' below planned reclaimed surface level. Casings and tubing cut.
- 1:45 p.m. Cement truck arrives (early). Began mixer cement slurry. Estimated need was 15 cu. ft. Delivered 1 1/2 cu. yd.
- 2:00 p.m. Begin cementing between 7" and 10-3/4" annulus. Rodded with 3/4" tubing to obtain depth and uniformity. Used approximately 3/4 - 1 cu. yd. cement. Topped out cement of 2-3/8" tubing and 7" casing which had settled.
- 3:00 p.m. Cement job completed and metal plate with well data welded across 10-3/4" casing.
- 3:30 p.m. Filled in excavated hole and leveled. Plug considered completed and left site.
- 7:30 p.m. Contacted Mr. Palmer, operator's representative, and advised him of days operation. Inquired about surface reclamation plans. Stated that he would make plans for removal of gravel from site, recontouring, scarifying and seeding within next 2-3 days.

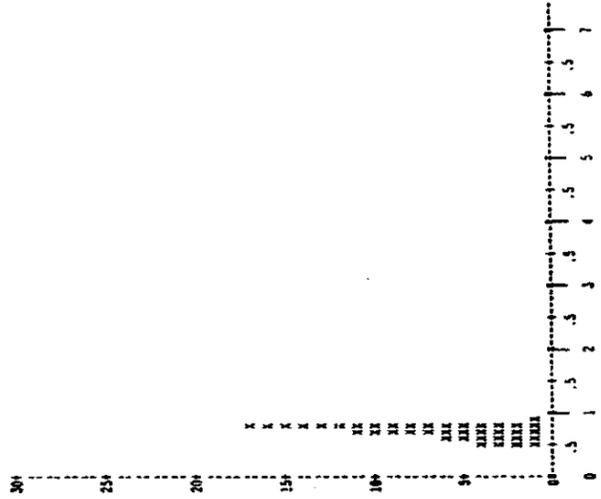
*John Haas*

John Haas

CLIENT: USGS  
 DEPTH/SAMPLE NO.: 001  
 LOCATION: GRAND CANYON, ARIZ. DATE: 10/11/82  
 ANALYST: RSK/PALGAS

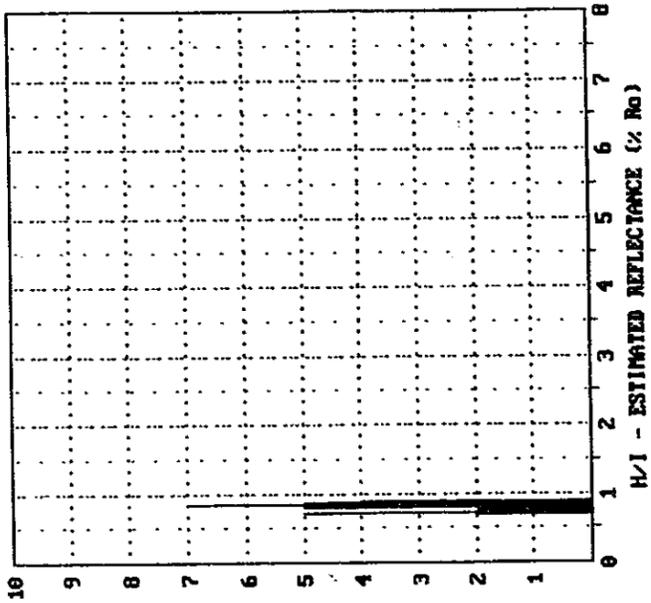
FILE NAME: HPA01-4  
 TYPE OF SAMPLE: OUTCROP  
 SAMPLE NO.: NW-82  
 DEPTH: 01  
 PROJECT: FREDCMB

STANDARD 300 START: 1.02 FINISH: 1.02  
 REFLECTANCE DATA: MIN. 0.54 MAX. 0.91 AVG. 0.76 STD. DEV. 0.10



POP. 1 TOTAL CTS. 39 MIN. 0.54 MAX. 0.91 AVG. 0.76 STD. DEV. 0.10

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Total Population: Min. Max. Avg. S-D.  
 Counts = 36 0.76 0.86 0.89 0.86

File 859

GEOCHEMICAL ANALYSIS OF  
CAMBRIAN AND PRE-CAMBRIAN SAMPLES  
SHIELDS FEDERAL #12-24  
COCONINO COUNTY, ARIZONA

*file 859*



**CONFIDENTIAL**  
Release Date 9-21-93

**Prepared For:**

**BHP Petroleum**  
**5847 San Felipe, Suite 3600**  
**Houston, TX 77057**

**Prepared By:**

**Wallace G. Dow**  
**DGSI Project: 92/2307**  
**July 24, 1992**

DGSI  
8701 New Trails Drive  
The Woodlands, Texas 77381

Telephone: (713) 363-2176  
Telex: 881137 DGSI  
Fax: (713) 292-3528

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Release Date 7-21-93

DISCUSSION

Fifteen bit cuttings samples and two composite core samples from the subject well are all very low in total organic carbon and are rated as non-sources for significant amounts of oil or gas. Organic carbon contents are too low to obtain reliable pyrolysis data but four were selected by the client for kerogen microscopy. Test Rock-Eval pyrolysis runs on these four samples yielded no measurable response. A show of oil was reported from the Cambrian Tapeats sandstone (4,700 - 4,900 feet). The purpose of this study is to evaluate the source capability of the Pre-Cambrian Chuar shale.

Total organic carbon values of Chuar shale samples range from 0.15 to 0.37 wt. percent and average 0.23 wt. percent. Kerogen microscopy reveals high percentages of micrinized, unstructured lipid material with minor algal remnants in all of the samples. There were no vitrinite, solid bitumen, or graptolite fragments suitable for reflectance analysis. The unstructured lipid material is micrinized and this texture can be due to high thermal maturity (greater than 1.5  $R_o$ ) or to deposition under oxic marine conditions. The low organic carbon content and red to greenish-gray color of the shales are consistent with oxic sedimentation. Absence of kerogen or background fluorescence may also be due to either high maturity or oxic deposition. Unstructured lipids TAI values of 3 to 3+ are more consistent with high maturity than oxic sedimentation. These data, as well as the lack of pyrolysis response, all suggest the samples analyzed from the Chuar Formation have a maturity beyond the oil floor and in the gas preservation zone (about 1.5 to 2.0  $R_o$  equivalent).

All of the samples contain high rank algal or fungal debris but the core chips (4,988 - 4,998 feet) also have some bright yellow fluorescent, lower rank algal material and brown acritarchs. We don't know if this represents some type of contamination from Recent organic matter or mud additives. All of the samples also have some yellow fluorescing, oil droplets on the transmitted light slides. This material is inconsistent with the apparent rank of the samples and also may be the result of contamination or migrated oil. Because we know little about the geology of the area, the conditions of the drilling fluid, or the reported oil show, we can offer no obvious explanation for these apparently anomalous observations.

ORGANIC CARBON AND PYROLYSIS DATA

Total Organic Carbon (TOC) is determined by grinding the sample and passing it through a 60 mesh sieve to assure homogeneity. Approximately 0.15 grams is carefully weighed and treated with concentrated hydrochloric acid to remove carbonate minerals. The residue is removed by filtration and analyzed with a LECO EC-12 carbon analyzer. Total Organic Carbon to generate sufficient oil for commercial use is usually considered to be a minimum of 0.5 wt. percent and is more likely to be 1 to 2.0 wt. percent TOC.

Rock-Eval pyrolysis data are routinely obtained by analyzing 0.1 grams of the same ground samples as used for Total Organic Carbon. A Rock-Eval II is operated utilizing program Cycle 1. Pyrolysis occurs with the sample in a helium environment heated from 300° C to 550° C at a ramp rate of 25°/minute. Four basic parameters (S1, S2, S3, and Tmax) are obtained. S1 and S2 values provide milligram hydrocarbon per gram of rock quantitation. S3 values are an indication of the oxygen present in the kerogen. Tmax is the temperature of maximum evolution of hydrocarbons and is used as a kerogen maturity measurement. Higher temperatures are required to form hydrocarbons as a rock matures. Rock-Eval pyrolysis can be used to define organic facies, kerogen maturity, and the amount of free hydrocarbons in the sample. Total Organic Carbon and Rock-Eval pyrolysis data provide basic geochemical information and can be used to select samples for more detailed analysis.

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ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

SHIELDS FEDERAL #12-24

Project : DGS1/92/2307

SAMPLE IDENTIFICATION DEPTH (Feet)	TOC Wt%	S1 mg/g	S2 mg/g	S3 mg/g	T-max degC	S1/TOC	S2/TOC HI	S3/TOC OI	S2/S3	S1/S1+S2 PI
4495 : 4490 - 4500	0.11									
4525 : 4520 - 4530	0.15									
4555 : 4550 - 4560	0.13									
4715 : 4710 - 4720	0.04									
4755 : 4750 - 4760	0.06									
4925 : 4920 - 4930	0.37									
4973 : 4968 - 4978	0.21									
4993 : 4988 - 4998	0.25									
5025 : 5020 - 5030	0.20									
5075 : 5070 - 5080	0.28									
5125 : 5120 - 5130	0.33									
5175 : 5170 - 5180	0.19									
5225 : 5220 - 5230	0.15									
5275 : 5270 - 5280	0.15									
5345 : 5340 - 5350	0.17									
5375 : 5370 - 5380	0.19									
5433 : 5430 - 5436	0.22									

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VISUAL KEROGEN ANALYSIS TECHNIQUES

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9-21-93

Visual kerogen analysis employs a Zeiss Universal microscope system equipped with halogen, xenon, and tungsten light sources. Vitrinite reflectance and kerogen typing are performed on a polished epoxy plug of unfloated kerogen concentrate using reflected light from the halogen source. The digital indicator is calibrated using a glass standard with a reflectance of 1.02% in oil. This calibration is linearly accurate for reflectance values ranging from peat ( $R_0$  0.20%) through anthracite ( $R_0$  4.0%).

Reflectance values are recorded only on good quality vitrinite, including obvious contamination and recycled material. The relative abundance of normal, altered, lipid-rich, oxidized, and coked vitrinite is recorded. When good quality, normal vitrinite is absent, notations are made indicating how the maturity is affected by weathering, oxidation, bitumen saturation, or coking. When normal vitrinite is absent or sparse, other macerals may be substituted. Solid bitumen, for example is present in many samples. Although it often has a different reflectance than vitrinite, Jacob's calibration chart can be used to obtain an estimated vitrinite reflectance equivalent. Graptolites have about the same reflectance as vitrinite and can often be used to obtain maturity data in early Paleozoic rocks that have no vitrinite.

Unstructured lipid kerogen changes in texture and color during the maturation process. Typically, unstructured kerogen at low maturity is reddish brown and amorphous. Somewhere between  $R_0$  0.50 to 0.65%, the kerogen takes on a massive texture and is gray in color. At higher maturity, generally above  $R_0$  1.30%, unstructured kerogen is light gray and micrified.

Kerogen typing and maturity assessments from the polished plug are enhanced by utilizing fluorescence from blue light excitation. The xenon lamp is used with an excitation filter at 495 nm coupled with a barrier filter of 520 nm. The intensity of fluorescence in the epoxy mounting medium (background fluorescence) correlates well with the onset of oil generation and destruction. The identification of structured and unstructured lipinite is also enhanced with the use of fluorescence in those samples having a maturity less than  $R_0$  1.3%. Pyrite also shows up well under blue light excitation, as it has a green reflectance in this illumination. The relative abundance and type of pyrite is also recorded.

TAI is performed using tungsten light that is transmitted through a glass slide made from the unfloated kerogen concentrate. Ideally, TAI color is based on sporinite of terrestrial origin. When sporinite is absent, TAI is estimated from the unstructured lipid material. Weathering, bitumen admixed with the unstructured material and micrification can darken the kerogen and raise the TAI value. The character of the organic matter in transmitted light is correlated with observations made in reflected light for kerogen typing.

Kerogen typing and maturity assessments from the slide preparation are also reinforced by using different light sources. The slide is first observed in transmitted tungsten light to obtain TAI color and organic matter structure or type. The light is then switched to reflected halogen light to observe structure and amount of pyrite, and finally to reflected blue light excitation from the xenon source for fluorescence. The fluorescence of structured and

unstructured liptinite is not masked by the epoxy fluorescence as it is in the reflected light mode because the mounting medium is non-fluorescent. Remnant lipid structures (e.g. sporinite and alginite) within the unstructured kerogen can often be identified in blue light.

Maturity calculations are made from the vitrinite reflectance histograms. Decisions as to which reflectance measurements indicate the maturity of the sample are based not only on the histogram but on all of the kerogen descriptive elements as well. Because it is not done at the time of measurement, alternate maturity calculations can be made if kerogen data and geological information dictate.

In summary, vitrinite reflectance measurements are performed on a polished plug in reflected light, TAI is performed on a slide in transmitted light, and kerogen typing is estimated from both preparations using a combination of reflected, transmitted, and fluorescent light techniques. Fluorescence in blue light is used to enhance the identification of structured and unstructured lipid material, solid bitumens, and drilling mud contaminants. Fluorescence also correlates with the maturity and state of preservation of the sample. Maturity calculations from measured reflectance data are made from the histograms and are influenced by all of the kerogen data.

#### VISUAL KEROGEN ANALYSIS GLOSSARY

Several key definitions are included in this glossary in order to make our reports more self-explanatory. In our reports, we refer to organic substances as macerals. Macerals are akin to minerals in rock, in that they are organic constituents that have microscopically recognizable characteristics. However, macerals vary widely in their chemical and physical properties, and they are not crystalline.

1. UNSTRUCTURED KEROGEN, or sometimes called structureless organic matter (SOM) and bituminite; it is widely held that unstructured kerogen represents the bacterial breakdown of lipid material. It also includes fecal pellets, minute particles of algae, organic gels, and may contain a humic component. As described on the first page of this section, unstructured lipid kerogen changes character during maturation. The three principal stages are amorphous, massive, and micrinized. Amorphous kerogen is simply without any structure. Massive kerogen has taken on a cohesive structure, as the result of polymerization during the process of oil generation. At high maturity, unstructured kerogen becomes micrinized. Micrinite is characterized optically by an aggregation of very small (less than one micron) round bodies that make up the kerogen.
2. STRUCTURED LIPID KEROGEN consists of a group of macerals which have a recognized structure, and can be related to the original living tissue from which they were derived. There are many different types, and the types can be grouped follows:

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Release Date 9-21-93

- a. Alginite, derived from algae. It is sometimes very useful to distinguish the different algal types, for botryococcus and pediastrum are associated with lacustrine and non-marine source rocks, while algae such as tasmanites, gleocapsomorpha, and nostocopsis are typically marine. Acritarchs and dinoflagellates are marine organisms which are also included in the algal category.
- b. Cutinite, derived from plant cuticles, the remains of leaves.
- c. Resinite, (including fluorinite) derived from plant resins, balsams, latexes, and waxes.
- d. Sporinite, derived from spores and pollen from a wide variety of land plants.
- e. Suberinite is derived from the corky tissue of land plants.
- f. Liptodetrinite is that structured lipid material that is too small to be specifically identified. Usually, it is derived from alginite or sporinite.
- g. Undifferentiated. At times, one can readily distinguish structured lipid material from the unstructured without being able to make a specific determination of the structured material.

The algae are an important part of many oil source rocks, both marine and lacustrine. Alginite has a very high hydrogen index in Rock-Eval pyrolysis. Resins, cuticles, and suberinite contribute to the waxy, non-marine oils that are found in Africa and the Far East. At vitrinite reflectance levels above R<sub>o</sub> 1.2-1.4%, structured lipid kerogen changes structure and it becomes very difficult to distinguish them from vitrinite.

3. SOLID BITUMEN, also called migrabitumen and solid hydrocarbon. Solid bitumens are expelled hydrocarbon products which have particular morphology, reflectance and fluorescence properties which make it possible to identify them. They represent two classes of substances: one which is present at or near the place where it was generated, and second as a substance which is present in a reservoir rock and may have migrated a great distance from its point of origin. The solid bitumens have been given names, such as gilsonite, impsomite, grahamite, etc., but they represent generated heavy hydrocarbons which remain in place in the source rock or have migrated into a reservoir and mature along with the rock. Consequently, it is possible to use the reflectance of solid bitumens for maturation determinations when vitrinite is not present.
4. HUMIC TISSUE, that is organic material derived from the woody tissue of land plants. The most important of this group is:
  - a. Vitrinite is derived from woody tissue, which has been subjected to a minimum amount of oxidation. Normally, it is by far the most abundant maceral in humic coals, and because the rate of change of vitrinite reflectance is at a more even pace than it is for other macerals, it offers the best means of obtaining thermal maturity data in coals and other types of sedimentary rocks.

**CONFIDENTIAL**

Release Date 9-21-93

Because the measurement of vitrinite is so important, care is taken to distinguish normal (fresh, unaltered) vitrinite from other kinds of vitrinite. Rough vitrinite does not take a good polish and therefore may not yield good data. Oxidized vitrinite may have a reflectance higher or lower than fresh vitrinite; this is a problem often encountered in outcrop samples. Lipid-rich vitrinite, or saprovitrinite, has a lower reflectance than normal vitrinite, and will produce an abnormally low thermal maturity value. Coked vitrinite is vitrinite that has structures found in vitrinite heated in a coke oven. Naturally coked vitrinite is the product of very rapid heating, such as that found adjacent to intrusions. Where it is possible to do so, vitrinite derived from an uphole portion of a well will be identified as caved vitrinite. Recycled vitrinite is the vitrinite of higher maturity which clearly can be separated from the indigenous first-cycle vitrinite population. Often, the recycled vitrinite merges in with the inert group.

- b. Inertinite is made up of woody tissue that has been matured by a different pathway. Early intense oxidation, usually involving charring, fungal attack, biochemical gelification, creates the much more highly reflecting fusinite and semi-fusinite. Sometimes the division between vitrinite and fusinite is transitional. Sclerotinite, fungal remains having a distinct morphology are considered to be inert. An important consideration is that the inerts, as the name implies, are largely non-reactive, "dead carbon", and they have an extremely low hydrogen index in Rock-Eval pyrolysis.

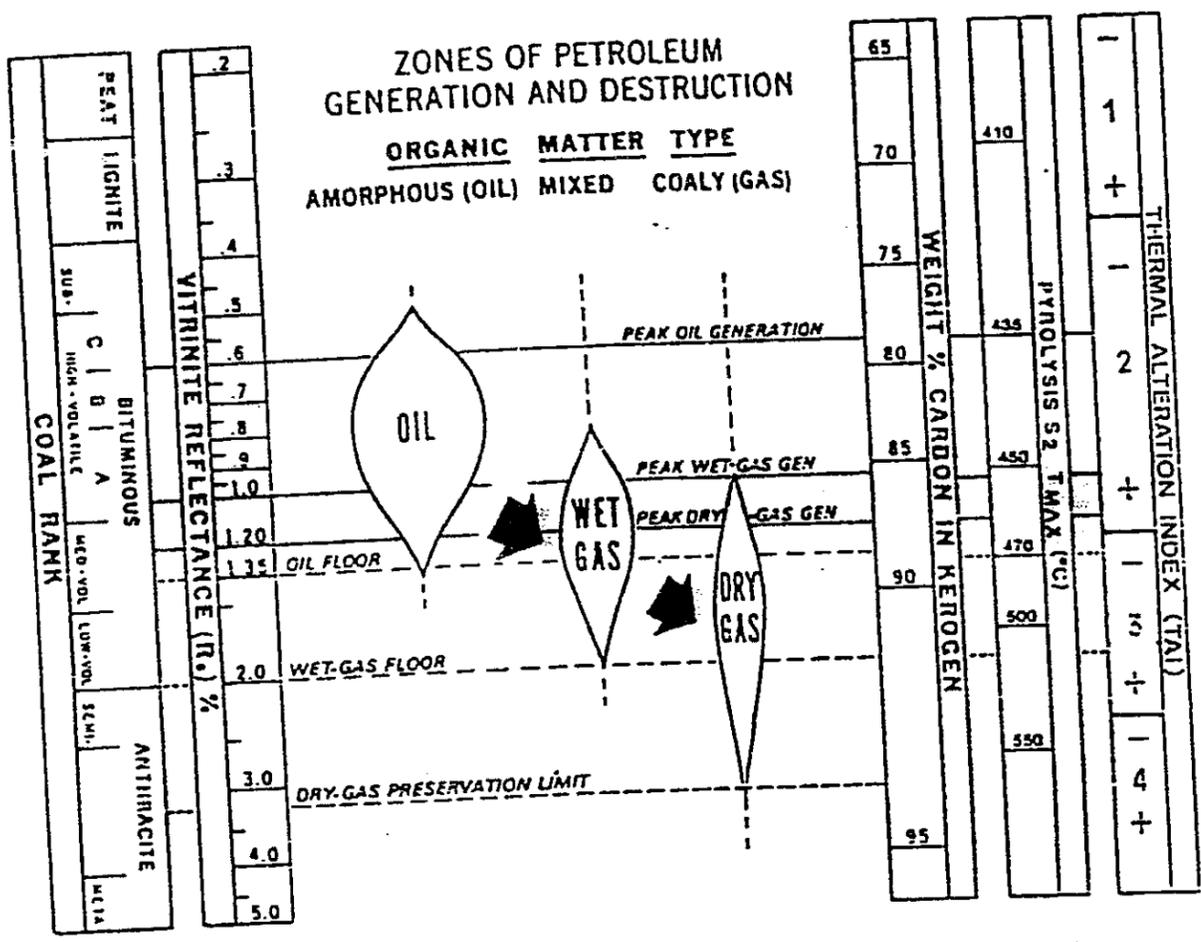
#### 5. OTHER ORGANIC MATERIAL

- a. In the table, we have put lipid-rich, caved and recycled vitrinite in this section so that we could show the percentages of these macerals; they are described above.
  - b. Exsudatinite. Oil and oily exudates fall in this group. Exsudatinite differs from the solid bitumens on the basis of mobility and solubility.
  - c. Graptolites are marine organisms that range from the Cambrian to the lower Mississippian; it has been found that they have a reflectance similar to that of vitrinite. Because vitrinite is lacking in early Paleozoic rocks, the proper identification and measurement of graptolites is important in these sediments.
6. PYRITE. Various forms of pyrite can be readily identified under the microscope. Euhedral is pyrite with a definite crystalline habit. Framboidal is pyrite in the form of grape-like clusters which are made up of euhedral to subhedral crystals. Framboidal pyrite is normally found in sediments with a marine influence; for example, coals with a marine shale roof rock usually contain framboidal pyrite. Massive pyrite is pyrite with no particular external form; often this is pyrite that forms rather late in the pore spaces of the sediment. Replacement/infilling is self-explanatory.

CONFIDENTIAL

Release Date 9-21-93





CORRELATION OF VARIOUS MATURATION INDICES AND ZONES OF PETROLEUM GENERATION AND DESTRUCTION.

STATE: ARIZONA  
COUNTY: COCONINO  
API 02-005-20032  
FIELD: WILDCAT  
WELL CLASS: U  
OPR: SHIELDS EXPL

12-24 FEDERAL

41N-1W 24  
C SE NE  
3300 FSL 660 FEL  
STATUS: OBSERV

SPUD: 12/2/88 COMP: 09/08/91 ELEV: 5026 GR  
ID: 5700 (11/13/90) FM/ID: CHUAR  
CONTR: GRACE DRUG RIG # 174 (R)  
PROJ DEPTH/FEM: 5700 CAMBRIAN PERMIT # 859

COMP 9/8/91 (EST), OBSERVATION WELL. NO CORES OR DSTS WILL BE REISSUED IF  
ADDITIONAL DATA BECOMES AVAILABLE.

LOG DESCRIPTION: 47 MI SE VIRGIN FLD, UT(MOENKOPI) 12 MI E FREDONIA, AZ; LAT: 3693905 LONG:  
11234292; REPERMITTED 7/1/90;  
WELL ID CHANGES: PROJ DEPTH CHGD FROM 3700. PROJ FM CHGD FROM REDWALL.  
CASING: 7 @ 2958; LOG TYPES NOT RPTD.

CORE # 1 NO DESCRIPTION AVAILABLE;  
DRUG COMMENTS: DRUG FROM 3025-TO IN LATE 1990. LOG TOPS NOT RPTD.  
PROD TEST(S): (REDWALL) 2958-3183 OPENHOLE, ACID, NO DETAILS, SWBD ACID-WTR  
FOAM(AMT NOT RPTD) (REDWALL) 2958-3025 OPENHOLE, PMPD ACID WTR WTR OIL(AMTS NOT  
RPTD) (REDWALL) 2958-3025 OPENHOLE, PMPD 18 BWPD WTR OIL (REDWALL) 2958-3025  
OPENHOLE, F 16 BWPD WTR OIL(LITE & ASPHALTIC), WTR GAS.  
OPER ADD: 320 BELLINA DR, PACIFIC PALISADES, CA, 90272 PHONE (213) 459-2490;

(OVER)  
COPYRIGHT 1991 PETROLEUM INFORMATION CORPORATION

DATE 12/13/91 CARD # 00001-F COR

STATE: ARIZONA  
COUNTY: COCONINO  
API 02-005-20032  
FIELD: WILDCAT  
WELL CLASS: U  
OPR: SHIELDS EXPL

12-24 FEDERAL

41N-1W 24  
C SE NE  
3300 FSL 660 FEL  
STATUS: OBSERV

(CONTINUED)

AMMANN BASE MAP AZ-4.

DATE 12/13/91 CARD # 00001-F COR

file P/N 859

Form 3160-5  
(June 1990)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.  
Use "APPLICATION FOR PERMIT—" for such proposals

**SUBMIT IN TRIPLICATE**

1. Type of Well  
 Oil Well  Gas Well  Other TESTING - TD 4760' - DD 5436'

2. Name of Operator  
 SHIELDS EXPLORATION COMPANY

3. Address and Telephone No.  
 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
 SE/4 SE/4 NE/4, Section 24, T 41 N - R 1 W, G & SRB M

FORM APPROVED  
Budget Bureau No. 1004-0135  
Expires: March 31, 1993

5. Lease Designation and Serial No.  
 AZ 24237

6. If Indian, Allottee or Tribe Name  
 -----

7. If Unit or CA. Agreement Designation  
 -----

8. Well Name and No.  
 SHIELDS FEDERAL 12-24

9. API Well No. AZ No. 859  
 02-005-20032

10. Field and Pool, or Exploratory Area  
 WHITE SAGE PROSPECT

11. County or Parish, State  
 COCONINO CO., ARIZONA.

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input checked="" type="checkbox"/> Subsequent Report	<input checked="" type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input type="checkbox"/> Other
	<input type="checkbox"/> Change of Plans
	<input checked="" type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

AZ OIL & GAS  
 CONSERVATION COMMISSION  
 JUL 1 1991

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

TITE HOLE - UPDATE JUNE 15 - JUNE 26

Well continues to be monitored. Well cuttings received by AZ Commission also E Logs. Well cuttings being shipped to AZ Bureau of Geology, Tucson. 2 Copies of E. Logs and request for Temporary Abandonment being sent to BLM-St. George. REQUEST FILING OF ALL CUTTINGS AND LOGS AND DATA IN CONFIDENTIAL CATEGORY.

Seeded Well 12-24 Location on June 22 using BLM specified seeds & procedures. Due to our unavoidable delays, and as discussed with BLM, we will now wait and reseed during recommended period of September-October. Area near Well 2-19 (abdn) was not seeded and will now seed during Fall Period specified.

State Permit 859

14. I hereby certify that the foregoing is true and correct

Signed

(This space for Federal or State office use)

Approved by

Conditions of approval, if any:

Title

Title

Date

Date

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

\*See Instruction on Reverse Side

Form 3160-5  
(June 1990)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
Budget Bureau No. 1004-0135  
Expires: March 31, 1993

**SUNDRY NOTICES AND REPORTS ON WELLS**

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Use "APPLICATION FOR PERMIT—" for such proposals

**SUBMIT IN TRIPLICATE**

1. Type of Well  
 Oil Well  Gas Well  Other TESTING - TD 4760' - DD 5436'

2. Name of Operator  
 SHIELDS EXPLORATION COMPANY

3. Address and Telephone No.  
 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
 SE/4 SE/4 NE/4, Section 24, T 41 N - R 1 W, G & SRB M

5. Lease Designation and Serial No.  
 AZ 24237

6. If Indian, Allottee or Tribe Name  
 -----

7. If Unit or CA, Agreement Designation  
 -----

8. Well Name and No.  
 SHIELDS FEDERAL 12-24

9. API Well No. AZ No. 859  
 02-005-20032

10. Field and Pool, or Exploratory Area  
 WHITE SAGE PROSPECT

11. County or Parish, State  
 COCONINO CO., ARIZONA.

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input type="checkbox"/> Other _____
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

TITE HOLE - UPDATE

June 4 - June 14: Well continues to be monitored and under observation.  
 E. Logs are being packed for shipment to BLM (2 Copies) and to AZ Commission (1 Copy).  
 Well Samples are being packed for shipment to AZ Commission (1 Set) and AZ Bureau of Geology & Mineral Tech (1 Set), including core pieces. Courtesy core sample to BLM.

14. I hereby certify that the foregoing is true and correct

Signed Jaym Shields Title Pres Date 6/16/91

(This space for Federal or State office use)

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Conditions of approval, if any:

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\*See Instruction on Reverse Side

#859

Form 3160-5  
(June 1990)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**SUNDRY NOTICES AND REPORTS ON WELLS**

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Use "APPLICATION FOR PERMIT—" for such proposals

**SUBMIT IN TRIPLICATE**

1. Type of Well  
 Oil Well  Gas Well  Other TESTING - TD 4760' - DD 5436'

2. Name of Operator  
 SHIELDS EXPLORATION COMPANY

3. Address and Telephone No.  
 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
 SE/4 SE/4 NE/4, Section 24, T 41 N - R 1 W, G & SRB M

FORM APPROVED  
 Budget Bureau No. 1004-0135  
 Expires: March 31, 1993

5. Lease Designation and Serial No.  
 AZ 24237

6. If Indian, Allottee or Tribe Name  
 -----

7. If Unit or CA, Agreement Designation  
 -----

8. Well Name and No.  
 SHIELDS FEDERAL 12-24

9. API Well No. AZ No.859  
 02-005-20032

10. Field and Pool, or Exploratory Area  
 WHITE SAGE PROSPECT

11. County or Parish, State  
 COCONINO CO., ARIZONA.

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input type="checkbox"/> Other _____
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log Form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

**TITE HOLE - UP-DATE**

May 24 - June 3: Well continues to be monitored. Received Chart from USGS, Menlo Park, CA combining their two Temperature Surveys of the 12-24 Well which were run on February 12 and April 24, 1991. They will want to run a third Survey to TD 4760', plugged back from DD of 5436' due to caving, when we pull Pkr (currently set @ 4557') for further operations and when hole is open.

We have been delayed in seeding the 12-24 Location and the area near the 2-19 Location as our driller is temporarily not available.

14. I hereby certify that the foregoing is true and correct.

Signed Jay M. Shields Title Pres. Date 6/3/91

(This space for Federal or State office use)

Approved by \_\_\_\_\_  
Conditions of approval, if any:

#859

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

\*See Instruction on Reverse Side

Form 3160-5  
(June 1990)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
Budget Bureau No. 1004-0135  
Expires: March 31, 1993

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.  
Use "APPLICATION FOR PERMIT—" for such proposals

**SUBMIT IN TRIPLICATE**

1. Type of Well <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other	TESTING - TD 4760' - DD 5436'	5. Lease Designation and Serial No. AZ 24237
2. Name of Operator SHIELDS EXPLORATION COMPANY		6. If Indian, Allottee or Tribe Name -----
3. Address and Telephone No. 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. If Unit or CA. Agreement Designation -----
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) SE/4 SE/4 NE/4, Section 24, T 41 N - R 1 W, G & SRB M		8. Well Name and No. SHIELDS FEDERAL 12-24
		9. API Well No. AZ No. 859 02-005-20032
		10. Field and Pool, or Exploratory Area WHITE SAGE PROSPECT
		11. County or Parish, State COCONINO CO., ARIZONA.

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input type="checkbox"/> Other _____
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

**TITE HOLE - UP-DATE**

May 14 - May 23: Well continues to be monitored. The USGS reports good results from their temperature surveys and may want to re-enter the Well when we pull the packer and tubing for further testing downhole.

The special seeds have been received and we plan the scarifying and seeding this weekend, weather permitting. Rusty Palmer (Ormsbee Drlg) will do the job to include the 12-24 Well Location and previously-graded pond area north of Well 2-19. Care will be taken in any work at the 12-24 Well to avoid disturbing the seed.

AZ OIL & GAS  
CONSERVATION COMMISSION

MAY 27 1991

#859

14. I hereby certify that the foregoing is true and correct.

Signed [Signature] Title [Signature] Date 5/23/91

(This space for Federal or State office use)

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Conditions of approval, if any:

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Form 3160-5  
(June 1990)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
Budget Bureau No. 1004-0135  
Expires: March 31, 1993

**SUNDRY NOTICES AND REPORTS ON WELLS**

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Use "APPLICATION FOR PERMIT—" for such proposals

5. Lease Designation and Serial No.

AZ 24237

6. If Indian, Allottee or Tribe Name

-----

7. If Unit or CA, Agreement Designation

-----

**SUBMIT IN TRIPLICATE**

1. Type of Well

Oil Well  Gas Well  Other TESTING - TD 4760' - DD 5436'

2. Name of Operator

SHIELDS EXPLORATION COMPANY

3. Address and Telephone No.

320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

SE/4 SE/4 NE/4, Section 24, T 41 N - R 1 W, G & SRB M

8. Well Name and No.

SHIELDS FEDERAL 12-24

9. API Well No.

AZ No. 859

02-005-20032

10. Field and Pool, or Exploratory Area

WHITE SAGE PROSPECT

11. County or Parish, State

COCONINO CO., ARIZONA.

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment	<input type="checkbox"/> Change of Plans	
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion	<input type="checkbox"/> New Construction	
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back	<input type="checkbox"/> Non-Routine Fracturing	
	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Water Shut-Off	
	<input type="checkbox"/> Altering Casing	<input type="checkbox"/> Conversion to Injection	
	<input type="checkbox"/> Other _____	<input type="checkbox"/> Dispose Water	

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

TITE HOLE - UP-DATE

May 14 - May 23: Well continues to be monitored. The USGS reports good results from their temperature surveys and may want to re-enter the Well when we pull the packer and tubing for further testing downhole.

The special seeds have been received and we plan the scarifying and seeding this weekend, weather permitting. Rusty Palmer (Ormsbee Drlg) will do the job to include the 12-24 Well Location and previously-graded pond area north of Well 2-19. Care will be taken in any work at the 12-24 Well to avoid disturbing the seed.

AZ OIL & GAS  
CONSERVATION COMMISSION

MAY 27 1991

14. I hereby certify that the foregoing is true and correct.

Signed

(This space for Federal or State office use)

Approved by  
Conditions of approval, if any:

Title

Title

Date

Date

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Form 3160-5  
(June 1990)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
Budget Bureau No. 1004-4135  
Expires: March 31, 1993

**SUNDRY NOTICES AND REPORTS ON WELLS**

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Use "APPLICATION FOR PERMIT—" for such proposals

5. Lease Designation and Serial No.  
**AZ 24237**

6. If Indian, Allottee or Tribe Name  
-----

7. If Unit or CA, Agreement Designation  
-----

8. Well Name and No.  
**SHIELDS FEDERAL 12-24**

9. API Well No. **AZ No. 859**  
**02-005-20032**

10. Field and Pool, or Exploratory Area  
**WHITE SAGE PROSPECT**

11. County or Parsh. State  
**COCONINO CO., ARIZONA.**

**SUBMIT IN TRIPLICATE**

1. Type of Well  
 Oil Well  Gas Well  Other **TESTING - TD 4760' - DD 5436'**

2. Name of Operator  
**SHIELDS EXPLORATION COMPANY** **AZ OIL & GAS CONSERVATION COMMISSION**

3. Address and Telephone No.  
**320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272** **MAY 15 1991**

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
**SE/4 SE/4 NE/4, Section 24, T 41 N - R 1 W, G & SRB M**

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment	<input type="checkbox"/> Change of Plans
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<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Altering Casing	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Other _____	<input type="checkbox"/> Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

**TITE HOLE - UPDATE**

April 28 - May 13: Well continues to be monitored regularly. Seeds are being ordered from Utah. Varieties as specified by Holly Roberts, BLM, St. George. Arrangements have been made for seeding the Well 12-24 area even though further operations are planned. The pond area north of the Well 2-19 site will also be seeded following grading last year.

Work is proceeding on the 12-24 Well Temporary Abandonment papers to include logs, cuttings and required data for the BLM and the State of AZ.

14. I hereby certify that the foregoing is true and correct

Signed *Raymond Shields* Title \_\_\_\_\_ Date **May 13, 1991**

(This space for Federal or State office use)

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_  
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**AZ OIL & GAS  
CONSERVATION COMMISSION**

Form 3160-5  
(June 1990)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

MAY 1 1991

FORM APPROVED  
Budget Bureau No. 1004-0135  
Expires: March 31, 1993

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5. Lease Designation and Serial No.

AZ 24237

6. If Indian, Allottee or Tribe Name

-----

7. If Unit or CA, Agreement Designation

-----

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well

Gas Well

Other TESTING - TD 4760' - DD 5436'

2. Name of Operator

SHIELDS EXPLORATION COMPANY

3. Address and Telephone No.

320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

SE/4 SE/4 NE/4, Section 24, T 41 N - R 1 W, G & SRB M

8. Well Name and No.

SHIELDS FEDERAL 12-24

9. API Well No.

AZ No. 859

02-005-20032

10. Field and Pool, or Exploratory Area

WHITE SAGE PROSPECT

11. County or Parish, State

COCONINO CO., ARIZONA.

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input checked="" type="checkbox"/> Other Plans
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

TITE HOLE - UP-DATE

APRIL 20-27 : The USGS took another TEMPERATURE SURVEY of the Well to 4500 feet. They will advise of results. We do not know when they plan further runs.

On advice from the BLM St. George, we agreed that now or in the near future and as personnel and equipment are available, would be one of the best times of the year to seed the SF 12-24 Location. Although the Well has not been completed pending further studies and is currently being monitored regularly, we will use our access road with care and stay in the immediate Well Area. All of the Well Location will be seeded.....

Consideration is being given to additional DST Tests as research data becomes available from Universities, Company geologists and others. The exploration of the Chuar of Pre-Cambrian Age is of great scientific importance and it is of the greatest importance that the 12-24 Well be kept open, data is reviewed and new ideas developed.

14. I hereby certify that the foregoing is true and correct

Signed

*Jay M Shields*

Title

*Pres.*

Date

*4/27/91*

(This space for Federal or State office use)

Approved by

Conditions of approval, if any:

Title

Date

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

\*See Instruction on Reverse Side

Form 3160-5  
(June 1990)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
Budget Bureau No. 1004-0135  
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.  
Use "APPLICATION FOR PERMIT—" for such proposals

5. Lease Designation and Serial No.

AZ 24237

6. If Indian, Allottee or Tribe Name

-----

7. If Unit or CA, Agreement Designation

-----

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well

Gas Well

Other

TESTING - TD 4760' - DD 5436'

2. Name of Operator

SHIELDS EXPLORATION COMPANY

3. Address and Telephone No.

320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

SE/4 SE/4 NE/4, Section 24, T 41 N - R 1 W, G & SRB M

8. Well Name and No.

SHIELDS FEDERAL 12-24

9. API Well No.

AZ No. 859

02-005-20032

10. Field and Pool, or Exploratory Area

WHITE SAGE PROSPECT

11. County or Parish, State

COCONINO CO., ARIZONA.

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input type="checkbox"/> Other <u>Well Report</u>
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

UP-DATE - TITE HOLE

April 6 - April 19: USGS Temperature Survey now being arranged for next week. Rusty Palmer (Ormbbee Drlg) will assist. Schlumberger extra logs have been received. Temp Abandonment Notice now in preparation for filing with BLM and AZ O/G CC. Well continues to be monitored on regular basis weather permitting. Also planning to seed if advisable.

AZ OIL & GAS  
CONSERVATION COMMISSION

APR 22 1991

14. I hereby certify that the foregoing is true and correct

Signed

*Raymond H. [Signature]*

Title President

Date April 19, 1991

(This space for Federal or State office use)

Approved by

Title

Date

Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

#859

\*See Instruction on Reverse Side

Form 1149-5  
(June 1990)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.  
Use "APPLICATION FOR PERMIT—" for such proposals

**SUBMIT IN TRIPLICATE**

FORM APPROVED  
Budget Bureau No. 1004-0135  
Expires: March 31, 1993

5. Lease Designation and Serial No.

AZ 24237

6. If Indian, Allottee or Tribe Name

-----

7. If Unit or CA. Agreement Designation

-----

1. Type of Well

Oil Well

Gas Well

Other TESTING - TD 4760' - DD 5436'

2. Name of Operator

SHIELDS EXPLORATION COMPANY

3. Address and Telephone No.

320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

SE/4 SE/4 NE/4, Section 24, T 41 N - R 1 W, G & SRB M

8. Well Name and No.

SHIELDS FEDERAL 12-24

9. API Well No.

AZ No. 859

02-005-20032

10. Field and Pool, or Exploratory Area

WHITE SAGE PROSPECT

11. County or Parish, State

COCONINO CO., ARIZONA.

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment	<input type="checkbox"/> Change of Plans
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion	<input type="checkbox"/> New Construction
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Altering Casing	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Other Well Report	<input type="checkbox"/> Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

UPDATE - TITE HOLE

March 23-April 5 -- USGS will run temperature survey after April 15.  
Still waiting on copies of logs to include with Temp. Abdn. notices. Received core samples to include with ditch samples. Well closed in and monitored when possible. No change.

14. I hereby certify that the foregoing is true and correct

Signed

(This space for Federal or State office use)

Title

Date

Approved by

Conditions of approval, if any:

Title

Date

PK 859

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

\*See Instruction on Reverse Side

Form 3160-5  
(June 1990)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
AZ OIL & GAS  
CONSERVATION COMMISSION

FORM APPROVED  
Budget Bureau No. 1004-0135  
Expires: March 31, 1993

**SUNDRY NOTICES AND REPORTS ON WELLS**  
Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.  
Use "APPLICATION FOR PERMIT—" for such proposals

5. Lease Designation and Serial No.  
AZ 24237

6. If Indian, Allottee or Tribe Name  
-----

7. If Unit or CA, Agreement Designation  
-----

SUBMIT IN TRIPLICATE

1. Type of Well  
 Oil Well  Gas Well  Other TESTING - TD 4760' - DD 5436'

2. Name of Operator  
SHIELDS EXPLORATION COMPANY

3. Address and Telephone No.  
320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
SE/4 SE/4 NE/4, Section 24, T 41 N - R 1 W, G & SRB M

8. Well Name and No.  
SHIELDS FEDERAL 12-24

9. API Well No. AZ No. 859  
02-005-20032

10. Field and Pool, or Exploratory Area  
WHITE SAGE PROSPECT

11. County or Parish, State  
COCONINO CO., ARIZONA.

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input type="checkbox"/> Other <u>Waiting on Weather</u>
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

UP-DATE - TIGHT HOLE

March 16 - 22: Bad weather has interfered with plans had for another Temperature Sonde Log. Our plans for a second Schlumberger test have also been delayed. We are in the process of acquiring the necessary logs and core samples (in Denver) and filling out the various AZ and BLM Forms relating to Temporary abandonment. The Well continues to be monitored when possible.

14. I hereby certify that the foregoing is true and correct.

Signed

(This space for Federal or State office use)

Approved by

Conditions of approval, if any:

Title

President

Date

3/22/91

Title

Date

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

\*See instruction on Reverse Side

#859

**AZ OIL & GAS  
CONSERVATION COMMISSION**

Form 3160-5  
(June 1990)

UNITED STATES  
DEPARTMENT OF THE INTERIOR **MAR 18 1991**  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
Budget Bureau No. 1004-0135  
Expires: March 31, 1993

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.  
Use "APPLICATION FOR PERMIT—" for such proposals

5. Lease Designation and Serial No.

A-24237

6. If Indian, Allottee or Tribe Name

-----

7. If Unit or CA. Agreement Designation

-----

8. Well Name and No.

SHIELDS FEDERAL 12-24

9. API Well No.

AZ No. 859

02-005-20032

10. Field and Pool, or Exploratory Area

WHITE SAGE PROSPECT

11. County or Parish, State

COCONINO CO., ARIZONA

SUBMIT IN TRIPLICATE

1. Type of Well

Oil Well

Gas Well

Other

TESTING

2. Name of Operator

SHIELDS EXPLORATION COMPANY

3. Address and Telephone No.

320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

SE/4 SE/4 NE/4, Section 24, T 41 N - R 1 W, G & SRB M

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input checked="" type="checkbox"/> Other Further DST of TAPEATS
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

UP DATE - TITE HOLE -- CORRECTION: Sundry Notice of 9-15,1991:"Tuesday Morning FEB 13)

FEB 23 - MAR 8 -- USGS wants to re-enter 12-24 Well with Sonde for a second Temperature study before moving equipment from Flagstaff back to Menlo Park. Also wants to use Well for ongoing studies. Reports good results of first study. Considers #12-24 a Key Well in their program. Will cooperate with them when we pull & re-set Baker Pkr so they can go to TD @ 4760' or, if delayed, we may let them go on down thru the Pkr @ 4557'.

We plan our second DST to unseat and reset the Pkr @ surface, then run a Schlumberger Dump Bailer and set a cmt plug from TD to 4745'. The Pkr will be re-run and set at approx 4700' and the interval swabbed.

The Ormsbee Rig is currently undergoing repairs in Fredonia. The 12-24 Well is shut in to Tank and static, and will be monitored.

14. I hereby certify that the foregoing is true and correct.

Signed

*Ray M Shields*

Title

*President*

Date 3/11/91

(This space for Federal or State office use)

Approved by

Title

Date

Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

\*See Instruction on Reverse Side

## GENERAL INSTRUCTIONS

This form is designed for submitting proposals to perform certain well operations, and reports of such operations when completed, as indicated, on Federal and Indian lands pursuant to applicable Federal law and regulations, and, if approved or accepted by any State, on all lands in such State, pursuant to applicable State law and regulations. Any necessary special in-

structions concerning the use of this form and the number of copies to be submitted, particularly with regard to local area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office.

## SPECIFIC INSTRUCTIONS

*Item 4*—If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

*Item 13*—Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by local Federal and/or State offices. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive

zones, or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to top of any left in the hole; method of closing top of well; and date well site conditioned for final inspection looking to approval of the abandonment.

## NOTICE

The Privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

**AUTHORITY:** 30 U.S.C. 181 et. seq., 351 et. seq., 25 U.S.C. et. seq.; 43 CFR 3160.

**PRINCIPAL PURPOSE** — The information is to be used to evaluate, when appropriate, approve applications, and report completion of secondary well operations, on a Federal or Indian lease.

### ROUTINE USES:

- (1) Evaluate the equipment and procedures used during the proposed or completed subsequent well operations.
- (2) Request and grant approval to perform those actions covered by 43 CFR 3162.3-2(2).
- (3) Analyze future applications to drill or modify operations in light of data obtained and methods used.
- (4)(5) Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions.

**EFFECT OF NOT PROVIDING INFORMATION** — Filing of this notice and report and disclosure of the information is mandatory once an oil or gas well is drilled.

The Paperwork Reduction Act of 1980 (44 U.S.C. 3501, et. seq.) requires us to inform you that: This information is being collected in order to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.

This information will be used to report subsequent operations once work is completed and when requested, to obtain approval for subsequent operations not previously authorized.

Response to this request is mandatory for the specific types of activities specified in 43 CFR Part 3160.

## BURDEN HOURS STATEMENT

Public reporting burden for this form is estimated to average 25 minutes per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management, (Alternate) Bureau Clearance Officer, (WO-771), 18 and C Streets, N.W., Washington, D.C. 20240, and the Office of Management and Budget, Paperwork Reduction Project (1004-0135), Washington, D.C. 20503.

Form 3160-5  
(May 1989)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE  
(Other instructions  
verse side)

FORM APPROVED  
OMB NO 1004-0135  
Expires September 30, 1990

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

AZ OIL & GAS  
CONSERVATION COMMISSION

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>	5. LEASE DESIGNATION AND SERIAL NO. A-24237
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY	6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272	7. UNIT AGREEMENT NAME -----
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W, G&SRBM	8. FARM OR LEASE NAME SHIELDS FEDERAL
14. PERMIT NO. AZ #859 API 02-005-20032	9. WELL NO. #12-24
15. ELEVATIONS (Show whether OF, BT, CR, etc.) GR 5040'	10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT
	11. SEC., T., R., M., OR BLK. AND SUBST. OR AREA Sec 24, T41N-R1W G&SRBM
	12. COUNTY OR PARISH COCONINO
	13. STATE ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	FILL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANT <input type="checkbox"/>	(Other) <u>Prep to swab Tapeats ss</u>	

(Other) DEEPENED #12-24 to 5436'

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROMISED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

UP-DATE - TITE HOLE

Feb. 16 - 22: Brought Ormsbee Rig to Fredonia for clean-up and repairs. Will check Well and Site at regular intervals pending further testing. Plan to request Temporary Abandonment Category.

18. I hereby certify that the foregoing is true and correct

SIGNED Jay M Shields TITLE PRESIDENT DATE Feb. 23, 1991

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

Form Approved  
OMB No. 1004-0135  
Expires September 30, 1990

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPlicate  
Other Instructions  
verse side

FORM APPROVED  
OMB NO. 1004-0135  
Expires September 30, 1990

**SUNDRY NOTICES AND REPORTS ON WELLS**  
(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT" for such proposals.)

OIL WELL  GAS WELL  OTHER

1. NAME OF OPERATOR: **AZ OIL & GAS CONSERVATION COMMISSION**

2. NAME OF OPERATOR: **SHIELDS EXPLORATION COMPANY**

3. ADDRESS OF OPERATOR: **320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272**

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.)  
At surface: **SE/4 SE/4 NE/4, Sec 24, T41N-R1W, G&SRBM**

14. PERMIT NO.: **AZ #859**  
**API 02-005-20032**

15. ELEVATIONS (Show whether OF, WT, GR, etc.): **GR 5040'**

5. LEASE DESIGNATION AND SERIAL NO.: **A-24237**

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: \_\_\_\_\_

7. UNIT AGREEMENT NAME: \_\_\_\_\_

8. FARM OR LEASE NAME: **SHIELDS FEDERAL**

9. WELL NO.: **#12-24**

10. FIELD AND POOL, OR WILDCAT: **WHITE SAGE PROSPECT**

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: **Sec 24, T41N-R1W G&SRBM**

12. COUNTY OR PARISH: **COCONINO**

13. STATE: **ARIZONA**

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <u>Prep to swab Tapeats ss</u>	

(Other) DEEPEMED #12-24 to 5436'  
(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

UP - DATE - TITE HOLE

Feb. 9 -15: Well closed into Tank. Static. No pressure. Waited on USGS. Arrived Monday Feb. 11 Kanaß with Temp Survey system. Met Ormsbee Driller at Location Tuesday Morning, Jan. 12. Ran surveys to 4540' (above packer). Good results. Left equipment in Flagstaff. Expect to continut surveys subject to our schedule. Want to try to run to TD if we pull tubing and packer for other tests. Well closed to Tank. Static. Well monitored.

18. I hereby certify that the foregoing is true and correct

SIGNED [Signature] TITLE PRESIDENT DATE Feb. 16, 1991

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

Form 3160-5  
(May 1989)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLE COPY  
(Other instructions on  
reverse side)

FORM APPROVED  
OMB NO. 1004-0135  
Expires: September 30, 1990

**SUNDRY NOTICES AND REPORTS ON WELLS**

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. <input checked="" type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER		5. LEASE DESIGNATION AND SERIAL NO. A-24237
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME -----
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W, G&SRBM		8. FARM OR LEASE NAME SHIELDS FEDERAL
14. PERMIT NO. AZ #859 API 02-005-20032		9. WELL NO. #12-24
15. ELEVATIONS (Show whether OF, BT, CR, etc.) GR 5040'		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT
		11. SEC., T., R., N., OR BLK. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM
		12. COUNTY OR PARISH COCONINO
		13. STATE ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <u>Prep to swab Tapeats ss</u>	
(Other) <u>DEEPEMED #12-24 to 5436'</u>		(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)	

17. DESCRIBE PROMISED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

UP-DATE -- TITE HOLE

Feb. 2 - Feb. 8, 1991: Well closed in to tank on Jan. 30. Will be checked at regular intervals. USGS will be permitted to use Well this coming week for temperature measurements above packer. Ormsbee driller and helper will assist the Government people who have self-contained spool and cable for procedure. Further tests are planned.

**AZ OIL & GAS  
CONSERVATION COMMISSION**

FEB 14 1991

18. I hereby certify that the foregoing is true and correct

SIGNED [Signature] TITLE PRESIDENT DATE Feb. 9, 1991

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

PN 859

\*See Instructions on Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Form 3160-5  
(May 1989)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE  
(Other instructions  
verse side)

FORM APPROVED  
OMB NO. 1004-0135  
Expires September 30, 1990

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> CAR WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		3. LEASE DESIGNATION AND SERIAL NO. A-24237	
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----	
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME -----	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W, G&SRBM		8. FARM OR LEASE NAME SHIELDS FEDERAL	
14. PERMIT NO. AZ #859 API 02-005-20032		9. WELL NO. #12-24	
15. ELEVATIONS (Show whether of, to, or, etc.) GR 5040'		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT	
		11. SEC., T., R., W., OR BLK. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM	
		12. COUNTY OR PARISH COCONINO	13. STATE ARIZONA

15. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	FILL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANT <input type="checkbox"/>	(Other) <u>Prep to swab Tapeats ss</u>	

(Other) DEEPENED - #12-24 to 5436'  
(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

UP-DATE - TITE HOLE

Jan. 26 - Feb. 1, 1991: Continued swabbing daily through Wednesday, January 30, when Well was closed in pending Laboratory tests of fluid and rig repair. USGS may run first temperature survey shortly.

18. I hereby certify that the foregoing is true and correct

SIGNED Joyce Shields TITLE PRESIDENT DATE Feb. 2, 1991

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

P/N 859

\*See Instructions on Reverse Side

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Form 3160-5  
(May 1989)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE\*  
(Other instructions on reverse side)

FORM APPROVED  
OMB NO 1004-0135  
Expires September 30, 1990

**SUNDRY NOTICES AND REPORTS ON WELLS**  
(Do not use this form for proposals to drill or to deepen or plug back a well or reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1.  OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR: **SHIELDS EXPLORATION COMPANY**

3. ADDRESS OF OPERATOR: **320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272**

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.)  
At surface  
**SE/4 SE/4 NE/4, Sec 24, T41N-R1W, G&SRBM**

14. PERMIT NO. **AZ #859**  
**API 02-005-20032**

15. ELEVATIONS (Show whether of. st. cr. etc.)  
**GR 5040'**

5. LEASE DESIGNATION AND SERIAL NO.  
**A-24237**

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME  
**SHIELDS FEDERAL**

9. WELL NO.  
**#12-24**

10. FIELD AND POOL, OR WILDCAT  
**WHITE SAGE PROSPECT**

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
**Sec 24, T41N-R1W G&SRBM**

12. COUNTY OR PARISH  
**COCONINO**

13. STATE  
**ARIZONA**

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	<input type="checkbox"/>	WATER SHUT-OFF	<input type="checkbox"/>
FRACTURE TREAT	<input type="checkbox"/>	FRACTURE TREATMENT	<input type="checkbox"/>
SHOOT OR ACIDIZE	<input type="checkbox"/>	SHOOTING OR ACIDIZING	<input type="checkbox"/>
REPAIR WELL	<input type="checkbox"/>	(Other) <b>Prep to swab Tapeats ss</b>	<input type="checkbox"/>
(Other) <b>DEEPEND #12-24 to 5436'</b>	<input type="checkbox"/>		
PULL OR ALTER CASING	<input type="checkbox"/>	REPAIRING WELL	<input type="checkbox"/>
MULTIPLE COMPLETE	<input type="checkbox"/>	ALTERING CASING	<input type="checkbox"/>
ABANDON*	<input type="checkbox"/>	ABANDONMENT*	<input type="checkbox"/>
CHANGE PLANT	<input type="checkbox"/>		

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

OP-DATE - TITE HOLE  
 JAN 19 - JAN 25, 1991  
 Commenced Swabbing (2 3/8" Tubing 2" ID) USING ORMSBY Rig on Jan. 19. Problems with Swab Cups and used 2 3/8" tubing (rust). Swabbed load water and drilling water. Swab problems slow recovery. Will continue Swabbing and Testing and Bottling water samples.

18. I hereby certify that the foregoing is true and correct

SIGNED *Ray M. Shields* TITLE PRESIDENT DATE Jan 28, 1991

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Form 3140-5  
(May 1989)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

(SUBMIT IN TRIPLICATE)  
(Other instructions  
verse side)

FORM APPROVED  
OMB NO 1004-0135  
Expires September 30, 1990

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. A-24237	
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN ALLOTTEE OR TRIBE NAME -----	
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME -----	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W, G&SRBM		8. FARM OR LEASE NAME SHIELDS FEDERAL	
14. PERMIT NO. AZ #859 API 02-005-20032		9. WELL NO. #12-24	
15. ELEVATIONS (Show whether DF, ST, CR, etc.) GR 5040'		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT	
		11. SEC., T., R., W., OR BLK. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM	
		12. COUNTY OR PARISH COCONINO	
		13. STATE ARIZONA	

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANT <input type="checkbox"/>	(Other) <u>Prep to swab Tapeats ss</u>	

(Other) DEEPENED - #12-24 to 5436'

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

UP-DATE - TITE HOLE:

JAN. 12 - JAN. 18, 1991: Mechanical problem with rig operation on Jan. 12. Shut down, waiting on new chain from Salt Lake City. Working on location. Extended 2 3/8" blooie line to 125 feet N of Well. Added 2000 psi 2 3/8" valve to wellhead.

*Misaddressed -  
Returned by P.O.  
Remailed 1/31/90  
JWS*

Parts came Jan. 16. Repaired rig. On Jan. 17 moved tank to graded site 110' NE of Well ( 2 3/8" tubing 60' N to "T" and valve on Blooie Line - 90' E to Tank). Built berm. Also built fence and berm on N side of Winter Road returning it to original configuration. Gate at W end of location. Prep to resume swabbing.

18. I hereby certify that the foregoing is true and correct.  
SIGNED Jay M Shields TITLE PRESIDENT DATE Jan. 18, 1991  
(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

#859

\*See Instructions on Reverse Side

Form 3160-5  
(May 1989)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE  
(Other instructions  
verse side)

FORM APPROVED  
OMB NO. 1004-0135  
Expires: September 30, 1990

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

AZ OIL & GAS

CONSERVATION COMMISSION

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		3. LEASE DESIGNATION AND SERIAL NO. A-24237	
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----	
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME -----	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W, G&SRBM		8. FARM OR LEASE NAME SHIELDS FEDERAL	
14. PERMIT NO. AZ #859 API 02-005-20032		9. WELL NO. #12-24	
15. ELEVATIONS (Show whether OF, BT, CR, etc.) GR 5040'		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT	
		11. SEC., T., R., E., OR BLK. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM	
		12. COUNTY OR PARISH COCONINO	13. STATE ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <u>Prep to swab Tapeats ss</u>	
(Other) <u>DEEPEMED #12-24 to 5436'</u>		(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)	

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

UPDATE - TITE HOLE

JAN. 5 - JAN. 11, 1991

'AT 4557'

RUNNING PACKER. SET PKR JAN 8 USING 2 3/8" TUBING AND FREEDOMIA WELL WATER. SNOW AND ICE DELAYING OPERATIONS AND CONTACT WITH FARMINGTON, N.M. SUPPLIERS. BEGAN SWABBING JAN 9 IN PM, ONE SWAB WATER. JAN 10 SWABBING WATER, PIPE DOPE AND SCALE. JAN 11 WOR AND SWABBING AS ABOVE. ESTIMATE RECOVERED HALF OF WATER AND BS IN TUBING. WATER LEVEL STATIC AT 1650'±. WILL MAINTAIN CONTACT BY TELEPHONE. NOTE: SWAB FLUID DISPOSED OF BY WATER TRUCK. FREEZE-THAW PROBLEMS.

18. I hereby certify that the foregoing is true and correct

SIGNED Layton Shields TITLE PRESIDENT DATE JAN 11, 1991

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

Permit # 859

\*See Instructions on Reverse Side

Form 3160-5  
(May 1989)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE  
(Other instructions  
verse side)

FORM APPROVED  
OMB NO. 1004-0135  
Expires: September 30, 1990

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. A-24237
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME -----
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W, G&SRBM		8. FARM OR LEASE NAME SHIELDS FEDERAL
14. PERMIT NO. AZ #859 API 02-005-20032		9. WELL NO. #12-24
15. ELEVATIONS (Show whether OP, ST, CR, etc.) GR 5040'		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT
		11. SEC., T., R., M., OR BLM. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM
		12. COUNTY OR PARISH COCONINO
		13. STATE ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANE <input type="checkbox"/>	(Other) prep to swab Tapeats ss <input checked="" type="checkbox"/>	

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

UP-DATE - TITE HOLE

Dec. 29 - January 4, 1991: Despite the difficulties of moving tools and equipment from Farmington, N.M., during the continuous snowy weather, we were able to obtain a Baker Retrievable Packer and started in the hole, using 2 3/8" tubing, yesterday. We expect to set Packer tomorrow and will proceed with swabbing when all necessary surface equipment reachesthe wellsite. We will maintain contact with you by telephone.

18. I hereby certify that the foregoing is true and correct

SIGNED Ray M Shields TITLE PRESIDENT DATE Jan. 4, 1991

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

PN 859

\*See Instructions on Reverse Side

Form 3160-5  
(May 1989)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPlicate  
(Other instructions on  
reverse side)

FORM APPROVED  
OMB NO. 1004-0135  
Expires: September 30, 1990

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. A-24237	
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----	
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME -----	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W, G&SRBM		8. FARM OR LEASE NAME SHIELDS FEDERAL	
14. PERMIT NO. AZ #859 API 02-005-20032		9. WELL NO. #12-24	
15. ELEVATIONS (Show whether DF, ST, CR, etc.) GR 5040'		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT	
		11. SEC., T., R., M., OR BLM. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM	
		12. COUNTY OR PARISH COCONINO	13. STATE ARIZONA

AZ OIL & GAS  
CONSERVATION COMMISSION

DEC 31 1990

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>	

(Other) DEEPENING #12-24 to 5700'

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS: (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

UP-DATE - TITE HOLE:

DECEMBER 21-28:

DUE TO SEVERE WEATHER, COULD NOT MOVE OPERATOR  
PACKER, SWAB AND LUBRICATOR TO KAYAB FROM  
FARMINGTON. TOOLMAN NOT AVAILABLE UNTIL  
12/30. WEATER STILL A PROBLEM.  
RIG ON STANDBY.

SA WELL #12-24 CONTINUES ON OPERATIONAL STATUS.

18. I hereby certify that the foregoing is true and correct

SIGNED [Signature] TITLE PRESIDENT DATE 12/28/90

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

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12-26-90

Jay Shields with update for file

Arrived in Utah

Temp  $-20^{\circ}$  F in Kanab

Wait on weather & dtiller got busy in NM

New date is 12/30/90 (Sunday)

1- RH with packet

2 test on 12/31/90 (Monday)

Form 3160-5  
(May 1989)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE  
(Other instructions  
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FORM APPROVED  
OMB NO. 1004-0135  
Expires: September 30, 1990

**SUNDRY NOTICES AND REPORTS ON WELLS**

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Use "APPLICATION FOR PERMIT—" for such proposals.)

**AZ OIL & GAS**

**CONSERVATION COMMISSION**

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. A-24237	
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----	
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME -----	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W, G&SRBM		8. NAME OF LEASE NAME SHIELDS FEDERAL	
14. PERMIT NO. AZ #859 API 02-005-20032		9. WELL NO. #12-24	
15. ELEVATIONS (Show whether DP, RT, GR, etc.) GR 5040'		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT	
		11. SEC. T., R., N., OR S.W. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM	
		12. COUNTY OR PARISH COCONINO	13. STATE ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>	

(Other) DEEPENING #12-24 to 5700'

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROMISED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

UP-DATE - TITE HOLE

Dec. 8 - 15: Due to problems involving the Baker Packer and the time schedule, operations at the SF #12-24 Well have been delayed and rescheduled to commence testing operations on December 20th. We will continue to maintain contact by telephone as we have done previously.

SF #12-24 continues on operational status.

18. I hereby certify that the foregoing is true and correct

SIGNED [Signature] TITLE PRESIDENT DATE Dec. 15, 1990

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Form 3160-5  
(May 1989)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPPLICATE\*  
(Other instructions on reverse side)

OMB NO. 1004-0135  
Expires: September 30, 1990

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W, G&SRBM		5. LEASE DESIGNATION AND SERIAL NO. A-24237		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----		7. UNIT AGREEMENT NAME -----		8. FARM OR LEASE NAME SHIELDS FEDERAL		9. WELL NO. #12-24		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT		11. SEC., T., R., M., OR BLM. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM	
14. PERMIT NO. AZ #859 API 02-005-20032				15. ELEVATIONS (Show whether OF, ST, GR, etc.) GR 5040'				12. COUNTY OR PARISH COCONINO				13. STATE ARIZONA									

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SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>	

(Other) DEEPENING #12-24 to 5700'

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

UP-DATE - TITE HOLE

Dec. 1 - 7: Additional tubing for test received @ Well Dec. 5.  
Now waiting on personnel with Baker packer and test equipment due in Kanab on Sunday, December 9. Plan to run and set packer Monday, Dec. 10 and swab test beginning on Tuesday, December 11.

SF #12-24 CONTINUES ON OPERATIONAL STATUS.

18. I hereby certify that the foregoing is true and correct  
SIGNED Jay M Shields TITLE PRESIDENT DATE Dec. 7, 1990

(This space for Federal or State office use)  
APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

#859

\*See Instructions on Reverse Side

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Form 3160-5  
(May 1989)

**UNITED STATES  
DEPARTMENT OF THE INTERIOR  
CONSERVATION COMMISSION  
BUREAU OF LAND MANAGEMENT**

SUBMIT IN TRIPlicate  
(Other instructions on  
reverse side)

FORM APPROVED  
OMB NO. 1004-0135  
Expires: September 30, 1990

**SUNDRY NOTICES AND REPORTS ON WELLS**

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

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UP-DATE - TITE HOLE:

November 23 - 30: Monitoring Well daily.  
Delay in running tubing and packer due to unavailability of personnel & tools from Farmington. Expect to begin testing next week. You will be advised by telephone in advance.

SF WELL #12-24 CONTINUES ON OPERATIONAL STATUS

AZ OIL & GAS  
CONSERVATION COMMISSION

DEC 3 1990

I hereby certify that the foregoing is true and correct  
SIGNED [Signature] TITLE PRESIDENT DATE Nov. 30, 1990

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

Permit # 859

\*See Instructions on Reverse Side

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Form 3160-5  
(May 1989)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE  
(Other instructions  
verse side)

FORM APPROVED  
OMB NO. 1004-0135  
Expires September 30, 1990

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT..." for such proposals.)

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2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY	6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272	7. UNIT AGREEMENT NAME -----
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14. PERMIT NO. AZ #859 API 02-005-20032	9. WELL NO. #12-24
15. ELEVATIONS (Show whether DF, NT, CR, etc.) GR 5040'	10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT
	11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM
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REPAIR WELL <input type="checkbox"/>	CHANGE PLANE <input type="checkbox"/>	(Other) <input type="checkbox"/>	

(Other) DEEPENING #12-24 to 5700'

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROMISED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

UP-DATE - TITE HOLE:

November 17 - 23: Monitoring Well daily. Ormsby Rig over hole. Problem with bailing line. Making preparations to run packer on 2 3/8" tubing for test of Tapeats as early as November 30. You will be advised by telephone in advance. USGS can then begin running their Temp Survey Instrument inside tubing.

SF #12-24 WELL CONTINUES ON OPERATIONAL STATUS

18. I hereby certify that the foregoing is true and correct.  
SIGNED Paul Shields TITLE PRESIDENT DATE Nov. 23, 1990  
(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

PN 859

\*See Instructions on Reverse Side

Form 3160-5  
(May 1989)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
AZ OIL & GAS  
CONSERVATION COMMISSION  
SUNDRY NOTICES AND REPORTS ON WELLS

SUBMIT IN TRIPLICATE  
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FORM APPROVED  
OMB NO 1004-0135  
Expires September 30, 1990

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(Other) DEEPENING #12-24 to 5700'		(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)	

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UPDATE - TITE HOLE

November 12 - 16: Monitoring Well. Ormsbee Rig. Waiting on Lab Tests of Cores and sidewall cores. Screening data on cuttings, etc. Call from USGS. Discussing their use of Well for Thermo Tests.

18. I hereby certify that the foregoing is true and correct  
SIGNED Jay M. Shields TITLE PRESIDENT DATE Nov. 16, 1990  
(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

AZ OIL & GAS  
CONSERVATION COMMISSION

NOV 1 1990

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE  
(Other instructions on reverse side)

FORM APPROVED  
OMB NO. 1004-0135  
Expires September 30, 1990

### SUNDRY NOTICES AND REPORTS ON WELLS

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FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
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REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>	

(Other) DEEPENING #12-24 to 5700'

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#### UP-DATE: TITE HOLE

Nov. 1 thru Nov. 3, 1990: Grace Drilling Rigging Down Moving Out, Csg Head on Well.  
Nov. 4, 1990: Well closed In  
Nov. 5, 1990: Worked on wellhead and connection to Tank  
Nov. 6, 1990: Monitoring Well, psi 10#. John Haas on site.  
Nov. 7, 1990: Inspection of old Well sites by John Haas and John Branch. Prep for Schlumberger, monitored Well, pressure same. Ormsbee Rig over Hole.  
Nov. 8, 1990: Schlumberger on site @ 8:00 A.M., rigged up and ran side-wall cores. Successful.  
Nov. 9, 1990: Worked on plans for testing Well, set up swab line & bailer.  
Nov. 10, 1990: Monitoring Well, bailing & checking pressure, worked on old well sites  
Nov. 11, 1990: Will continue to work on Well through tests of lower zones, using Ormsbee Rig.

NOTE: THE SF #12-24 WELL REMAINS ON OPERATIONAL STATUS UNTIL FURTHER NOTICE.

18. I hereby certify that the foregoing is true and correct.

SIGNED Jay M. Shields TITLE PRESIDENT DATE Nov. 11, 1990

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

PIN 859

\*See Instructions on Reverse Side

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(May 1989)

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UP-DATE - TITE HOLE:  
OCTOBER 25 - 31:

- October 25 - Cored, Drld ahead
- October 27 - Drld ahead to 5436' TD
- October 28 & 29 - Logged to 4936' (Unable to reach TD), Start RD
- October 30 - Cont. Rigging Down
- October 31 - Rigging Down, Moving out Grace Rig, will thereafter move in Ormsbee Drilling Rig to run Schlumberger sidewall coring device.

AZ OIL & GAS  
CONSERVATION COMMISSION

NOV 2 1990

18. I hereby certify that the foregoing is true and correct.

SIGNED Joyce M. Shields TITLE PRESIDENT DATE October 31, 1990

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

October 30, 1990

Shields 12-24 Federal, Permit #859

Phone call from Jay Shields:

Steve Rauzi's notes:

5436 ft TD

POH to change bit, RIH & had lost 200 ft because of sluff.

Cored 4970-5000 ft.

Transfer to Dan Brennan

Dan Brennan calls Jay back - his notes:

Were drilling ahead - circ through gas buster - more water/air/trace foam

Drilled Muav with tri-cone button bit

600 ft of Muav - short section according to Jay

300 ft of Bright Angel Shale

Tapeats - Sdy, grn sh, etc., 150 ft of sltst. 150 ft clr qtzitic coarse ss - pure

A rubble zone at top Precambrian Chuar (?)

Shale with some very silty members (mudstone)

Ran into trouble - decided to core

Cored 30 ft recovered 26-30 ft - Multicolored shale/hygroscopic TD 5436 ft

Roof fell in - Shale started to come in - lost hole

Ran lots of logs

Jay decided to try to 6000 ft but decided not to at 3:00 a.m.

TD on log not quite to 5000 ft

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(May 1989)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME -----
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W, G&SRBM		8. FARM OR LEASE NAME SHIELDS FEDERAL
14. PERMIT NO. AZ #859 API 02-005-20032		9. WELL NO. #12-24
15. ELEVATIONS (Show whether DF, ST, CR, etc.) GR 5040'		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT
		11. SEC., T., R., M., OR BLE. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM
		12. COUNTY OR PARISH COCONINO
		13. STATE ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>	

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

UP-DATE: TITE HOLE  
OCTOBER 17 - 24: Drld up pkr and to original TD of 3183'  
Drld ahead to 4968'

AZ OIL & GAS  
CONSERVATION COMMISSION

NOV 2 1990

18. I hereby certify that the foregoing is true and correct

SIGNED [Signature] TITLE PRESIDENT DATE October 24, 1990

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

DATE: October 18, 1990

MEMO: Witness record to File

FROM: Steven L. Rauzi *SLR*  
Oil & Gas Specialist

SUBJECT: Shield's Federal 12-24, Permit #859  
Cement squeeze and Pressure Test BOPE

CONDITION OF HOLE PRIOR TO CEMENT SQUEEZE OF 7" CASING SHOE:

1. 7" casing cemented at 2960'.
2. Drillable bridge plug at 3183' in open hole.
3. EZ-drill packer set at 2850' inside 7" casing.

ON 10/15/90 & 10/16/90 DOWELL:

1. Pumped 70 bbls of water into annulus without circulation.
2. Filled drill pipe with 12 bbls water.
3. Pressure tested drill pipe to 1500 psi.
4. Pumped 21 bbls of cement slurry.
5. Displaced cement slurry with 18 bbls of water.
6. Maintained a displacement pressure of 500 psi.
7. Closed flapper valve on packer with 500 psi on squeeze.

ON 10/17/90:

1. Tested BLIND RAMS to 1500 psi, bled to 1100 psi in 15 minutes.  
Noted obvious dripping around seals on BOP stack.
2. Tested PIPE RAMS to 1800 psi, bled to 1600 psi in 15 minutes.  
Noted obvious dripping around PIPE RAM door.
3. Opened door on pipe ram, scraped gasket area and resealed.
4. Tightened all bolts on the BOP stack.
5. Tested BLIND, PIPE, & ANNULAR PREVENTORS successfully.  
No dripping observed on the BOP stack.

Form 3160-5  
(May 1989)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE  
(Other instructions on reverse side)

FORM APPROVED  
OMB NO. 1004-0135  
Expires: September 30, 1990

**SUNDRY NOTICES AND REPORTS ON WELLS**

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT" for such proposals.)

1. <input checked="" type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER		5. LEASE DESIGNATION AND SERIAL NO. A-24237																				
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----																				
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME -----																				
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface S#/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM		8. FARM OR LEASE NAME SHIELDS FEDERAL																				
14. PERMIT NO. AZ 859 API 02-005-20032	15. ELEVATIONS (Show whether DF, ST, CR, etc.) GR 5040'	9. WELL NO. # 12-24																				
16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT																				
<table border="0"> <tr> <td colspan="2">NOTICE OF INTENTION TO:</td> <td colspan="2">SUBSEQUENT REPORT OF:</td> </tr> <tr> <td>TEST WATER SHUT-OFF <input type="checkbox"/></td> <td>PULL OR ALTER CASING <input type="checkbox"/></td> <td>WATER SHUT-OFF <input type="checkbox"/></td> <td>REPAIRING WELL <input type="checkbox"/></td> </tr> <tr> <td>FRACTURE TREAT <input type="checkbox"/></td> <td>MULTIPLE COMPLETE <input type="checkbox"/></td> <td>FRACTURE TREATMENT <input type="checkbox"/></td> <td>ALTERING CASING <input type="checkbox"/></td> </tr> <tr> <td>SHOOT OR ACIDIZE <input type="checkbox"/></td> <td>ABANDON* <input type="checkbox"/></td> <td>SHOOTING OR ACIDIZING <input type="checkbox"/></td> <td>ABANDONMENT* <input type="checkbox"/></td> </tr> <tr> <td>REPAIR WELL <input type="checkbox"/></td> <td>CHANGE PLANS <input type="checkbox"/></td> <td>(Other) <input type="checkbox"/></td> <td></td> </tr> </table>		NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:		TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>	FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>	SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>	REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>		11. SEC., T., R., W., OR BLK. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM
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17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

OCTOBER 17, 1990  
UPDATE: TITE HOLE

Squeezed 7" csg with 100 sx cement (DOWELL), finishing at 3:00 A.M. on October 16. WOC preparing to pressure test 7" csg and BQP. Plan to drill out cement retainer at 2850' and drill down and test WSO.

18. I hereby certify that the foregoing is true and correct

SIGNED [Signature] TITLE PRESIDENT DATE Oct. 17, 1990

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

November 1983)  
Formerly 9-331)

DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

(Other instructions on reverse side)

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. A-24237
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME -----
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM		8. FARM OR LEASE NAME SHIELDS FEDERAL
14. PERMIT NO. AZ #859 API 02-005-20032		9. WELL NO. #12-24
15. ELEVATIONS (Show whether DF, RT, GR, etc.) GR 5040'		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT
		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM
		12. COUNTY OR PARISH COCONINO
		13. STATE ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	FULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>	

(Other) DEEPENING SF #12-24 to 5700'

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

NOTICE OF COMMENCEMENT OF OPERATIONS: DEEPENING OF WELL #12-24 FROM 3183' TO 5700'

TITE HOLE: CONFIDENTIALITY REQUESTED

- OCT. 9, 10, 11 - MOBILIZATION
- OCT. 11 & 12 - RIGGING UP
- OCT. 13 - PULL & LAY DOWN RODS & TUBING  
PREP TO SQUEEZE 7" CSG
- OCT. 14 - SQUEEZE 7" CSG - DOWELL
- OCT. 15 - WOC
- OCT. 16 - DRILL OUT PRODUCTION PKR  
CLEAN OUT TO BOTTOM (3183')  
DRILL AHEAD USING AIR

THESE DATES PROJECTED. YOU WILL BE ADVISED BY PHONE OF ANY CHANGE.

18. I hereby certify that the foregoing is true and correct

SIGNED Jay M. Shields TITLE PRESIDENT DATE OCTOBER 8, 1990

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

Title 16, U.S. Statutes, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false or fraudulent statement or representation as to any matter within its jurisdiction.



**Oil and Gas Conservation Commission**

STATE OF ARIZONA

5150 N. 16th STREET, SUITE B-141  
PHOENIX, ARIZONA 85016  
PHONE: (602) 255-5161

**APPROVAL AND CONDITIONS OF APPLICATION**

Operator Shields Exploration Co.  
Address 320 Bellino Drive  
Pacific Palisades, CA 90272

Your application to:

- |                                     |   |                          |                         |
|-------------------------------------|---|--------------------------|-------------------------|
| <input type="checkbox"/>            | DRILL   | <input type="checkbox"/> | PULL OR ALTER CASING    |
| <input type="checkbox"/>            | FRACTURE TREAT  | <input type="checkbox"/> | MULTIPLE COMPLETE       |
| <input type="checkbox"/>            | SHOOT OR ACIDIZE  | <input type="checkbox"/> | ABANDON                 |
| <input type="checkbox"/>            | REPAIR WELL   | <input type="checkbox"/> | WORK OVER               |
| <input type="checkbox"/>            | RECOMPLETE  | <input type="checkbox"/> | CONVERT TO A WATER WELL |
| <input checked="" type="checkbox"/> | OTHER <u>Deepen 12-24 Federal, Sec 24, T41N-R1W, Coconino Co.</u> |                          |                         |

has been approved, subject to the following conditions:

- NOTIFY the Commission at least 24 hours prior to commencement of operations.
- NOTIFY the Commission at least 24 hours prior to setting or cementing of casing to allow the Commission to send a representative to witness the operations.
- OTHER:  
Notify the Commission at least 24 hours prior to squeezing intermediate casing at 2,960' and prior to nipling up and testing B.O.P.E.

Approved by

Permit No. 859

Date 10/1/91



AMMENDED COPY OF JUNE 15, 1990

Form 3160-3  
(November 1983)  
(formerly 9-331C)

SUBMIT IN TRIPLICATE\*  
(Other instructions on  
reverse side)

AZ o/g Laws Copy  
Compl. Copy Mr. Brennan  
Form approved.  
Budget Bureau No. 1004-0136  
Expires August 31, 1985

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK  
DRILL  DEEPEN  PLUG BACK

b. TYPE OF WELL  
OIL WELL  GAS WELL  OTHER EXPLORATORY  SINGLE ZONE  MULTIPLE ZONE

2. NAME OF OPERATOR  
SHIELDS EXPLORATION COMPANY

3. ADDRESS OF OPERATOR  
320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)  
At surface  
2970' from S line and 330' from E line, Sec 24, T41N-R1W  
At proposed prod. zone  
Approximately the same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*  
12 Miles East of Fredonia, Arizona

15. DISTANCE FROM PROPOSED\* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any) 330'

16. NO. OF ACRES IN LEASE  
2558.12

17. NO. OF ACRES ASSIGNED TO THIS WELL  
80 A

18. DISTANCE FROM PROPOSED LOCATION\* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. SF 1-19A, 885'

19. PROPOSED DEPTH  
5700'

20. ROTARY OR CABLE TOOLS  
ROTARY

21. ELEVATIONS (Show whether DF, RT, GR, etc.)  
GR 5040'

22. APPROX. DATE WORK WILL START\*  
July 25, 1990-

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
15"	10 3/4"	32.75#	441'	150 sx To Surface
9 5/8"	7"	23.00#	2960'	110 sx
6 1/2"	4 1/2" Proposed	10.50#	5400' Est.	250 sx (est)

CONFIDENTIALITY REQUESTED ON ALL DATA MATTER

To date, Recovered no commercial production of oil or gas to TD of 3183'. The Well has been pumped intermittently through 2 3/8" tubing set @ 3128' using Halliburton drillable packer. Interval open 3129' - 3183' TD. Recovery was fresh water with shows of oil and gas (Ref: Sundry Notices). Surface pump equipment has been removed and Well shut in on a temporary abandonment basis.

PLANS: To pull rods, downhole pump and tubing; drill up packer; clean out to present TD; and deepen, using 6 1/2" bit and air-foam or mud as determined. The Well will be oil/gas Exploratory and scheduled to sample and test the Devonian (top 3262') Mart and Cambrian (top 3719") Tonto group formations, and drill ahead to test the underlying Precambrian (top 5200' est.) Chuar group. A Blowout preventer will be installed prior to drilling out below current TD.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. SIGNED Ray M. Shields TITLE PRESIDENT DATE June 15, 1990

(This space for Federal or State office use)

PERMIT NO. 859 APPROVAL DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY: \_\_\_\_\_

\*See Instructions On Reverse Side

SHIELDS EXPLORATION CO.

320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

June 15, 1990

DATA SUPPLEMENT TO  
FORM 3160-3

SHIELDS FEDERAL #12-24

1. SURFACE FORMATION:

The Geologic name of the surface formation is the Triassic-Timpoweap limestone.

2. GEOLOGICAL MARKINGS:

Timpoweap limestone	0' - 80'
Permian-Kaibab formation, Alpha Member	80' - 220'
Permian-Kaibab formation, Beta Member	220' - 400'
Permian-Kaibab formation, Gamma Member	400' - 490'
Permian White Rim Sandstone	490' - 520'
Permian Toroweap formation	520' - 840'
Permian Coconino formation	840' - 870'
Permian Hermit Shale formation	870' - 1480'
Permian Supai formation	1480' - 2180'
Pennsylvanian Callville Limestone form.	2180' - 2420'
Mississippian Redwall formation	2420' - 3260'
Devonian Martin formation	3260' - 3719'
Cambrian Tonto Group	3719' - 5200' est.
Chuar Group	5200' - 5700' est.

3. WATER, OIL & GAS ZONES:

Shows of Oil and Gas recovered below 7" csg (2960') from 3020' to current TD @ 3183'. When deepened, Oil and Gas may be expected below 3183' to 3719' (Base Devonian), and in lower Cambrian and the Late Precambrian Chuar formations. Some water is possible in zones to TD.

4. PROPOSED CASING PROGRAM AND EXISTING CASING:

If justified, production casing may be run and cemented (6½" hole) @ an estimated depth of approximately 5400'. Proposed casing would be 4½" - 10.50# - J-55 (see below). Safety factors will be observed and meet Tension (1.5), Collapse (1.125) and Burst (1.0) standards as established. Casing will be tested @ 0.2 psi/ft. pressure

CASING AND TUBING - EXISTING & PLANNED

Surface Casing: 0'-441' 10 3/4" OD, 32.75#, H-40API, Kaiser  
Intermediate Csg: 0'-2960' 7" OD, 23.0#, J55 API, 8rd, USS  
Production Tubing: 0'-3128' 2 3/8", 4.7#, K-55 API, EUE, Hyundai

Planned:

Production Casing: 0'-5400' 4½"OD, 10.50#, J-55 API, 8rd, USS

\*Note: The SF #12-24 Well is EXPLORATORY below 3183'. The 4½" csg may be set at a depth to be determined or set using a hanger inside the 7" csg or not run in the hole, depending on the results of the drilling. Planned hole size - 6½".

X PN 859

4a) PROPOSED CEMENTING PROCEDURES:

The cement will be Class A with additives to suit conditions. Dowell is planned to do cementing. Fill up would be proposed as approximately 2500' est (to 2900') using 250 sx cmt for the interval between hole, 6½", and pipe, 4½" & into 7" csq set @ 2960'

5. PRESSURE CONTROL EQUIPMENT:

Pressure control equipment will be installed and tested prior to deepening the SF #12-24 Well below existing TD of 3183'. Maximum pressures calculated during tests of various zones below 3000' ranged between 600 and 650 psi. Formation pressures @ the projected TD of 5700' are expected to be in a normal range (estimated maximum at 0.50 psi/ft = 2750 psi). Working pressure of the BOP stack is an indicated 3000 psi which can be increased (See attached configuration). Testing procedures will provide for periodic pressure tests, blow out prevention drills and regular maintenance. As internal yield pressure of the proposed 4½" - 10.5# casing is listed @ 4790 psi, BOP will be tested to the rated working pressure of the stack (3000 psi) at time of installation, prior to drilling out casing shoe and at least every 30 days. A diagram of the Choke Manifold System, a Conventional BOP Control Arrangement, and a listing of the equipment for Rig #74, Grace Drilling Company, are attached. BLM Onshore Operating Order #2 will be used for reference as a guide in design of BOP system & a Rotating Head used for air drlg

6. PROPOSED MUD PROGRAM:

Our Primary Plan will be to drill with compressed air and heavy foam. This circulating system is contained at the surface and differs from the standard mud drilling system in using compressed air and heavy foam instead of mud pumps and mud with additives. Both are contained systems. The heavy foam system is also different from the standard air-foam system in that the standard system is not contained and requires a reservoir pit. We also plan on having a complete mud system on site and ready to use if needed while drilling through the Cambrian and Precambrian formations and to control any emergencies that might arise. Decisions as to the types, amounts and characteristics of the mud will be made prior to rigging up. Decisions will be made in consultation with a retained Engineering Firm or with the Grace Drilling Supervisor.

7. AUXILIARY EQUIPMENT:

Various items will be supplied including upper and lower Kelly cock, gas detection device, light at the end of bloopie line and other equipment as required or indicated.

8. EVALUATION PROGRAM:

Sample cuttings will be recovered at every 10' or at shorter intervals if indicated. Testing will be in accord with accepted procedures. Logs of various types will be run as advisable.

9. ABNORMAL CONDITIONS:

All precautions possible will be taken. Maximum formation pressure is anticipated to be no more than normal to estimated TD of 5700' (2750 psi).

WELL LOCATION MAP  
Scale 1" = 600'

Township 41 North

SF # 11-24

Existing Access Road

POWER LINE

SHIELDS FEDERAL #12-24 - 7"CSJ @ 2960'

SF #1-19A

SF #2-19 3756'

3183'

WINTER ROAD

24

480' SF #5-24

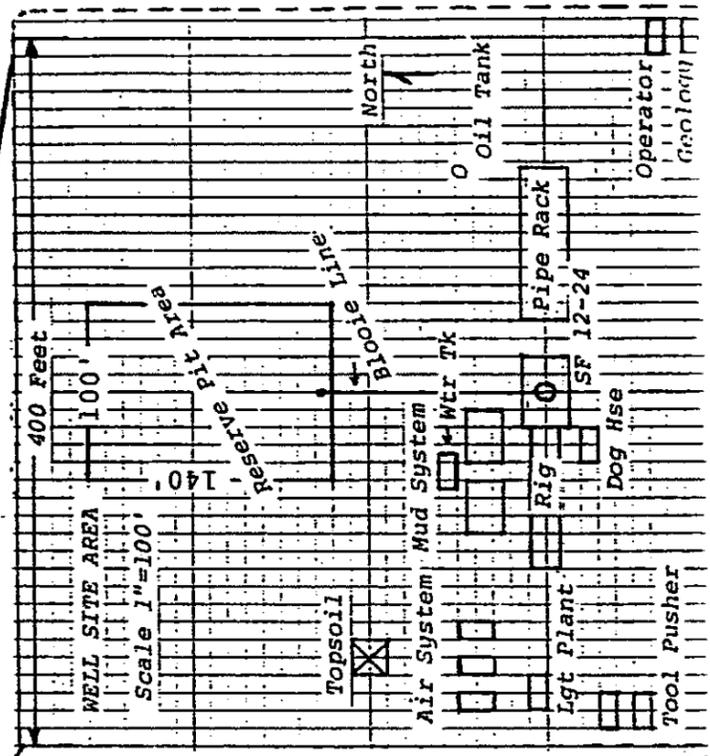
490' SF #6A-24

482' SF #1-24

900' Travis #1-24

500' SF #2-24

750' SF #4-24

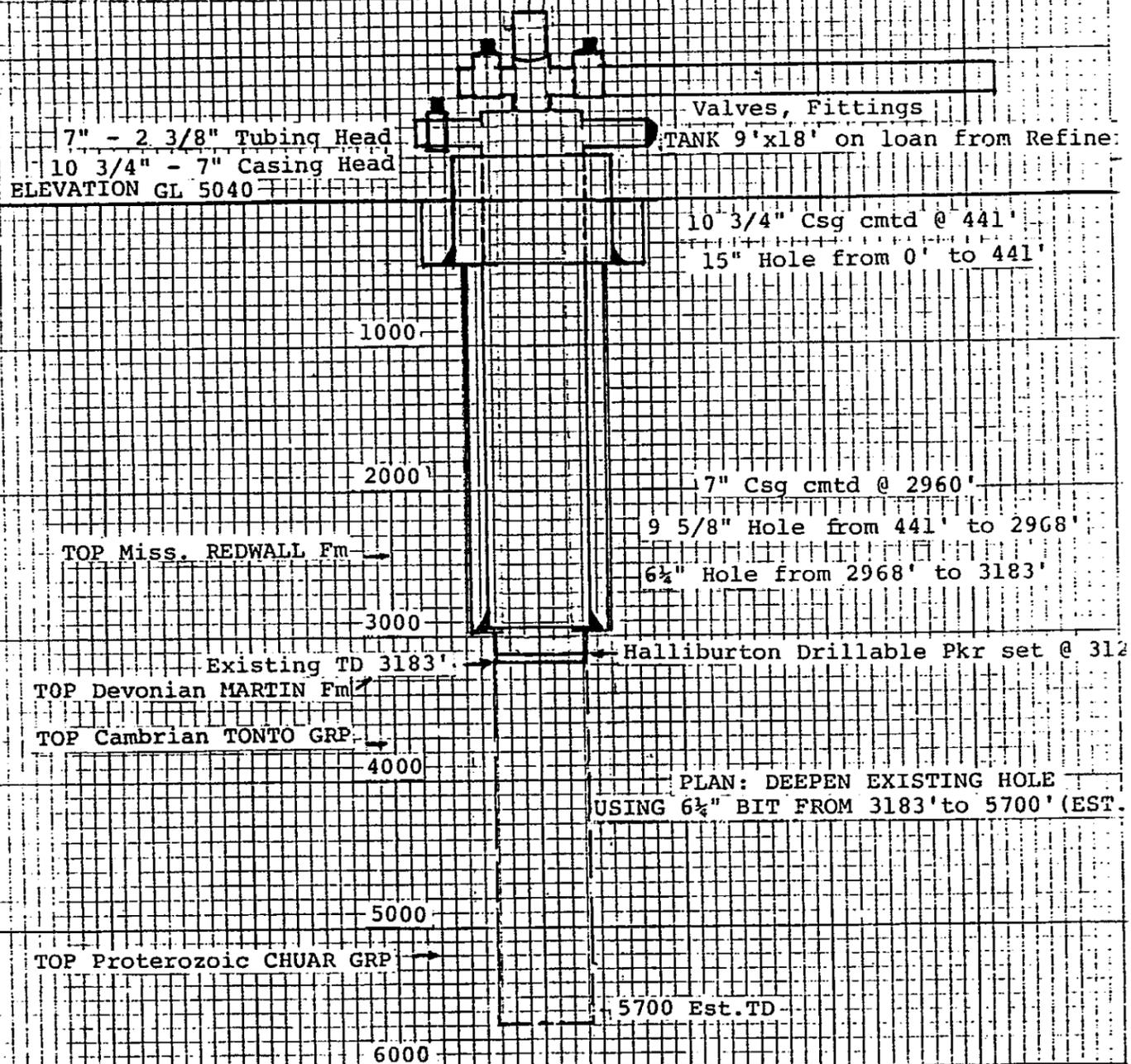


19

24

SHIELDS EXPLORATION COMPANY  
WELL DIAGRAM

Shields Federal 12-24



PLAN: DEEPEN EXISTING HOLE  
USING 6 1/2" BIT FROM 3183' to 5700' (EST.)

Horiz. Scale 1" = 10"  
Vert. Scale 1" = 1000'

Note: Vertical Meas. not to scale above GL.

SHIELDS EXPLORATION CO.

320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

June 15, 1990

NTL-6 APPROVAL OF OPERATIONS

SHIELDS FEDERAL #12-24

1. Existing Roads:  
Existing roads are as indicated on the attached Location and Area Maps. From Highway 89, the all-weather "Winter Road" comes within 300' of the proposed location which is approximately 12 miles East of Fredonia, Arizona.
2. Planned Access Road:  
Access road off Winter Road is already available. Surface is sandstone and limestone. Little grading is needed to expand the Drill Site for a larger rig. Damage to local environment will be minimal.
3. Location of Existing Wells:  
There are nine shallow wells (500'-900') within a two-mile radius. All are northeasterly and westerly of the proposed Well as follows: Travis Federal #1-24, Shields Federal #1-24, #2-24, #4-24, #5-24, #6A-24, #11-24, #1-23, #1-19A (deepened); and one deeper well, the Shields Federal #2-19 (TD 3756'). See Well Location Map.
4. Location Facilities:  
There are some existing location facilities @ the SF #12-24 drillsite. See Well Location Map and Location Data. There is sufficient tubing available for flow lines and a 9' x 18' steel tank for oil and/or water storage. There is an oil refinery @ Fredonia.
5. Location of Water Supply:  
As the proposed well is scheduled to be air drilled, relatively little water may be required. However, a large water tank on site is planned and will be kept filled. The water source is at Fredonia and is available via tank truck.
6. Source of Construction Materials:  
None are needed for drilling the Well. Materials are available at Fredonia, AZ (12 Miles) and Kanab, Utah (19 miles) and include cranes, bulk cement and gravel trucks, etc.
7. METHOD OF HANDLING WASTE DISPOSAL:  
As all drilling is planned using contained circulating systems, a reserve pit will not be used. Cuttings recovered from a tank at the rig will be hauled, together with garbage and trash, to the town dump in Fredonia, AZ. Rental toilets will be on site and serviced during operations.

8. Ancillary Facilities:  
None are planned.
9. Well Site Layout:  
As per attached sketch.
10. Plans for Restoration of Surface:

Any disturbed surface at location and the access road to the location will be levelled, restored and reseeded after completion of operations as may be required by the BLM. Restoration should require several days. Reseeding will then follow at the time suggested by the BLM and in accord with BLM instructions, and any topsoil respread.

11. Other Information:

Topography is essentially flat. There is a gentle 1° to 2° slope to the north. To the South, there are a few mesas composed of lower Triassic red beds. Soil in the wellsite area is thin and sandy and surface consists of outcrops of Triassic Timpoweap limestone which is hard, dense and thin-bedded. Adjacent outcrops are of the Triassic-Moenkopi red beds consisting of silty and muddy sandstones and shales. Ripple marks are characteristic features. The flora consists largely of sage brush with a few small cacti and very sparse grasses. The observed fauna consist of a few deer, rabbits and rattlesnakes and would be typical of the southern part of the Colorado Plateau. There are no surface-use activities other than mule and cattle grazing. There is an old tank to the northwest of the wellsite known as Johnson Tank.

Surface ownership is entirely Federal in the wellsite and lease area. To the South, Section 36 is State Land and to the Northwest about 3 miles, there are approximately 240 acres of private land (Chatterly Ranch). Roads to wellsite from Highway 89A traverse Federal lands only. (Winter Road - gravel).

Other than a few small buttes, there are no steep hillsides in the immediate wellsite area and no known water wells, lakes or streams in the leased area, and no known dwellings or archaeological, historical or cultural sites. At the north end of the lease in the vicinity of Johnson Tank, a major power line runs east-west across the lease. It is owned by SCE Power Company.

There will be some cuts and fills required to expand the location for the larger rig. Note that we only plan to deepen Well about 2500'. There are no plans or need to upgrade Winter Road. Access to the location is Winter Road, which is maintained by the BLM, & was last graded, to my knowledge, in the Spring of 1990.

SHIELDS EXPLORATION COMPANY  
NTL-6 APPROVAL OF OPERATIONS  
SHIELDS FEDERAL #12-24

PAGE 3

10. DRILLING ACTIVITY:  
Drilling will be on 3 shifts and on a 24-hour basis. Start-up is projected for July 25, 1990
11. DRILLING REPRESENTATIVE:  
Shields Exploration Company, 320 Bellino Drive, Pacific Palisades, California, 90272, 213/459-2490.  
CONFIDENTIALITY REQUESTED.
12. Lessee and Operator Representative:  
During operations, Jay M. Shields, Shields Exploration Company, 801/644-2601, Parry Lodge, Kanab, Utah; otherwise, Jay M. Shields, 320 Bellino Drive, Pacific Palisades, CA 90272, 213/459-2490 or 213/459-1298.
13. Certification:  
The following statement is to be incorporated in the plan and must be signed by the lessee's or operator's field representative who is identified in Item 12 of the plan:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by GRACE DRILLING COMPANY and its contractors and sub-contractors in conformity with this plan and the terms and conditions under which it is approved.

June 15, 1990  
Date

  
Name and Title  
Jay M. Shields, President  
SHIELDS EXPLORATION COMPANY

- IV. ENVIRONMENTAL ANALYSIS REQUIREMENTS:  
It is proposed that the nearby Travis Well analysis would apply to the Shields operations. Shields will abide by all instructions and decisions.
- V. APPROVAL OF SUBSEQUENT OPERATIONS:  
None will be undertaken without first securing BLM approval.
- VI. AGREEMENT FOR REHABILITATION OF PRIVATELY-OWNED SURFACE:  
Does not apply.
- VII. WELL ABANDONMENT:  
The proposed Well, if not completed as a producing Well, will not be plugged and abandoned without first securing BLM approval.
- VIII. WATER WELL CONVERSION:  
Some water may be expected in the proposed Well. If found, Operator will conform to rules.

GRACE DRILLING COMPANY

Western Division

RIG #174

RATED DEPTH CAPACITY 6,000' to 10,000' WITH 4½" DRILL PIPE

DRAWWORKS: (New) Brewster N-46 rated for 950 HP with 2 Engine Compound  
and 1 Pump Drive  
Hydromatic Brake V80 Parmac  
1-1/8" Drilling Line

RIG POWER: 2 - D-3408 Caterpillar PCTA Diesel Engines at 475 HP Each

DERRICK &  
SUBSTRUCTURE: 127' Lee C. Moore 440,000# GNC with 15' Substructure

MUD PUMPS: Gardner Denver PZ7 (7x7), 550 HP driven by Caterpillar  
D-379 Engine  
Emsco D-300 (7-1/4 x 14), 300 HP

MUD SYSTEM: 2 Steel Pits (500 bbl capacity)  
Totco Super Screen Shale Shaker  
Swaco 1 Cone Desander  
Swaco 4T4 Desilter

BOP EQUIPMENT: 12" 3000# WP Double Gate Preventer  
12" 3000# WP GK Hydril  
Kelly Cock Upper and Lower  
Koomey 80 Gallon Accumulator  
Choke Manifold 3" - 5000 - 2-1/16 x 500 Chokes

RIG HEAT: 125 HP York Shipley Boiler (Automatic)

WATER TANK: 400 Bbl. Capacity

LIGHT PLANT: 2 - 200 KW Generator Powered by Allis Chalmers 21000 Engine

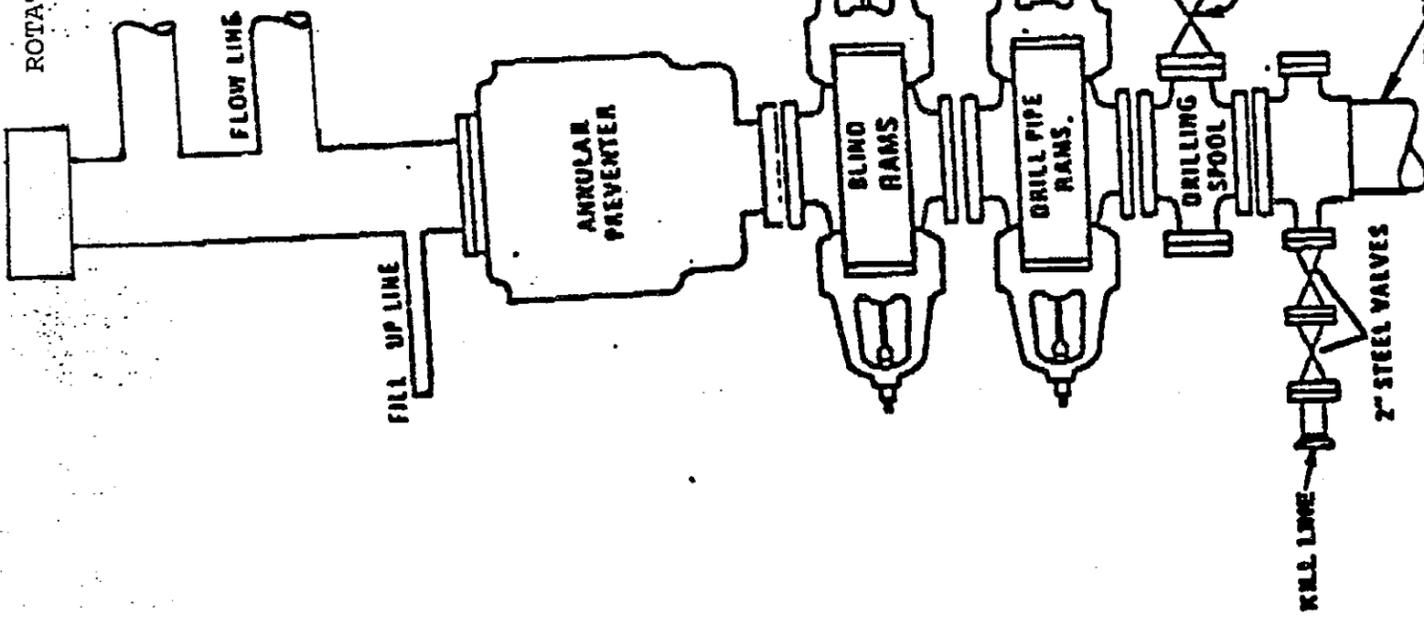
TRAVELING  
EQUIPMENT: 27-1/2" Oilwell Rotary Table  
Type "B" Tongs

ROTARY  
EQUIPMENT: Gardner Denver 200 Ton Block  
BJ 150 Ton Hook  
Emsco L-300 - 300 Ton Swivel

DRILL PIPE: 3 1/2" Grade X-95

OTHER: Rotary Torque Gauge                      5,000 Gallon Diesel Storage  
Automatic Driller                              Toolpusher Trailer  
Recorder - 2 Pen                                Rotary Beam 12' 8"  
K.B. 16"    Top of Table 15'  
Inside of Sub 11' 6"                              Sub 42.12 x 26.04

ROTATING HEAD (FOR AIR DRILLING)



# BOP DIAGRAM

## CHOKE MANIFOLD

POSITIVE CHOKE  
2" Line to mud/gas separator  
and/or Pit

2" FLANGED STEEL VALVE

3" LINE

3" PANIC LINE TO RESERVE PIT

3" STEEL VALVES

ADJUSTABLE CHOKE

2" STEEL VALVES

2" Line to mud/gas separator  
and/or Pit

LINE INCREASE CAP

GRACE DRILLING COMPANY  
Western Division

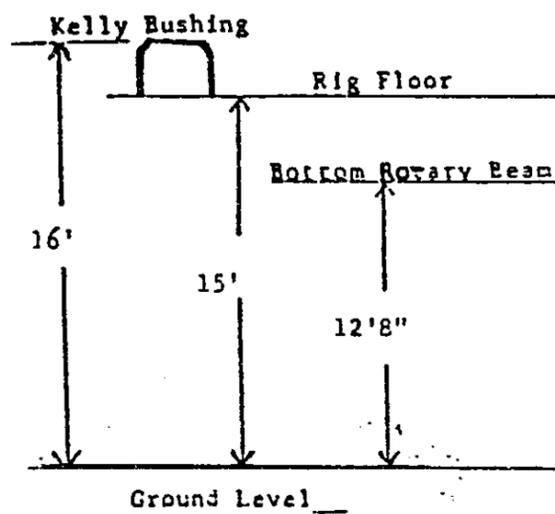
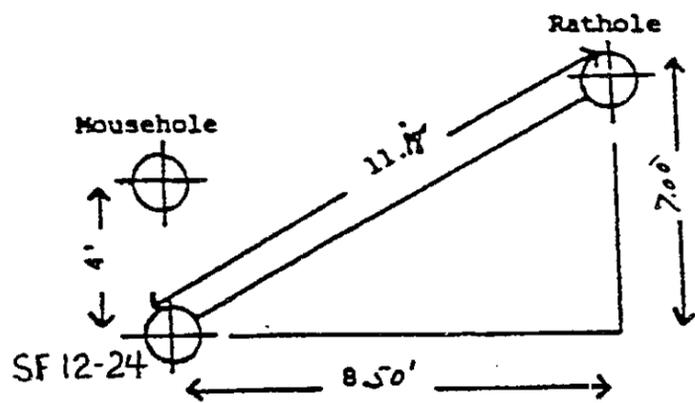
RIG MEASUREMENTS

Rig # 174

Center of Well to:

Back	<u>175'</u>	
Front	<u>175'</u>	
Pit Side	<u>42'</u>	Back _____
Doghouse Side	<u>75'</u>	

HOUSEHOLE - RATHOLE MEASUREMENTS



Form 3160-3  
(November 1983)  
(formerly 9-331C)

AMENDED COPY (MAY 15, 1990 APD

SUBMIT IN TRIPLI  
(Other instructions on  
reverse side)

Form approved.  
Budget Bureau No. 1004-0136  
Expires August 31, 1985

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK  
 DRILL  DEEPEN  PLUG BACK

b. TYPE OF WELL  
 OIL WELL  GAS WELL  OTHER EXPLORATORY SINGLE ZONE  MULTIPLE ZONE

2. NAME OF OPERATOR  
 SHIELDS EXPLORATION COMPANY

3. ADDRESS OF OPERATOR  
 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)  
 At surface  
 2970' from S line and 330' from E line, Sec 24, T41N-R1W  
 At proposed prod. zone  
 Approximately the same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*  
 12 Miles East of Fredonia, Arizona

10. DISTANCE FROM PROPOSED LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any) 330'

16. NO. OF ACRES IN LEASE  
 2558.12

17. NO. OF ACRES ASSIGNED TO THIS WELL  
 80 A

18. DISTANCE FROM PROPOSED LOCATION TO NEAREST WELL, DRILLING COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. SF 1-19A, 885'

19. PROPOSED DEPTH  
 5700'

20. ROTARY OR CABLE TOOLS  
 ROTARY

21. ELEVATIONS (Show whether DF, RT, GR, etc.)  
 GR 5040'

22. APPROX. DATE WORK WILL START\*  
 July 15, 1990

5. LEASE DESIGNATION AND SERIAL NO.  
 A - 24237

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME  
 SHIELDS FEDERAL

9. WELL NO.  
 #12-24

10. FIELD AND POOL, OR WILDCAT  
 WHITE SAGE

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
 24, T41N-R1W, G&SRBM

12. COUNTY OR PARISH  
 COCONINO

13. STATE  
 ARIZONA

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
15"	10 3/4"	32.75#	441'	150 sx To Surface
9 5/8"	7"	23.00#	2960'	110 sx
6 1/2"	4 1/2" Proposed	10.50#	5400' Est.	250 sx (est)

CONFIDENTIALITY REQUESTED ON ALL DATA MATTER

To date, Recovered no commercial production of oil or gas to TD of 3183'. The Well has been pumped intermittently through 2 3/8" tubing set @ 3128' using Halliburton drillable packer. Interval open 3129' - 3183' TD. Recovery was fresh water with shows of oil and gas (Ref: Sundry Notices). Surface pump equipment has been removed and Well shut in on a temporary abandonment basis.

PLANS: To pull rods, downhole pump and tubing; drill up packer; clean out to present TD; and deepen, using 6 1/2" bit and air-foam or mud as determined. The Well will be oil/gas Exploratory and scheduled to sample and test the Devonian (top 3262') Martin and Cambrian (top 3719") Tonto group formations, and drill ahead to test the underlying Precambrian (top 5200' est.) Chuar group. A Blowout preventer will be installed prior to drilling out below current TD.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. AMENDED COPY

SIGNED \_\_\_\_\_ TITLE PRESIDENT DATE JUNE 6, 1990

(This space for Federal or State office use)

PERMIT NO. State P/N 859 APPROVAL DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**APPLICATION FOR PERMIT TO DRILL OR RE-ENTER**

APPLICATION TO DRILL

RE-ENTER OLD WELL

**SHIELDS EXPLORATION COMPANY**

NAME OF COMPANY OR OPERATOR

320 BELLINO DRIVE    PACIFIC PALISADES    CALIFORNIA    90272

Address

City

State

GRACE DRILLING    GOLDEN    COLORADO    80401

Drilling Contractor

Address

**DESCRIPTION OF WELL AND LEASE**

Federal, State or Indian Lease Number, or if fee lease, name of lessor  
**Federal O/G Lease #A 10457**

Well number  
**SF #12-24**

Elevation (ground)  
**5040**

Nearest distance from proposed location to property or lease line:

**4390 feet**

Distance from proposed location to nearest drilling, completed or applied—for well on the same lease:

**1000 feet**

Number of acres in lease:

**2558.12 ACRES**

Number of wells on lease, including this well, completed in or drilling to this reservoir:

**TWO**

If lease, purchased with one or more wells drilled, from whom purchased:

Name

Address

Well location (give footage from section lines)  
**2970' f SL & 330' f EL**

Section—township—range or block and survey  
**24 41N 1W G&SRB M**

Dedication (Comply with Rule 105)  
**80 Acres**

Field and reservoir (if wildcat, so state)  
**WC**

County

**COCONINO**

Distance in miles, and direction from nearest town or post office  
**Fredonia is 12 miles West of Well site**

Proposed depth:

**5700'**

Rotary or cable tools

**ROTARY**

Approx. date work will start

**7/ 1/89**

Bond Status

**On File**

Organization Report

Filing Fee of \$25.00

Amount

**25,000.00**

On file

Or attached **XX**

Attached **XX**

Remarks:

Plan to re-enter and clean out to below shoe of intermediate casing @ 2960' Squeeze cement (Dowell). Test. Drill ahead with 6 1/2" bit to current TD at 3183' drilling up Halliburton drillable Pkr set @ 3128'. Clean out & drill ahead to test Devonian, Cambrian & Proterozoic Chuar Formation to approximately 5700'.

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the PRESIDENT of the SHIELDS EXPLORATION COMPANY (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

**AZ OIL & GAS  
CONSERVATION COMMISSION**

**MAY 24 1989**

Signature

*James M. Shields*  
**May 20, 1989**

Date

Permit Number: \_\_\_\_\_

Approval Date: \_\_\_\_\_

Approved By: \_\_\_\_\_

Notice: Before sending in this form be sure that you have given all information requested. Much unnecessary correspondence will thus be avoided.

**STATE OF ARIZONA  
OIL & GAS CONSERVATION COMMISSION**  
Application to Drill or Re-enter  
File Two Copies

Form No. 3

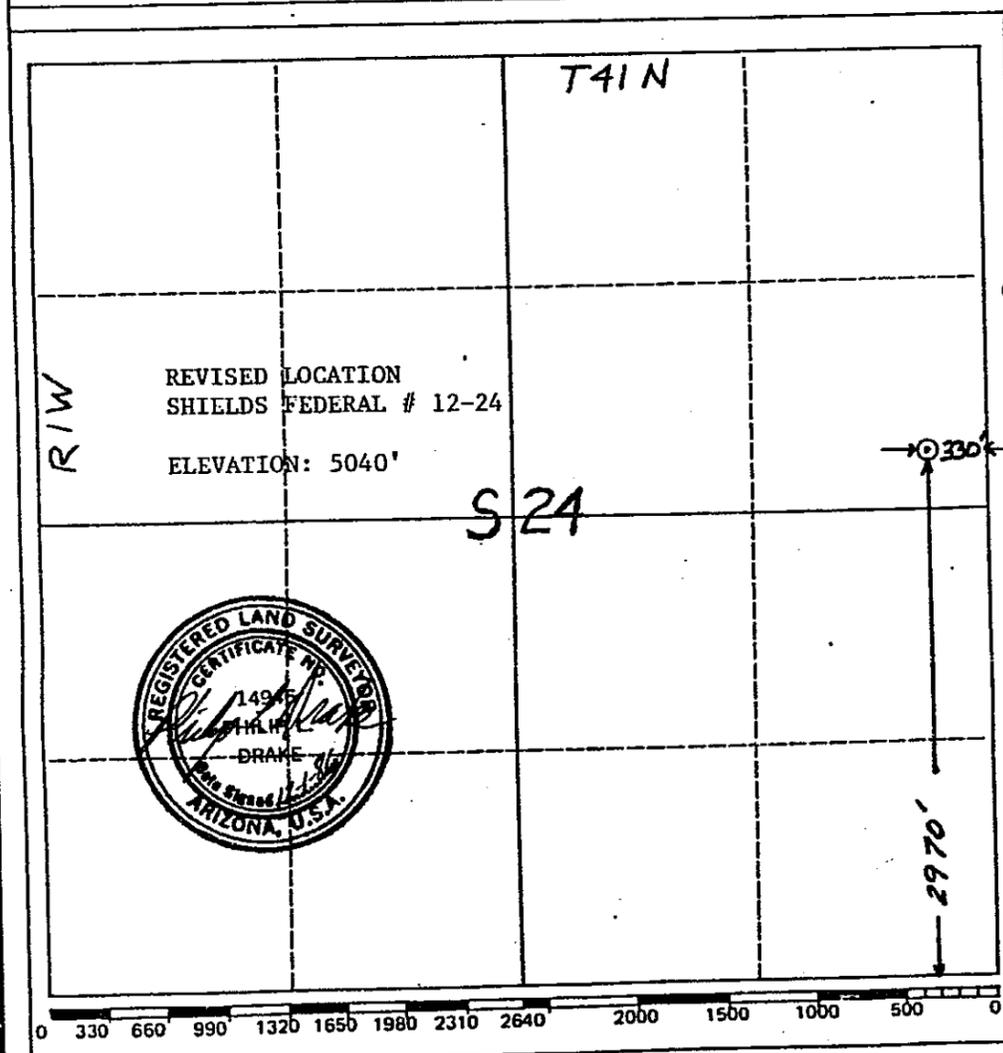
(Complete Reverse Side)

- Operator shall outline the dedicated acreage for both oil and gas wells on the plat.
- A registered professional engineer or land surveyor registered in the State of Arizona or approved by the Commission shall show on the plat the location of the well and certify this information in the space provided.
- ALL DISTANCES SHOWN ON THE PLAT MUST BE FROM THE OUTER BOUNDARIES OF THE SECTION.
- Is the Operator the only owner in the dedicated acreage outlined on the plat below? YES \_\_\_\_\_ NO X
- If the answer to question four is "no," have the interests of all the owners been consolidated by communitization agreement or otherwise? YES X NO \_\_\_\_\_. If answer is "yes," Type of Consolidation Limited Partnerships
- If the answer to question four is "no," list all the owners and their respective interests below:

AZ OIL & GAS  
CONSERVATION COMMISSION

MAY 24 1989

Owner SHIELDS 1981 PROGRAM Shields Exploration Co. General Partner & Operator	Land Description SE/4, SE/4, NE/4, S24, T41N, R1W G&SR B&M
---	--



**CERTIFICATION**

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Name Ray W Shields

Position President

Company Shields Exploration Co.

Date December 15, 1986.

I hereby certify that the well location shown on the plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed 9-6-86

Registered Professional Engineer and/or Land Surveyor Philip L Drake

Certificate No. RLS 14946 AZ.

EXISTING AND		PROPOSED CASING PROGRAM		Sacks Cement		Type	
Size of Casing	Weight	Grade & Type	Top	Bottom	Cementing Depths		
10 3/4"	32#	H-40	0'	441'	441'	150	Halliburton
7"	23#	K-55	0'	2955'	2955'-2400'	110	" " "
4 1/2"	10.5#	J-55	0"	5400'est	5400' est.	100 sx	DOWELL



Form 3160-3  
(November 1983)  
(formerly 9-331C)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

ST. AZ 0/5 Gas Comm - Brennan Copy  
SUBMIT IN TRIPPLICATE\*  
(Other instructions on reverse side)  
Form approved.  
Budget Bureau No. 1004-0136  
Expires August 31, 1985

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK  
 DRILL       DEEPEN       PLUG BACK

b. TYPE OF WELL  
 OIL WELL       GAS WELL       OTHER EXPLORATORY       SINGLE ZONE       MULTIPLE ZONE

2. NAME OF OPERATOR  
 SHIELDS EXPLORATION COMPANY

3. ADDRESS OF OPERATOR  
 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)  
 At surface: 2970' from S line and 330' from E line, Sec 24, T41N-R1W  
 At proposed prod. zone: Approximately the same

5. LEASE DESIGNATION AND SERIAL NO.  
 A - 10457

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
 -----

7. UNIT AGREEMENT NAME  
 -----

8. FARM OR LEASE NAME  
 SHIELDS FEDERAL

9. WELL NO.  
 #12-24

10. FIELD AND POOL, OR WILDCAT  
 WHITE SAGE

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
 24, T41N-R1W, G&SRBM

12. COUNTY OR PARISH  
 COCONINO

13. STATE  
 ARIZONA

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*  
 12 Miles East of Fredonia, Arizona

15. DISTANCE FROM PROPOSED LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drig. unit line, if any)  
 2310'

16. NO. OF ACRES IN LEASE  
 2558.12

17. NO. OF ACRES ASSIGNED TO THIS WELL  
 80 A

18. DISTANCE FROM PROPOSED LOCATION TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.  
 SF 1-19A, 885'

19. PROPOSED DEPTH  
 5700'

20. ROTARY OR CABLE TOOLS  
 ROTARY

21. ELEVATIONS (Show whether DF, RT, GR, etc.)  
 GR 5040'

22. APPROX. DATE WORK WILL START\*  
 June 15, 1989

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
15"	10 3/4"	32.75#	441'	150 sx To Surface
9 5/8"	7"	23.00#	2960'	110 sx
6 1/2"	4 1/2" Proposed	10.50#	5400' Est.	100 sx Est.

CONFIDENTIALITY REQUESTED ON ALL DATA MATTER

To date, Recovered no commercial production of oil or gas to TD of 3183'. The Well has been pumped intermittently through 2 3/8" tubing set @ 3128' using Halliburton drillable packer. Interval open 3129' - 3183' TD. Recovery was fresh water with shows of oil and gas (Ref: Sundry Notices). Surface pump equipment has been removed and Well shut in on a temporary abandonment basis.

PLANS: To pull rods, downhole pump and tubing; drill up packer; clean out to present TD; and deepen, using 6 1/2" bit and air-foam or mud as determined. The Well will be oil/gas Exploratory and scheduled to sample and test the Devonian (top 3262') Martin and Cambrian (top 3719") Tonto group formations, and drill ahead to test the underlying Precambrian (top 5200' est.) Chuar group. A Blowout preventer will be installed prior to drilling out below current TD.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. SIGNED Raymond Shields TITLE PRESIDENT DATE May 1, 1989

(This space for Federal or State office use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Form 3160-5  
November 1983  
Formerly 9-331

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPPLICATE  
Other instructions  
verse side

Form approved  
Budget Bureau No. 1004-0125  
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>	5. LEASE DESIGNATION AND SERIAL NO. A-10457
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY	6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272	7. UNIT AGREEMENT NAME -----
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM	8. FARM OR LEASE NAME SHIELDS FEDERAL
14. PERMIT NO. AZ #859 API 02-005-20032	9. WELL NO. #12-24
15. ELEVATIONS (Show whether DF, ST, GR, etc.) GR 5040'	10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT
	11. SEC. T., R., M., OR BLK. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM
	12. COUNTY OR PARISH COCONINO
	13. STATE ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) Shut In - waiting on further Wk <input type="checkbox"/>	

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Last Report - 4/28/88: Pump stopped 4/5/88 to see if shut down improved results.

This Report - 6/ 9/88: Resumed pumping on 5/26/88, PM. Gas odor. No fluid rec. Ckd 5/27 AM. Flow Rate 17 gals/hr. (very low)... Rec. slite film of oily greasy material with very slite gas odor, balance water with oxide stain. 5/27 PM some shows o/g, bal. water. Flow rate as above. Pump shut down as out of gas. Shut Down May 28-30. Resumed pumping 5/31/88 PM. No fluid rec. Ckd 6/ 1/88 PM. Flow rate about 17 gals/hr. Water, slite odor. Metallic slick in bucket. Ck'd 6/2 - same. Ck'd 6/6. same. Made arrangements to move pump jack back to Farmington. Loaded out 6/8. Divd. yard in F. 6/9/88.

Downhole pump, rods and tubing left in hole pending further decisions. 7" csg cmtd @ 2960'. Drillable pkr set at 3128'. TD 3183'.

Also request approval to keep Storage Tank at location pending further evaluation of the 12-24 Well.

I hereby certify that the foregoing is true and correct  
SIGNED [Signature] TITLE PRESIDENT DATE June 9, 1988.

(This space for Federal or State office use)  
APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

This form is the property of the Bureau of Land Management and is loaned to you for your use only. It is to be returned to the Bureau of Land Management when you are no longer using it. Do not make any alterations or additions to this form without the approval of the Bureau of Land Management.

Form 3160-5  
November 1983  
Formerly 9-331)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPPLICATE\*  
(Other instructions on reverse side)

Form approved  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

**SUNDRY NOTICES AND REPORTS ON WELLS**  
(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR **SHIELDS EXPLORATION COMPANY** **MAY 2 1988**

3. ADDRESS OF OPERATOR **320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272** **O & G CONS. COMM.**

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.)  
At surface  
**SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM**

14. PERMIT NO. **AZ #859**  
**API 02-005-20032**

15. ELEVATIONS (Show whether OF, RT, CR, etc.)  
**GR 5040'**

5. LEASE DESIGNATION AND SERIAL NO.  
**A-10457**

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
-----

7. UNIT AGREEMENT NAME  
-----

8. FARM OR LEASE NAME  
**SHIELDS FEDERAL**

9. WELL NO.  
**#12-24**

10. FIELD AND POOL, OR WILDCAT  
**WHITE SAGE PROSPECT**

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
**Sec 24, T41N-R1W G&SRBM**

12. COUNTY OR PARISH | 13. STATE  
**COCONINO | ARIZONA**

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANE <input type="checkbox"/>	(Other) <b>PUMP TESTING</b>	
(Other) <input type="checkbox"/>		(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)	

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

4/28/88: Pump stopped on 4/5/88 to see if shut down would improve results.

18. I hereby certify that the foregoing is true and correct

SIGNED *Jay L. Shields* TITLE PRESIDENT DATE 4/28/88

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

This is Form 3160-5, Section 1061, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States a fraudulent statement or representation as to any matter within its jurisdiction.

Form 3160-5  
November 1983  
Formerly 9-331)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPPLICATE\*  
(Other instructions on re-  
verse side)

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. A-10457	
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----	
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME -----	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM		8. FARM OR LEASE NAME SHIELDS FEDERAL	
14. PERMIT NO. AZ #859 API 02-005-20032		9. WELL NO. #12-24	
15. ELEVATIONS (Show whether DT, ST, GR, etc.) GR 5040'		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT	
		11. SEC., T., R., N., OR BLK. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM	
		12. COUNTY OR PARISH COCONINO	13. STATE ARIZONA

RECEIVED  
MAR 21 1988

U & G CONS. CO. INC.

18. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	FULL OR ALTER CASING	WATER SHUT-OFF	REPAIRING WELL
FRACTURE TREAT	MULTIPLE COMPLETE	FRACTURE TREATMENT	ALTERING CASING
SHOOT OR ACIDIZE	ABANDON*	SHOOTING OR ACIDIZING	ABANDONMENT*
REPAIR WELL	CHANGE PLANS	(Other) PUMPING TEST	
(Other)		(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)	

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

LAST REPORT: 2/ 7/88 - Restarted pump 2/ 7/88 after shut down since 12/4/87 due to freezing and mechanical problems.

THIS REPORT: 3/17/88 - Pumping. Rec. shows oil plus fresh water. Turned to Tank. Belt protector installed. Plan to continue pumping. Will advise of any change.

19. I hereby certify that the foregoing is true and correct

SIGNED [Signature] TITLE PRESIDENT DATE MARCH 17, 1988

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY: \_\_\_\_\_

\*See Instructions on Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States Government, any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Form 3160-5  
November 1983  
Formerly 9-331

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPlicate\*  
(Other instructions on re-  
verse side)

Budget Bureau No. 1004-0135  
Expires August 31, 1985

5. LEASE DESIGNATION AND SERIAL NO.  
A-10457

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME  
SHIELDS FEDERAL

9. WELL NO.  
#12-24

10. FIELD AND POOL, OR WILDCAT  
WHITE SAGE PROSPECT

11. SEC., T., R., M., OR BLK. AND  
SURVEY OR AREA  
Sec 24, T41N-R1W G&SRBM

12. COUNTY OR PARISH 13. STATE  
COCONINO ARIZONA

SUNDRY NOTICES AND REPORTS ON WELLS  
(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR FEB 9 1988  
SHIELDS EXPLORATION COMPANY

3. ADDRESS OF OPERATOR U & G CONS. CO. INC.  
320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.\*  
See also space 17 below.)  
At surface  
SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM

14. PERMIT NO. AZ #859  
API 02-005-20032

15. ELEVATIONS (Show whether OF, AT, OR, etc.)  
GR 5040'

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other: <u>Pump Testing</u> ) <input type="checkbox"/>	

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

*A2 o/g Cons Comm*

Last Report: 11/30/87 Pump Problems. Freezing lines. Pump sticking.

This Report: 2/4/88 Pumping Unit stopped on 12/3/87. Serious breakdown of pump machinery. No parts available. Decided to shut down during extreme winter weather. Repair pump in early 1988.

Pump repaired on 2/4/88. Prepare to start pumping.

*2/7/88 Pump started. water and shows of oil in 1st Recovery. @ 12:30 PM.*

18. I hereby certify that the foregoing is true and correct

SIGNED \_\_\_\_\_ TITLE PRESIDENT DATE 2/7/88

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

This form is a Department of the Interior, makes it a crime for any person knowingly and willfully to make to any department or agency of the Department of the Interior, any false statement or representation as to any matter within the purview of the Department of the Interior.

Form 3160-5  
November 1983  
Formerly 9-331

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPPLICATE  
(Other instructions on re-  
verse side)

Form approved  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

**SUNDRY NOTICES AND REPORTS ON WELLS**  
(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL  GAS WELL  OTHER  FEB 9 1988

2. NAME OF OPERATOR  
SHIELDS EXPLORATION COMPANY U & G CONS. CORP.

3. ADDRESS OF OPERATOR  
320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.)  
At surface  
SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM

14. PERMIT NO. AZ #859  
API 02-005-20032

15. ELEVATIONS (Show whether DP, RT, GR, etc.)  
GR 5040'

5. LEASE DESIGNATION AND SERIAL NO.  
A-10457

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
-----

7. UNIT AGREEMENT NAME  
-----

8. FARM OR LEASE NAME  
SHIELDS FEDERAL

9. WELL NO.  
#12-24

10. FIELD AND POOL, OR WILDCAT  
WHITE SAGE PROSPECT

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
Sec 24, T41N-R1W G&SRBM

12. COUNTY OR PARISH  
COCONINO

13. STATE  
ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	FULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <u>Pump Testing</u>	

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Last Report: 11/30/87 Pump Problems. Freezing lines. Pump sticking.

This Report: 2/4/88 Pumping Unit stopped on 12/3/87. Serious breakdown of pump machinery. No parts available. Decided to shut down during extreme winter weather. Repair pump in early 1988.

Pump repaired on 2/4/88. Prepare to start pumping.

*2/7/88 Pump start @ 12:30 PM  
Recovered water + shows oil*

18. I hereby certify that the foregoing is true and correct

SIGNED Jay M. Shields TITLE PRESIDENT DATE 2/4/88

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

Section 1901, makes it a crime for any person knowingly and willfully to make to any department or agency of the Department of the Interior any false statement or representation as to any matter within its jurisdiction.

Form 3160-5  
November 1983  
Formerly 9-331

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPPLICATE  
(Other instructions on reverse side)

Form approved  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS  
(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL  GAS WELL  OTHER   
2. NAME OF OPERATOR **SHIELDS EXPLORATION COMPANY**  
3. ADDRESS OF OPERATOR **320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272**  
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.  
See also space 17 below.)  
At surface  
**SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM**

5. LEASE DESIGNATION AND SERIAL NO.  
**A-10457**  
6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
-----  
7. UNIT AGREEMENT NAME  
-----  
8. FARM OR LEASE NAME  
**SHIELDS FEDERAL**  
9. WELL NO.  
**#12-24**  
10. FIELD AND POOL, OR WILDCAT  
**WHITE SAGE PROSPECT**  
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
**Sec 24, T41N-R1W G&SRBM**  
12. COUNTY OR PARISH **COCONINO** 13. STATE **ARIZONA**

14. PERMIT NO. **AZ #859**  
**API 02-005-20032**  
15. ELEVATIONS (Show whether DF, RT, GR, etc.)  
**GR 5040'**

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <u>Pump Testing</u>	

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Last Report: 10/31/87 - Pulled rods & pump. Treated Well. Installed Tank. Turned Well to Tank 10/20. Producing water plus small amount oil and treatment fluid.

This Report: 11/30/87 - Downhole Pump sticking. Well shut in 11/9 thru 11/18. Pulled pump loose using light rig on 11/19. Treated with small amt. treatment fluid. Reset pump. Recovery mostly water, some fluid emulsion and oil. Line to Tank frozen 11/22. Ran line to reserve pit 11/23 - Pump rate 30 gals/hr. Recovery mostly water, some fluid emulsion and skim of oil. No increase in fluid recovery.

18. I hereby verify that the foregoing is true and correct

SIGNED [Signature] TITLE PRESIDENT DATE Nov. 30, 1987

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

Form 3160-5  
November 1983  
Formerly 9-331

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPlicate  
(Other instructions re-  
verse side)

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. A-10457	
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN ALLOTTEE OR TRIBE NAME	
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM		8. FARM OR LEASE NAME SHIELDS FEDERAL	
14. PERMIT NO. AZ #859 API 02-005-20032		9. WELL NO. #12-24	
15. ELEVATIONS (Show whether DV, NY, CR, etc.) GR 5040'		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT	
		11. SEC., T., R., M., OR B.L.R. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM	
		12. COUNTY OR PARISH COCONINO	
		13. STATE ARIZONA	

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	FULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <u>Pump Testing</u> <input type="checkbox"/>	

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Last Report: 9/30/87 - Last pumping 9/10. Same Fluid. Shut In.

This Report: 10/31/87- Moved in Dowell-Schlumberger and Spartan Drilling and Installed 17½' tall, 9" diameter tank (cap. about 200 bbls) on October 16. Rigged up and pulled pump and rods. Dowell then treated Well. Re-ran pump and rods, then shut well in. Graded area and enlarged Reserve Pit as per instructions. Tank was sited on gravel base 60' east of Well. Started pumping operations and turned to tank on October 20. Pump rate approx. 36 gph. Recovered some treatment fluid and oil, mostly water. Current production water plus small amt. oil. Well checked and water released to reserve pit every other day weather permitting.

18. I hereby certify that the foregoing is true and correct

SIGNED

*[Signature]*

TITLE PRESIDENT

DATE Oct. 31, 1987

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

Form 3160-5  
November 1983)  
Formerly 9-331)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE\*  
(Other instructions on re-  
verse side)

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

5. LEASE DESIGNATION AND SERIAL NO.  
A-10457

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
-----

7. UNIT AGREEMENT NAME  
-----

8. FARM OR LEASE NAME  
SHIELDS FEDERAL

9. WELL NO.  
#12-24

10. FIELD AND POOL, OR WILDCAT  
WHITE SAGE PROSPECT

11. SEC., T., R., M., OR BLK. AND  
SURVEY OR AREA  
Sec 24, T41N-R1W G&SRBM

12. COUNTY OR PARISH  
COCONINO

13. STATE  
ARIZONA

SUNDRY NOTICES AND REPORTS ON WELLS  
(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL  GAS WELL  OTHER  DATE: OCT 7 1987

2. NAME OF OPERATOR  
SHIELDS EXPLORATION COMPANY O & G COM. COMM.

3. ADDRESS OF OPERATOR  
320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.  
See also space 17 below.)  
At surface  
SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM

14. PERMIT NO. AZ #859  
API 02-005-20032

15. ELEVATIONS (Show whether DF, RT, GR, etc.)  
GR 5040'

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>	

(Other) Pump Testing

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

LAST REPORT: 8/87 : Pumping intermittently. Some shows. 30gph Pump rate.

THIS REPORT: 9/30/87: Shut In. Last pumping 9/8-9/10. Same fluid (water)- shows 0/G- No pressure- Steady 30 gph Pump rate.

We are now preparing to treat Well for emulsion block Will use small rig (Spartan Drig.) to pull rods and downhole pump and to swab; Dowell pump truck for treating procedures. The diesel oil and surfactants used should mix with downhole fluids. We will be prepared for any formation oil.

ESTIMATED START-UP TIME: OCTOBER 15, 1987.

We will update this Sundry Notice by telephone. to confirm the October 15 start, both to the BLM and to the Arizona Oil & Gas Commission.

18. I hereby certify that the foregoing is true and correct  
SIGNED [Signature] TITLE PRESIDENT DATE SEPTEMBER 30, 1987.

(This space for Federal or State office use)  
APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Form 3160-5  
November 1983  
Formerly 9-331)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPlicate  
(Other instructions  
verse side)

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985  
LEASE DESIGNATION AND SERIAL NO.  
A-10457

**SUNDRY NOTICES AND REPORTS ON WELLS**

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		7. UNIT AGREEMENT NAME -----
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		8. FARM OR LEASE NAME SHIELDS FEDERAL
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM		9. WELL NO. #12-24
14. PERMIT NO. AZ #859 API 02-005-20032		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT
15. ELEVATIONS (Show whether OP, RT, GR, etc.) GR 5040'		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM
		12. COUNTY OR PARISH COCONINO
		13. STATE ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>	
(Other) PUMP TESTING <input type="checkbox"/>		(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)	

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

LAST REPORT: 6/ 6/87 - Pumping at 30 gph rate.

THIS REPORT: 7/13/87 - Continued pumping until June 20th  
Recovery same as last Report.

Shut pump down on June 20th to see if oil might work its way thru the water and into the Well bore. A recent Laboratory Test of fluid recovered from the flow line before shutdown indicates a fresh water quite high in sulphates.

We plan to resume pumping on Thursday, July 16 and will keep the BLM advised of the results.

RECEIVED  
JUL 23 1987  
O & G CONS. COMM.

18. I hereby certify that the foregoing is true and correct

SIGNED [Signature] TITLE PRESIDENT DATE 7/13/87

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

Title to U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

November 1983)  
Formerly 9-331)

UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

Submit in triplicate\*  
(Other instructions on reverse side)

Expires August 31, 1985

3. LEASE DESIGNATION AND SERIAL NO.  
A-10457 #859

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME  
SHIELDS FEDERAL

9. WELL NO.  
#12-24

10. FIELD AND POOL, OR WILDCAT  
WHITE SAGE PROSPECT

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
Sec 24, T41N-R1W G&SRBM

12. COUNTY OR PARISH 13. STATE  
COCONINO ARIZONA

SUNDRY NOTICES AND REPORTS ON WELLS  
(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR  
SHIELDS EXPLORATION COMPANY

3. ADDRESS OF OPERATOR  
320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.)  
At surface  
SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM

14. PERMIT NO. AZ #859  
API 02-005-20032

15. ELEVATIONS (Show whether DT, ST, CR, etc.)  
GR 5040'

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF  
FRACTURE TREAT  
SHOOT OR ACIDIZE  
REPAIR WELL  
(Other) PUMP TEST

PULL OR ALTER CASING  
MULTIPLE COMPLETE  
ABANDON\*  
CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF  
FRACTURE TREATMENT  
SHOOTING OR ACIDIZING  
(Other)

REPAIRING WELL  
ALTERING CASING  
ABANDONMENT\*

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

LAST REPORT: 5/19/87 Pumping @ rate of 30gph

THIS REPORT: 6/ 6/86 Continue Pumping @ 30gph rate. Recovering water which entered formation probably during drilling & treating.

18. I hereby certify that the foregoing is true and correct

SIGNED

TITLE PRESIDENT

DATE

6/8/87

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States a false statement or representation as to any matter within the jurisdiction of such department or agency.

Form 3160-5  
November 1983  
Formerly 9-331

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPlicate  
(Other instructions on reverse side)

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

**SUNDRY NOTICES AND REPORTS ON WELLS**  
(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>	5. LEASE DESIGNATION AND SERIAL NO. A-10457
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY	6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272	7. UNIT AGREEMENT NAME -----
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM	8. FARM OR LEASE NAME SHIELDS FEDERAL
14. PERMIT NO. A7 #859 API 02-005-20032	9. WELL NO. #12-24
15. ELEVATIONS (Show whether DP, ST, CR, etc.) GR 5040'	10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT
	11. SEC., T., R., M., OR BLE. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM
	12. COUNTY OR PARISH COCONINO
	13. STATE ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>	

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

LAST REPORT: 5/4/87 - Installed pump. Pumping.

THIS REPORT: 5/19/87 - Continuing to pump @ rate of approximately 30 gal/hour.  
Recovered spent acid water. Some oil shows.  
Built fence around pumping unit.

18. I hereby certify that the foregoing is true and correct

SIGNED

(This space for Federal or State office use)

APPROVED BY

CONDITIONS OF APPROVAL, IF ANY:

TITLE PRESIDENT

DATE 5/19/87

TITLE

DATE 5-19-87

O & G CONS. COMM.

\*See Instructions on Reverse Side

Form 3160-5  
November 1983)  
Formerly 9-331)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPlicate\*  
(Other instructions  
verse side)  
MAY 6 1987

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

**SUNDRY NOTICES AND REPORTS ON WELLS**  
(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR  
SHIELDS EXPLORATION COMPANY

3. ADDRESS OF OPERATOR  
320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.\*  
See also space 17 below.)  
At surface  
SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM

14. PERMIT NO. AZ #859  
API 02-005-20032

15. ELEVATIONS (Show whether DV, ST, CR, etc.)  
GR 5040'

5. LEASE DESIGNATION AND SERIAL NO.  
A-10457

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
-----

7. UNIT AGREEMENT NAME  
-----

8. FARM OR LEASE NAME  
SHIELDS FEDERAL

9. WELL NO.  
#12-24

10. FIELD AND POOL, OR WILDCAT  
WHITE SAGE PROSPECT

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
Sec 24, T41N-R1W G&SRBM

12. COUNTY OR PARISH  
COCONINO

13. STATE  
ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>	

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

Last Report: 4/21/87 - Plan to install Pump. Pkr @ 3130'. PBD 3180'.

This Report: Second acid job (Dowell) on 4/22/87. 50 bbls of 15% HCl + MSR. Put away as planned with KCl water. Pulled pkr. Ran in with Halliburton E-Z Drill permanent pkr. Set @ 3128'. Fluid 1600'. Swabbed down. 4/24/87 - Swabbed 4 runs, recovered spent acid & KCl. SI over weekend for rig change. 4/27 - Installed small swab unit. Swabbed down. Rec. spent acid - swabbed 4 times daily 4/28 - 5/1. Rec. spent acid, some oil shows.

5/2..... Rugged Pumping Unit - Started pumping 2:00 P.M. 25 gal/hr. Gd shows.  
5/3..... Repaired Pump Unit. Pumped excellent oil-gas shows.  
5/4..... Pumping - Shows oil/gas. Rate 30 gal/hour

Will keep you advised.

18. I hereby certify that the foregoing is true and correct

SIGNED [Signature] TITLE PRESIDENT DATE 5/4/87

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

Title 18, U.S.C. Section 1031, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations or to any matter within the jurisdiction of such department or agency.

Form 3160-5  
November 1983)  
Formerly 9-331)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLE  
(Other instructions  
verse side)

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. A-10457	
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----	
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME -----	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM		8. FARM OR LEASE NAME SHIELDS FEDERAL	
14. PERMIT NO. AZ #859 API 02-005-20032		9. WELL NO. #12-24	
15. ELEVATIONS (Show whether DF, RT, CR, etc.) GR 5040'		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT	
		11. SEC., T., R., M., OR BLM. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM	
		12. COUNTY OR PARISH COCONINO	13. STATE ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <input type="checkbox"/>	

(Other) Testing Program

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Last Report: 4/6/87 - Plans for Testing SF 12-24

This Report: Moved in Completion Rig (Spartan) 4/8/. Attached Wellhead fittings to 7" csg incl. 2 3/8" Tubing Hanger, BOP and blooie line. Rigged swab assembly. Removed protective sand in 7" csg with hydraulic pump. Cleaned out bridging with sawtooth bit. DST of A & B dolomite zones. Cleaned out sand to bottom - 3183'. DST D Zone. Perf'd open hole (Schlumberger) 4 shots per foot. Acidized (Dowell) 3000 gals 17% Hcl + Kcl + MSR. Put acid away @ normal pressures. Swabbed acid water & considerable foam. April 20 - Prep to install Pumping Equipment. Pkr @ 3130'. PBD 3180'.

Will keep you advised by telephone.  
HQ Parry Lodge: 801/644-2601.

18. I hereby certify that the foregoing is true and correct.

SIGNED Jay M. Shields TITLE PRESIDENT DATE April 21, 1987

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

X 859

\*See Instructions on Reverse Side

Form 3160-5  
November 1983  
Formerly 9-331)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPPLICATE  
(Other instructions  
verse side)

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM		5. LEASE DESIGNATION AND SERIAL NO. A-10457		6. IF INDIAN ALLOTTEE OR TRIBE NAME -----		7. UNIT AGREEMENT NAME -----		8. FARM OR LEASE NAME SHIELDS FEDERAL		9. WELL NO. #12-24		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM	
14. PERMIT NO. AZ #859 API 02-005-20032		15. ELEVATIONS (Show whether OF, NT, OR, etc.) GR 5040'		12. COUNTY OR PARISH COCONINO		13. STATE ARIZONA															

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	<input type="checkbox"/>	PULL OR ALTER CASING	<input type="checkbox"/>	WATER SHUT-OFF	<input type="checkbox"/>	REPAIRING WELL	<input type="checkbox"/>
FRACTURE TREAT	<input type="checkbox"/>	MULTIPLE COMPLETE	<input type="checkbox"/>	FRACTURE TREATMENT	<input type="checkbox"/>	ALTERING CASING	<input type="checkbox"/>
SHOOT OR ACIDIZE	<input type="checkbox"/>	ABANDON*	<input type="checkbox"/>	SHOOTING OR ACIDIZING	<input type="checkbox"/>	ABANDONMENT*	<input type="checkbox"/>
REPAIR WELL	<input type="checkbox"/>	CHANGE PLANS	<input type="checkbox"/>	(Other)	<input type="checkbox"/>		
(Other) Run Testing Program	<input type="checkbox"/>			(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

Last Report: TD 3183', 7" Csg @ 2958'. Completed drlg & prelim testing on 1/19/87. Well shut in and T/A. WO Completion Rig.

This Report: Moving in Completion Rig (Spartan Drilling, Farmington, N.M.) on April 9. Will attach tubing Hanger to 7" csg and Well Head fittings including BOP and Blooie Line and run in with 2 3/8" Tubing and bailer to clean out sand.

Prep to test below 2958'

Will keep you advised by telephone. HQ @ Parry Lodge, Kanab, Utah, Telephone: 801/644-2601.

18. I hereby certify that the foregoing is true and correct

SIGNED Jay M. Shields TITLE PRESIDENT DATE April 6, 1987

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

X - 859

\*See Instructions on Reverse Side

This is Form 3160-5, Section 1901, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States a false or fraudulent statement or representation as to any matter within its jurisdiction.

Form 3160-5  
November 1983  
Formerly 9-331)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLE COPY  
(Other instructions on reverse side)

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

**SUNDRY NOTICES AND REPORTS ON WELLS**  
(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1.  OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR  
SHIELDS EXPLORATION COMPANY

3. ADDRESS OF OPERATOR  
320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.\*  
See also space 17 below.)  
At surface  
SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM

14. PERMIT NO. AZ #859  
API 02-005-20032

15. ELEVATIONS (Show whether DP, ST, GR, etc.)  
GR 5040'

5. LEASE DESIGNATION AND SERIAL NO.  
A-10457

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
-----

7. UNIT AGREEMENT NAME  
-----

8. FARM OR LEASE NAME  
SHIELDS FEDERAL

9. WELL NO.  
#12-24

10. FIELD AND POOL, OR WILDCAT  
WHITE SAGE PROSPECT

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
Sec 24, T41N-R1W G&SRBM

12. COUNTY OR PARISH  
COCONINO

13. STATE  
ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PLUG OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <u>UPDATE</u> <input checked="" type="checkbox"/>	

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

Well SF 12-24: Operations to re-commence on Tuesday, Jan. 13, 1987.

UPDATE:

Well was drilled from previous TD (12/24/86) of 3110' to 3183' grd level. DST #1 with pkr OH set @ 3080' - 3110'. Recovery - small amt. water. DST #2 - unsuccessful. DST #3 with pkr OH set @ 3141' - 3183'. Recover - 60' of water. Released Rig 2 AM, January 16, 1987. Welded plate on 7" csg pending return with completion rig.

Request permission for Temporary Abandonment of Well SF 12-24. Estimate start-up by February 25, 1987 weather permitting.

18. I hereby certify that the foregoing is true and correct  
SIGNED [Signature] TITLE PRESIDENT DATE Jan. 21, 1987  
(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

X 859

\*See Instructions on Reverse Side

Form 3160-5  
November 1983  
Formerly 9-331)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIP DATE  
(Other instructions on reverse side)

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS  
(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR  
SHIELDS EXPLORATION COMPANY

3. ADDRESS OF OPERATOR  
320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.\*  
See also space 17 below.)  
At surface  
SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM

14. PERMIT NO. AZ #859  
API 02-005-20032

15. ELEVATIONS (Show whether OF, RT, GR, etc.)  
GR 5040'

5. LEASE DESIGNATION AND SERIAL NO.  
A-10457

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
-----

7. UNIT AGREEMENT NAME  
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8. FARM OR LEASE NAME  
SHIELDS FEDERAL

9. WELL NO.  
#12-24

10. FIELD AND POOL, OR WILDCAT  
WHITE SAGE PROSPECT

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
Sec 24, T41N-R1W G&SRBM

12. COUNTY OR PARISH  
COCONINO

13. STATE  
ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input checked="" type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANE <input type="checkbox"/>	(Other) UPDATE	

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

Well SF 12-24: Temporary suspension of operations. TD 3110'.

UPDATE: Due to severe weather conditions, current plans will be to start testing and drilling operations on Tuesday, January 13, 1987.

18. I hereby certify that the foregoing is true and correct

SIGNED [Signature] TITLE PRESIDENT DATE January 7, 1987

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

X 859

\*See Instructions on Reverse Side

Form 3160-5  
November 1983  
Formerly 9-331

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPlicate  
(Other instructions on  
reverse side)

Form approved  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

5. LEASE DESIGNATION AND SERIAL NO.  
A-10457

6. IF INDIAN ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

SHIELDS FEDERAL

9. WELL NO.

#12-24

10. FIELD AND POOL, OR WILDCAT

WHITE SAGE PROSPECT

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA

Sec 24, T41N-R1W G&SRBM

SUNDRY NOTICES AND REPORTS ON WELLS  
(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL  GAS WELL  OTHER

RECEIVED  
DEC 31 1986

2. NAME OF OPERATOR

SHIELDS EXPLORATION COMPANY

O & G CONS. COMM.

3. ADDRESS OF OPERATOR

320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.  
See also space 17 below.)  
At surface

SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM

14. PERMIT NO. AZ #859  
API 02-005-20032

15. ELEVATIONS (Show whether OF, RT, GR, etc.)  
GR 5040'

12. COUNTY OR PARISH 13. STATE  
COCONINO ARIZONA

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF   
FRACTURE TREAT   
SHOOT OR ACIDIZE   
REPAIR WELL   
(Other)

FULL OR ALTER CASING   
MULTIPLE COMPLETE   
ABANDON\*   
CHANGE PLUG

SUBSEQUENT REPORT OF:

WATER SHUT-OFF   
FRACTURE TREATMENT   
SHOOTING OR ACIDIZING   
(Other)

REPAIRING WELL   
ALTERING CASING   
ABANDONMENT\*

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Attached are copies of the new SURVEY PLAT showing the revised Location of the Shields Federal #12-24 Well as discussed previously.

UPDATE: Following the drilling out and testing of the cement job on the 7" Casing set @ 2955' (Halliburton), the Well was drilled ahead in limestone and dolomite using a 6 1/8" bit to 3070'. Well was then cored using a Christiansen diamond bit 3070'-3075'. Recovery 5 feet. Drilling continued to 3110' where operations were suspended on December 22nd temporarily. Drilling will be continued shortly and details communicated by telephone.

HOLIDAY GREETINGS TO THE BLM AND AZ O & G CONS. COMMISSION

18. I hereby certify that the foregoing is true and correct

SIGNED

(This space for Federal or State office use)

TITLE PRESIDENT

DATE December 27, '86

APPROVED BY

CONDITIONS OF APPROVAL, IF ANY:

TITLE

DATE

\*See Instructions on Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Form 3160-5  
November 1983)  
Formerly 9-331)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE  
(Other instructions  
verse side)

Form approved.  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. A-10457	
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----	
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME -----	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM		8. FARM OR LEASE NAME SHIELDS FEDERAL	
14. PERMIT NO. AZ #859 API 02-005-20032		9. WELL NO. #12-24	
15. ELEVATIONS (Show whether of, ft., or, etc.) GR 5040'		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT	
		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM	
		12. COUNTY OR PARISH COCONINO	
		13. STATE ARIZONA	

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input checked="" type="checkbox"/>	(Other) <input type="checkbox"/>	

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

As discussed by telephone, the S F #12-24 Well Location has been changed from the C SE/4 NE/4 Sec 24, T41N-R1W, Coconino County, Arizona to the SE/4 SE/4 NE/4 (330' from East line and 2970' from the South line) of Sec24, T41N-R1W, Coconino County, Arizona. A Plat Map Survey of the New Location will be forwarded when received. The Plat form will also show a change in surface casing to 10 3/4" set at 430'.

According to present plans, the SF #12-24 Well is scheduled to commence drilling on or about December 1, 1986.

18. I hereby certify that the foregoing is true and correct

SIGNED Joyce Shields TITLE PRESIDENT DATE Nov 29, 86

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions on Reverse Side

Form 3160-5  
November 1983  
Formerly 9-331)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLE  
(Other instructions  
verse side)

Form approved  
Budget Bureau No. 1004-0135  
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. A-10457	
2. NAME OF OPERATOR SHIELDS EXPLORATION COMPANY		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----	
3. ADDRESS OF OPERATOR 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272		7. UNIT AGREEMENT NAME -----	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface SE/4 SE/4 NE/4, Sec 24, T41N-R1W G&SRBM		8. FARM OR LEASE NAME SHIELDS FEDERAL	
14. PERMIT NO. AZ #859 API 02-005-20032		9. WELL NO. #12-24	
15. ELEVATIONS (Show whether DF, ST, CR, etc.) GR 5040'		10. FIELD AND POOL, OR WILDCAT WHITE SAGE PROSPECT	
		11. SEC., T., R., M., OR BLM. AND SURVEY OR AREA Sec 24, T41N-R1W G&SRBM	
		12. COUNTY OR PARISH COCONINO	
		13. STATE ARIZONA	

RECEIVED  
DEC 12 1986

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <u>UPDATE</u> <input type="checkbox"/>	

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

#2: Well #12-24 Spudded 2:20 P.M. on 12/2/86. Drilled 15" hole to 451'. Ran and Cemented (Halliburton) 10 3/4" surface casing at 441'. Bumped plug at 9:00 P.M. on Dec. 4. Standing cemented 18 hours. Drilled out and drilled ahead on Dec. 5 P.M..

Drill depth this morning (Dec. 9) 1600'. Dusting.

Plan to run 7" csg. above zone at 2950'±. Estimate running csg Dec. 13th.

WILL KEEP YOU ADVISED BY TELEPHONE.

18. I hereby certify that the foregoing is true and correct

SIGNED

*Jay Shields*

TITLE PRESIDENT

DATE Dec. 9, 1986

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

\*See instructions on Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

**SUNDRY NOTICES AND REPORTS ON WELLS**

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well  gas well  other

2. NAME OF OPERATOR  
SHIELDS EXPLORATION COMPANY

3. ADDRESS OF OPERATOR  
320 BELLINO DRIVE, PACIFIC PALISADES, CA90272

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)  
Center SE/4 NE/4  
AT SURFACE: Sec 24, T41N-R1W G&SRBM  
AT TOP PROD. INTERVAL:  
AT TOTAL DEPTH:

5. LEASE  
A-10457

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
-----

7. UNIT AGREEMENT NAME  
-----

8. FARM OR LEASE NAME  
SHIELDS FEDERAL

9. WELL NO.  
#12-24

10. FIELD OR WILDCAT NAME  
WHITE SAGE PROSPECT

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
Sec 24, T41N-R1W G&SRBM

12. COUNTY OR PARISH  
COCONINO

13. STATE  
ARIZONA

14. API NO.  
-----

15. ELEVATIONS (SHOW DF, KDB, AND WD)  
5026'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	<input type="checkbox"/>	<input type="checkbox"/>
FRACTURE TREAT	<input type="checkbox"/>	<input type="checkbox"/>
SHOOT OR ACIDIZE	<input type="checkbox"/>	<input type="checkbox"/>
REPAIR WELL	<input type="checkbox"/>	<input type="checkbox"/>
PULL OR ALTER CASING	<input type="checkbox"/>	<input type="checkbox"/>
MULTIPLE COMPLETE	<input type="checkbox"/>	<input type="checkbox"/>
CHANGE ZONES	<input type="checkbox"/>	<input type="checkbox"/>
ABANDON*	<input type="checkbox"/>	<input type="checkbox"/>
(other) SUPPLEMENTARY DATA - APP		

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)  
At the request of the BLM, the following and attached data are provided as a Supplement to the SHIELDS EXPLORATION CO. APPLICATION TO DRILL WELL #12-24.

1) Pressure Control Equipment: (see BOP Schematic attached)  
Equipment will be installed before drilling out of surf. casing (annular-type preventer) and tested to 50% of related working pressure. Similar tests will be made prior to drlg out of each csg shoe and at least every 30 days. A rotating head will be used for air drilling from surface to TD

Paragraphs 2, 3 and 4 are on next page -

18. I hereby certify that the foregoing is true and correct  
SIGNED [Signature] TITLE President DATE 10/13/86

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

10/13/86 Page 2  
Addendum to Fed  
& State Drlg App.

**SHIELDS EXPLORATION CO.**  
320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

SUPPLEMENTARY DATA - APD: (continued)

2) CASING AND CEMENTING:

7" Casing will be cemented, if possible, to a point above the expected water zone at 1700' +/- . During drilling, an attempt will be paid, if possible, to squeeze off the water zone in open hole using Halliburton.

9 5/8" casing will be cemented to surface, and ALL csg strings will be tested to 1000 psi prior to drilling cement plugs. A WSO will be run after drilling plug and shoe of 7" casing.

3) AIR DRILLING MEASURES:

As all drilling is planned using air and a rotating head, a blooie line of approx. 125' will be laid from the wellhead and at an angle to the prevailing winds. A flame will be used when practical. Air Compressors and Booster will be located a minimum of 125' from the wellhead.

Sufficient mud and water will be on standby, and depending on their schedule, a Halliburton pump truck in addition to the standard rig pumping equipment.

4) DRILLING COMPANY & EQUIPMENT:

As noted in the Permit Application, we will have the same Driller (K-P Drilling Co.) and Rig as used in the successful drilling of the offsetting Shields Federal #2-19 Well

APPLICATION FOR PERMIT TO DRILL OR RE-ENTER

APPLICATION TO DRILL

RE-ENTER OLD WELL

RECEIVED

SEP 18 1986

SHIELDS EXPLORATION COMPANY

NAME OF COMPANY OR OPERATOR

O & G CONS. COMM.

320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

Address

City

State

K - P DRILLING CO., MR. TOM MILNE, PRESIDENT

Drilling Contractor

P. O. BOX 202, CASPER, WYOMING 82602

Address

DESCRIPTION OF WELL AND LEASE

Federal, State or Indian Lease Number, or if fee lease, name of lessor <b>FEDERAL O/G LEASE #A10457</b>	Well number <b>SF #12-24</b>	Elevation (ground) <b>5026'</b>
Nearest distance from proposed location to property or lease line: <b>4390 feet</b>	Distance from proposed location to nearest drilling, completed or applied--for well on the same lease: <b>1000 feet</b>	
Number of acres in lease: <b>2558.12 Acres</b>	Number of wells on lease, including this well, completed in or drilling to this reservoir: <b>TWO</b>	
If lease, purchased with one or more wells drilled, from whom purchased: Name _____ Address _____		
Well location (give footage from section lines) <b>3300' f SL and 660' f EL</b>	Section--township--range or block and survey <b>24 41N 1W G&amp;SRBM</b>	Dedication (Comply with Rule 105) <b>80 Acres (SE 1/4, NE 1/4)</b>
Field and reservoir (if wildcat, so state) <b>WILDCAT</b>	County <b>COCONINO</b>	
Distance in miles, and direction from nearest town or post office <b>FREDONIA IS 12 MILE WEST OF SITE</b>		
Proposed depth: <b>3100' - 3700'</b>	Rotary or cable tools <b>ROTARY</b>	Approx. date work will start <b>OCTOBER 5, 1986</b>
Bond Status <b>ON FILE</b>	Organization Report	Filing Fee of \$25.00
Amount <b>\$25,000.00</b>	On file _____ Or attached <input checked="" type="checkbox"/>	Attached <input checked="" type="checkbox"/>

Remarks:

Plan to set Surface csg @ approx. 450' (9 5/8") and cement with Halliburton. Then attach BOP. Drill to 2900' and run and cmt 7" csg (intermediate string) and test for WSO (HALLIBURTON). Drill out into Dolomite target zone and test. Log (SCHLUMBERGER) and complete thru 4 1/2" csg as needed.

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the PRESIDENT of the

SHIELDS EXPLORATION COMPANY (company), and that I am authorized by said company to make this report, and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Signature

*Jay M Shields*  
Date **SEPTEMBER 15, 1986**

Permit Number: 859

Approval Date: 9/15/86

Approved By: R. G. YANA

Notice: Before sending in this form be sure that you have given all information requested. Much unnecessary correspondence will thus be avoided.

STATE OF ARIZONA  
OIL & GAS CONSERVATION COMMISSION  
Application to Drill or Re-enter  
File Two Copies

Form No. 3

(Complete Reverse Side)

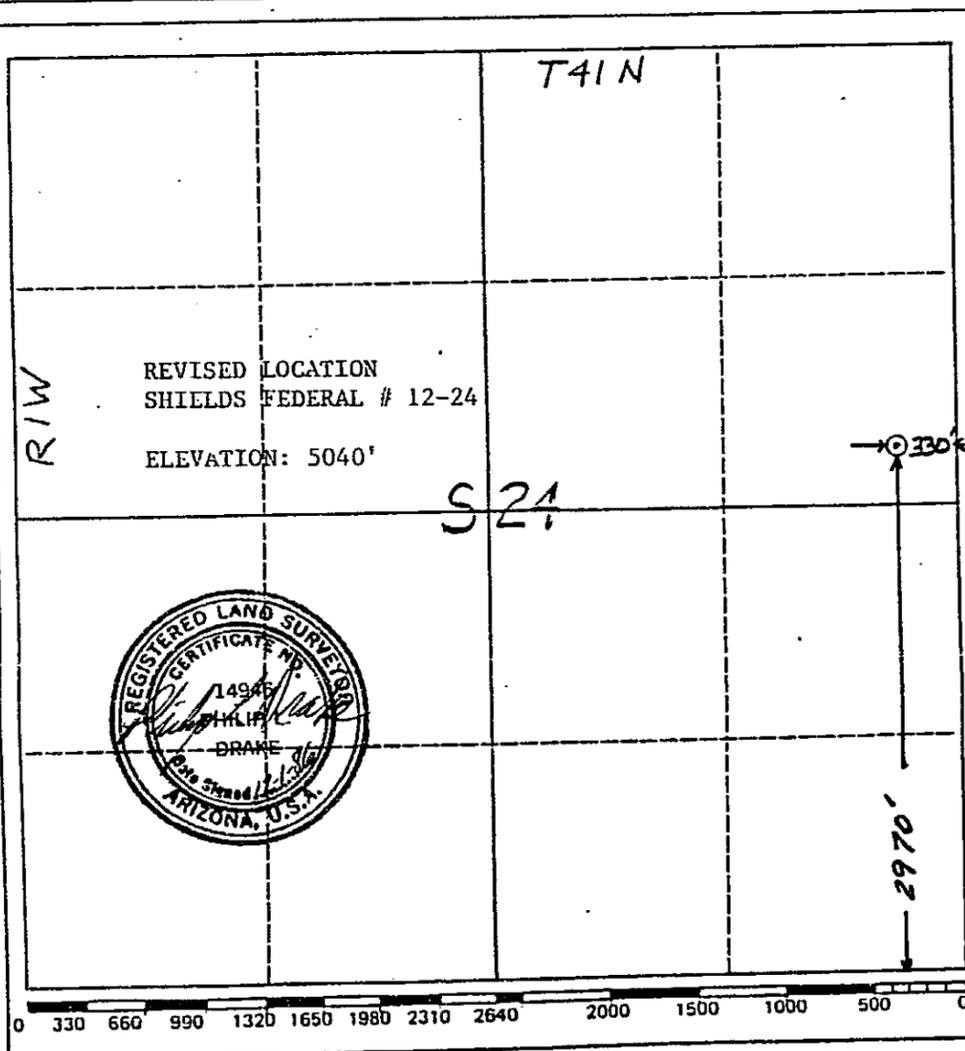
- Operator shall outline the dedicated acreage for both oil and gas wells on the plat.
- A registered professional engineer or land surveyor registered in the State of Arizona or approved by the Commission shall show on the plat the location of the well and certify this information in the space provided.
- ALL DISTANCES SHOWN ON THE PLAT MUST BE FROM THE OUTER BOUNDARIES OF THE SECTION.
- Is the Operator the only owner in the dedicated acreage outlined on the plat below? YES \_\_\_\_\_ NO X .
- If the answer to question four is "no," have the interests of all the owners been consolidated by communitization agreement or otherwise? YES X NO \_\_\_\_\_. If answer is "yes," Type of Consolidation Limited Partnerships
- If the answer to question four is "no," list all the owners and their respective interests below:

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DEC 31 1986

O & G CONS. COMM.

Owner SHIELDS 1981 PROGRAM	Land Description SE/4, SE/4, NE/4, S24, T41N, R1W
Shields Exploration Co. General Partner & Operator	G&SR B&M



CERTIFICATION

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Name Joseph H. Shields  
Position President  
Company Shields Exploration Co.  
Date December 15, 1986.

I hereby certify that the well location shown on the plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed 9-6-86  
Registered Professional Engineer and/or Land Surveyor  
Philip L. Drake

Certificate No. RLS 14946 AZ.

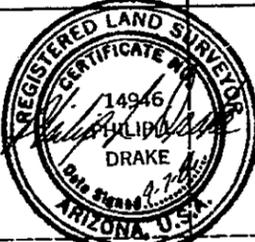
PROPOSED CASING PROGRAM

Size of Casing	Weight	Grade & Type	Top	Bottom	Cementing Depths	Sacks Cement	Type
10 3/4"	32#	H-40	0'	441'	441'	150	Halliburton
7"	23#	K-55	0'	2955'	2955'-2400#-	110	" " "

- Operator shall outline the dedicated acreage for both oil and gas wells on the plat.
- A registered professional engineer or land surveyor registered in the State of Arizona or approved by the Commission shall show on the plat the location of the well and certify this information in the space provided. RECEIVED  
SEP 18 1986  
O & G CONS. COMM.
- ALL DISTANCES SHOWN ON THE PLAT MUST BE FROM THE OUTER BOUNDARIES OF THE SECTION.
- Is the Operator the only owner in the dedicated acreage outlined on the plat below? YES \_\_\_\_\_ NO X
- If the answer to question four is "no," have the interests of all the owners been consolidated by communitization agreement or otherwise? YES X NO \_\_\_\_\_. If answer is "yes," Type of Consolidation LIMITED PARTNERSHIPS
- If the answer to question four is "no," list all the owners and their respective interests below:

Owner SHIELDS 1981 PROGRAM	Land Description C SE/4 NE/4, S24, T41N-R1E
SHIELDS EXPLORATION COMPANY GENERAL PARTNER & OPERATOR	

<p style="text-align: center;">TOWNSHIP 41 NORTH</p> <p style="text-align: center;">SHIELDS FEDERAL #12-24 ELEVATION: 5026'</p> <p style="text-align: center;">80-Acre Spacing</p> <p style="text-align: center;">← 660' →</p> <p style="text-align: center;">24</p> <p style="text-align: center;">3300'</p> <p style="text-align: center;">Gas Spacing 640-Acre = All Sec. 24 as shown</p> 	<p style="text-align: center;"><b>CERTIFICATION</b></p> <p>I hereby certify that the information above is true and complete to the best of my knowledge and belief.</p> <p><i>Philip L. Drake</i> Name President</p> <p>Position SHIELDS EXPLORATION CO.</p> <p>Company August 25, 1986. JRS Date 9/8/86</p> <p>I hereby certify that the well location shown on the plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.</p> <p>Date Surveyed 9-6-86</p> <p>Registered Professional Engineer and/or Land Surveyor <i>Philip L. Drake</i></p> <p>Certificate No. P.L.S. 14946 AZ.</p>
--	--

PROPOSED CASING PROGRAM

Size of Casing	Weight	Grade & Type	Top	Bottom	Cementing Depths	Sacks Cement	Type
9 5/8"	36#	J-55	Surf.	500' (apx)	500' to Surf.	200 sx	Class A
7"	23#	J-55	Surf.	2900'	2900'-1800'	150 sx	Class A
4 1/2"	10.5#	J-55	Surf.	3100'	3100'-2700'	100 sx	" "

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK  
 DRILL       DEEPEN       PLUG BACK

b. TYPE OF WELL  
 OIL WELL       GAS WELL       OTHER       SINGLE ZONE       MULTIPLE ZONE

2. NAME OF OPERATOR  
 SHIELDS EXPLORATION COMPANY

3. ADDRESS OF OPERATOR  
 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)\*  
 3300' from S line and 660' from E line, Sec 24, T41N-R1W  
 At proposed prod. zone  
 Approximately the same

5. LEASE DESIGNATION AND SERIAL NO.  
 A - 10457

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
 -----

7. UNIT AGREEMENT NAME  
 -----

8. FARM OR LEASE NAME  
 SHIELDS FEDERAL

9. WELL NO.  
 #12-24

10. FIELD AND POOL, OR WILDCAT  
 WHITE SAGE

11. SEC., T., R., M., OR BLE. AND SURVEY OR AREA  
 24, T41N-R1W, G&SRBM

12. COUNTY OR PARISH  
 COCONINO

13. STATE  
 ARIZONA

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*  
 12 Miles East of Fredonia, Arizona

15. DISTANCE FROM PROPOSED LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)  
 4390'

16. NO. OF ACRES IN LEASE  
 2588.12

17. NO. OF ACRES ASSIGNED TO THIS WELL  
 80 A

18. DISTANCE FROM PROPOSED LOCATION TO NEAREST WELL, DRILLING COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.  
 3150'

19. PROPOSED DEPTH  
 3150'

20. ROTARY OR CABLE TOOLS  
 ROTARY

21. ELEVATIONS (Show whether DF, RT, GR, etc.)  
 GR 5026'

22. APPROX. DATE WORK WILL START\*  
 Oct. 5, 1986

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12 1/2"	9 5/8"	36.00	450'	200 Sx to Surface
8 5/8"	7"	23.00	2900'	200 Sx (estimated)
6 1/2"	4 1/2"	10.50	3100' (approx)	100 Sx (estimated)

The K-P Drilling Company is scheduled to do the drilling. Circulating medium will be air. The 7" csg will be run and cemented (Halliburton) above the Mississippian Dolomite at approx. 2900'. Porous section below 7" csg will be tested in open hole to evaluate hydrocarbon reserves identified in the SF #2-19 Well. 4 1/2" csg will be run and cemented (Halliburton) as necessary. If possible, an attempt will be made to drill into the Devonian formation below 3300' for test of its hydrocarbon potential. Suitable logs (Schlumberger) will be run. A blowout preventer will be installed when 9 5/8" csg is cemented @ approx. 450'. After drilling is finished, a completion rig will be used to establish production.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. SIGNED \_\_\_\_\_ TITLE PRESIDENT DATE 9/8/86

(This space for Federal or State office use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

SHIELDS EXPLORATION CO.  
320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

CIRCULAR #2538 - APPROVAL OF OPERATIONS

SHIELDS FEDERAL # 12-24

I. GENERAL

The proposed Well (Shields Federal #12-24) is located in the C SE/4 NE/4 of Section 24, T41N-R1W, G&SRBM, Coconino County, Arizona (see Survey Plat).

Attached documents (in Triplicate): 1) Form 9-331C, Application to Drill; 2) Survey Plat; 3) Drilling Site Map; 4) Form 9-1123, Designation of Operator; 5) Geological and Drilling Operations Statement (supplement to Form 9-331C); 6) Contour and Location Map; 7) USGS Area Map. Exploration operations will be conducted in accord with instructions 1 thru 5 in Paragraph 1.

II. DRILLING OPERATIONS

Environmental reviews were made for the Travis Federal #1-24 Well (NW $\frac{1}{4}$ SE $\frac{1}{4}$ ) which was drilled and abandoned in June, 1980. The proposed Shields Federal #12-24 Well Location is approximately 1000' NE of the Travis Well. The Location will use an existing access road off Winter Road, a graded road connected to US 89.

1. Location of proposed Well: 660' from E line and 3300' from S line, Section 24, T41N-R1W, as indicated on attached Survey Plat. For existing roads see Area & Location Map.
2. Elevation - GR 5026, as indicated on Survey Plat.
3. Surface information: The proposed location will be in sandstones and limestones of the Basal Triassic Moenkopi Formation.
4. For drilling surface hole to 450', a truck mounted rotary rig equipped for air drilling will be used. After 9 5/8" surface casing has been run and cemented, a Gardner-Denver Rig rated to 4000' will be moved in. It is mounted on a self-propelled, six-axle carrier. Equipment will include a BOP, pumps, air compressors, water tanks and support equipment as indicated on the Plat Map.
5. The proposed drilling depth is approximately 3100'.
6. Tops of geological markers (projected): Timpoweap Member of the Moenkopi formation is at surface, Kaibab Formation at 70', White Rim ss at 500', Toroweap formation at 520', Coconino ss at 850', Hermit Shale at 870', Supai formation at 1480', Pennsylvanian formation at 2100', Mississippian formation 2420', Devonian at 3700'.
7. Oil reservoirs are anticipated in the Mississippian Redwall formation below 2980'.

CIRCULAR #2538 - APPROVAL OF OPERATIONS  
SHIELDS FEDERAL #12-24 WELL  
PAGE 2

8. Surface casing: 450' of 9 5/8", 36#, grade J55. Intermediate string of casing, 7", 23#, grade J-55 will be run and cemented. 4 1/2" casing is planned for production @ approx 2900'.
9. Setting depth of casing will be approximately 450' and set with enough (200 sx) cement for returns to surface if possible. Depth of production casing will be set @ approximately 3100'. If production is found casing will be cemented by Halliburton.
10. As no pressure was encountered to 500' in the nearby SF #1-19 Well, pressure control equipment (BOP) will be installed when 9 5/8" surface csg has been run & cemented.
11. 8 5/8" hole will be drilled below surface casing. Producing free oil found in the objectives will be protected and 4 1/2" casing will then be cemented and the Well completed.
12. Testing will be continuous when drilling with air or foam. If feasible, Coring will be selective in the objective Dolomite intervals below 2980'.
13. During drilling of the SF #2-19 Well to 3756' (about 1000' east of the SF #12-24) no abnormal pressures were encountered and are not expected in the SF #12-24 Well.
14. Estimated Drilling Time: Ten Days.
15. Proposed starting Date: October 5, 1986.

Archaeological and environmental findings for the Shields Federal #1-19 Well should apply for the Shields Federal #12-24 Well Location as these sites are less than 1000' apart.

III. MULTI-POINT SURFACE USE AND OPERATIONS PLAN

1. Existing Roads: Existing roads are as indicated on the attached Location and Area Maps. From Highway 89, the all-weather "Winter Road" comes within 800' of the proposed location, which is approximately 12 miles east of Fredonia.
2. Planned Access Road: Most of the access road off Winter Road is already available as an existing N-S access route. Surface is sandstone and limestone. Little grading is needed or possible and damage to the local environment should be minimal.
3. Location of Existing Wells: There are nine shallow wells (500'-900') within a two-mile radius. All are southwest and westerly of the proposed Well as follows: Travis Federal #1-24, Shields Federal #1-24, #2-24, #4-24, #5-24, #6A-24, #11-24, #1-23, #1-19A (a redrill); and one deeper well, the SF #2-19 (TD 3756').
4. Location of Water Supply: As the proposed well is scheduled to be air drilled, relatively little water may be required. However, a large water tank on site is planned and will be kept filled. The water source is at Fredonia and is available via tank truck. No measureable water is expected in the well to 1700'.

APPROVAL OF OPERATIONS  
SHIELDS FEDERAL #12-24 WELL  
PAGE 3

5. Location of Facilities: There are no existing facilities other than the Winter Road and drill site access roads. When the #12-24 Well is productive, plans for such facilities and rehabilitation will be submitted to the BLM in compliance with Sec IV of Order #1(43CFR3160).
6. Source of Construction Materials: None may be needed for drilling the Well. If they are, materials are available at Fredonia, AZ (12 miles) and Kanab, Utah (18 miles).
7. Method of Handling Waste Disposal: A reserve pit and mud tank for fluids, and barrels for garbage and waste will be available. Cuttings will remain alongside the well. Clean-up of well site area is to be in accord with requirements.
8. Ancillary Facilities: None are planned.
9. Well Site Layout: As per attached sketch.
10. Plans for Restoration of Surface: Any disturbed surface at the location and the access road to location will be levelled, restored and reseeded after completion of operations as may be required by the USGS and BLM. Restoration should not require more than one day's time. Reseeding will then follow at the time suggested by the BLM.
11. The main topographic feature is a gentle 10° to 20° slope to the North and Northwest. There are a few mesas composed of lower Triassic red beds. Soil in the wellsite area is minimal. The surface consists largely of outcrops of the Triassic Timpoweap limestone and the Triassic Moenkopi Red Beds. The flora consists largely of sage brush with a few small cactus and flowering plants.

The observed fauna consists of rabbits, rattlesnakes and coyotes and would be typical of the southern part of the Colorado Plateau. There are no surface use activities other than deer, horse and cattle grazing. There is a prominent tank to the WNW of the wellsite known as Johnson Reservoir. It was not filled at last observation.

Surface ownership is entirely Federal in the wellsite and lease area. To the South, Section 36 is State and to the Northwest about 3 miles, there are approximately 240 acres of private land (Chatterly Ranch). Roads to wellsite from Highway traverse Federal lands: Winter Road - and Access Road - limestones and redbeds.

Other than a few small mesas, there are no steep hillsides in the immediate wellsite area, no known water wells, lakes or year-round streams in the leased area, and no known dwellings or archaeological, historical or cultural sites. North of the wellsite, a major power line runs east-west across the lease. It is owned by SCE Power Company.

APPROVAL OF OPERATIONS  
SHIELDS FEDERAL #12-24  
PAGE 4

12. Lessee and Operator Representative: During operations, Jay M. Shields, Parry Lodge, Kanab, Utah (801/644-2601); otherwise, Jay M. Shields, 320 Bellino Drive, Pacific Palisades, CA 90272 (213/459-2490 or 213/459-1298).
13. Certification: The following statement is to be incorporated in the plan and must be signed by the lessee's or operator's Field Representative who is identified in Item 12 of the plan:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route: that the statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by K-P DRILLING COMPANY and their contractors and sub-contractors in conformity with this plan and the terms and conditions under which it is approved.

SHIELDS EXPLORATION COMPANY

September 8, 1986  
Date

Jay M. Shields, President

APPROVAL OF OPERATIONS  
SHIELDS FEDERAL #12-24  
PAGE 4

12. Lessee and Operator Representative: During operations, Jay M. Shields, Parry Lodge, Kanab, Utah (801/644-2601); otherwise, Jay M. Shields, 320 Bellino Drive, Pacific Palisades, CA 90272 (213/459-2490 or 213/459-1298).
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SHIELDS EXPLORATION COMPANY

September 8, 1986  
Date

Jay M. Shields, President

IV. ENVIRONMENTAL ANALYSIS REQUIREMENTS

It is proposed that the Travis Well analysis would apply to the Shields Federal #12-24. Shields will abide by all instructions and decisions.

V. APPROVAL OF SUBSEQUENT OPERATIONS

None will be undertaken without first securing USGS and BLM Approval.

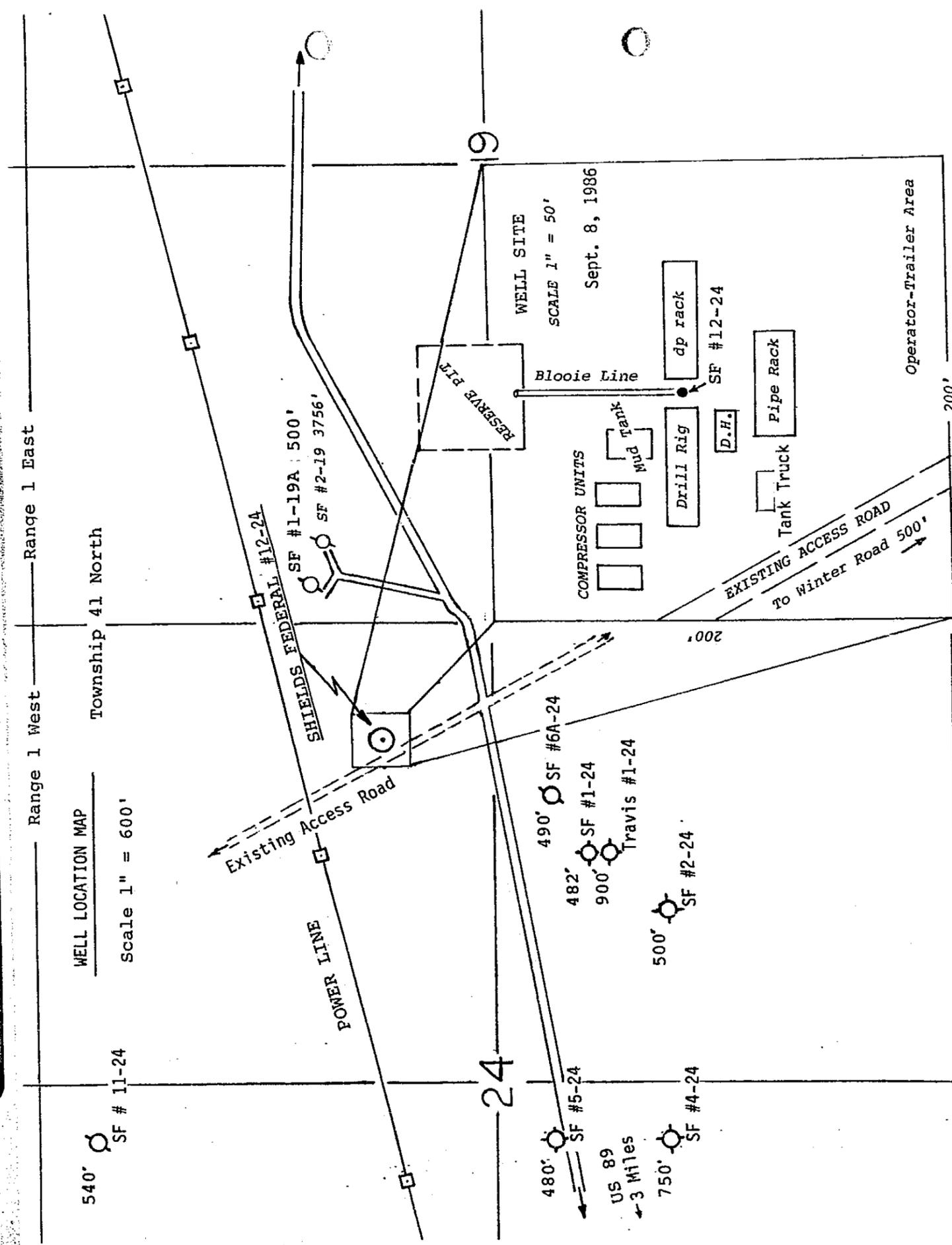
VI. AGREEMENT for Rehabilitation of Privately Owned Surface does not apply.

VII. WELL ABANDONMENT

The Proposed Well, if not completed as a producing Well, will not be plugged and abandoned without first securing USGS approval.

VIII. WATER WELL CONVERSION

Some water may be expected in the Proposed Well. If found, operator will conform to rules.



AZ OIL & GAS  
CONSERVATION COMMISSION

DESIGNATION OF OPERATOR

MAY 24 1989

The undersigned is, on the records of the Bureau of Land Management, holder of lease

DISTRICT LAND OFFICE:

SERIAL No.: A 10457 and A 13137

and hereby designates

NAME: SHIELDS EXPLORATION COMPANY  
ADDRESS: 320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

as his operator and local agent, with full authority to act in his behalf in complying with the terms of the lease and regulations applicable thereto and on whom the supervisor or his representative may serve written or oral instructions in securing compliance with the Operating Regulations with respect to (describe acreage to which this designation is applicable):

A 10457 T41N - R1W  
Sec. 23, E $\frac{1}{2}$ ; Sec. 24, A11; Sec. 25, A11; Sec. 26, E $\frac{1}{2}$ .  
T41N - R1E  
Sec. 19, Lots 1,2,3,4 and E $\frac{1}{2}$ W $\frac{1}{2}$ ; Sec. 30, Lots 1,2,3,4 and E $\frac{1}{2}$ W $\frac{1}{2}$ ;  
Containing 2558.12 acres, Coconino County, Arizona

A13137 T41N - R1W  
Sec. 26, NW $\frac{1}{4}$ ; Sec. 27, NE $\frac{1}{4}$ ; Sec. 22, E $\frac{1}{2}$   
Containing 640 acres, Coconino County, Arizona

It is understood that this designation of operator does not relieve the lessee of responsibility for compliance with the terms of the lease and the Operating Regulations. It is also understood that this designation of operator does not constitute an assignment of any interest in the lease.

In case of default on the part of the designated operator, the lessee will make full and prompt compliance with all regulations, lease terms, or orders of the Secretary of the Interior or his representative.

The lessee agrees promptly to notify the supervisor of any change in the designated operator.

SHIELDS 1984 PROGRAM  
by Shields Exploration Company,  
General Partner

by Jay M. Shields, President  
(Signature of lessee)

320 Bellino Drive, Pacific Palisades, CA 90272  
(Address)

May 1, 1989.

(Date)

Form 9-1123  
(Rev. Dec. 1957)

(Submit in triplicate to appropriate  
Regional Oil and Gas or Mining Supervisor)

RECEIVED

SEP 18 1986

O & G CONS. COMM.

## DESIGNATION OF OPERATOR

The undersigned is, on the records of the Bureau of Land Management, holder of lease

DISTRICT LAND OFFICE:

SERIAL No.: A 10457

Phoenix, Arizona

and hereby designates

NAME: Shields Exploration Company

ADDRESS: 320 Bellino Drive, Pacific Palisades, California 90272

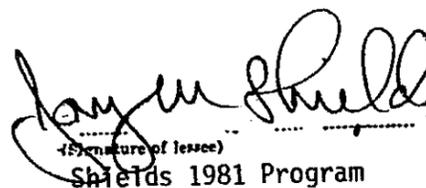
as his operator and local agent, with full authority to act in his behalf in complying with the terms of the lease and regulations applicable thereto and on whom the supervisor or his representative may serve written or oral instructions in securing compliance with the Operating Regulations with respect to (describe acreage to which this designation is applicable):

T 41 N - R 1 W.  
Sec. 23, E $\frac{1}{2}$ ; Sec. 24, All; Sec. 25, All; Sec. 26, E $\frac{1}{2}$ .  
T 41 N - R 1 E.  
Sec. 19, Lots 1, 2, 3, 4, and E $\frac{1}{2}$ W $\frac{1}{2}$ ;  
Sec. 30, Lots 1, 2, 3, 4, and E $\frac{1}{2}$ W $\frac{1}{2}$ ;  
containing 2558.12 acres, Coconino County, Arizona.

It is understood that this designation of operator does not relieve the lessee of responsibility for compliance with the terms of the lease and the Operating Regulations. It is also understood that this designation of operator does not constitute an assignment of any interest in the lease.

In case of default on the part of the designated operator, the lessee will make full and prompt compliance with all regulations, lease terms, or orders of the Secretary of the Interior or his representative.

The lessee agrees promptly to notify the supervisor of any change in the designated operator.

  
(Signature of lessee)  
Shields 1981 Program

September 8, 1986  
(Date)

320 Bellino Drive, Pacific Palisades, Ca  
(Address) 90272

SHIELDS EXPLORATION CO.  
320 BELLINO DRIVE  
PACIFIC PALISADES, CA 90272  
PHONE (213) 459-2490

DATA SUPPLEMENT TO  
FORM 9-331C

September 8, 1986

SHIELDS FEDERAL #12-24

- |  |               |
|--|---------------|
| 1. Timpoweap Limestone                 | 0' - 80'      |
| Permian-Kaibab Formation, Alpha Member | 80' - 220'    |
| Permian-Kaibab Formation, Beta Member  | 220' - 400'   |
| Permian-Kaibab Formation, Gamma Member | 400' - 490'   |
| Permian White Rim Sandstone            | 490' - 520'   |
| Permian Toroweap Formation             | 520' - 840'   |
| Permian Coconino Formation             | 840' - 870'   |
| Permian Hermit Shale Formation         | 870' - 1480'  |
| Permian Supai Formation                | 1480' - 2180' |
| Pennsylvania Callville Limestone       | 2180' - 2420' |
| Mississippian Redwall Formation        | 2420' - 3260' |
| Devonian Martin Formation              | 3260' - 3719' |
| Cambrian Muav Formation                | 3719' - TD    |
2. Oil has been identified in various zones below 2900'. Water may be found at 1700'. It will be cased off.
  3. Will use blowout preventer 450'.
  4. 9 5/8" surface casing to 450'. Any production casing is planned to be 4 1/2", 10.5# API Grade and will be run and cemented at proper depth to produce oil. An intermediate string of 7" casing will be run and cemented at 2900'. Circulating medium will be air mixed with water and foam as necessary.
  5. Shallow wells in area including SF #1-19A, were drilled to depths below 500' and encountered no measurable pressure. Pressure control equipment will be installed when 9 5/8" surface csg is cemented at 450'.
  6. Tests are planned in open hole using dp and packer (Halliburton) of each porous zone in Mississippian Dolomite. Logging (Schlumberger) is planned for correlation with Well SF #2-19 and to identify hydrocarbon content. Cores will be taken if feasible.
  7. Experience with Well SF #2-19 indicates no abnormal pressure, temperatures or potential hazards.
  8. It is planned to drill into the Devonian Martin Formation expected below 3719'. The purpose of this Well is to develop oil production identified in the SF #2-19 Well in porous zones below 2986'.
  9. No hazards are expected based on data obtained from the Shields Federal #2-19 Well. Pressure may be expected below 2900'. Precautions will be taken.
  10. Subject to receipt of State and Federal Permits, plans are to move in a drilling rig on or about October 5, 1986. Drilling time is expected to be approximately 10 days.

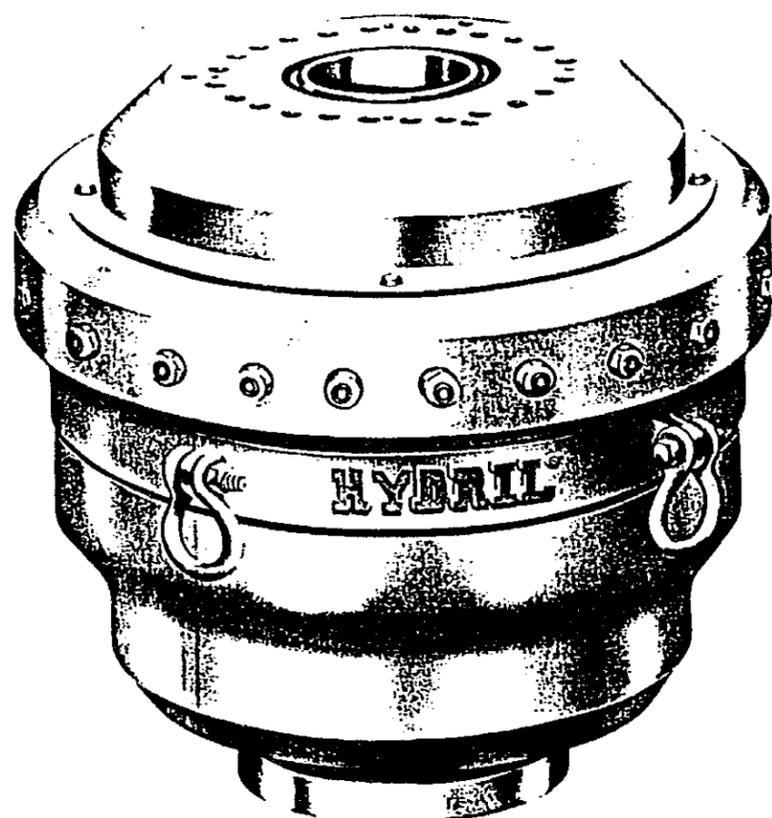
# Annular Blowout Preventers

## AN INTRODUCTION

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OCT 17 1986

O &amp; G CONS. CORP.



Hydral GX-10,000 psi  
Annular Blowout Preventer

Hydral's complete line of annular blowout preventers is based on more than 40 years of application experience in all BOP types, sizes, and pressure ranges. There is a Hydral Annular BOP to meet any operational requirement in the petroleum industry today — both on the surface and subsea.

Hydral designs are dependable and efficient for durable operation. A standard annular BOP will strip drill pipe and tool joints or close off the annulus or open hole to full working pressure.

The Hydral Annular BOP provides quick, positive closing action with simplified controls to keep drilling fluids in the hole when a blowout threatens. The universal seal off feature of the annular blowout preventer permits closure and seal off on virtually anything in the bore — drill pipe, kelly, tool joints, or tubing. Maintenance of the BOP is easy, rapid, and economical with the use of standard tools.

The Low Alloy Steel Pressure Vessel represents Hydral's 40 years of experience in producing BOPs to provide optimum strength and stress distribution control. Full-spectrum testing far exceeding API require-

ments ensures that the desired safety factors and reliability are provided in each unit.

Finite Element Analysis of the body design is the most advanced, in-depth technique of pressure vessel design analysis and ensures a structurally sound body configuration.

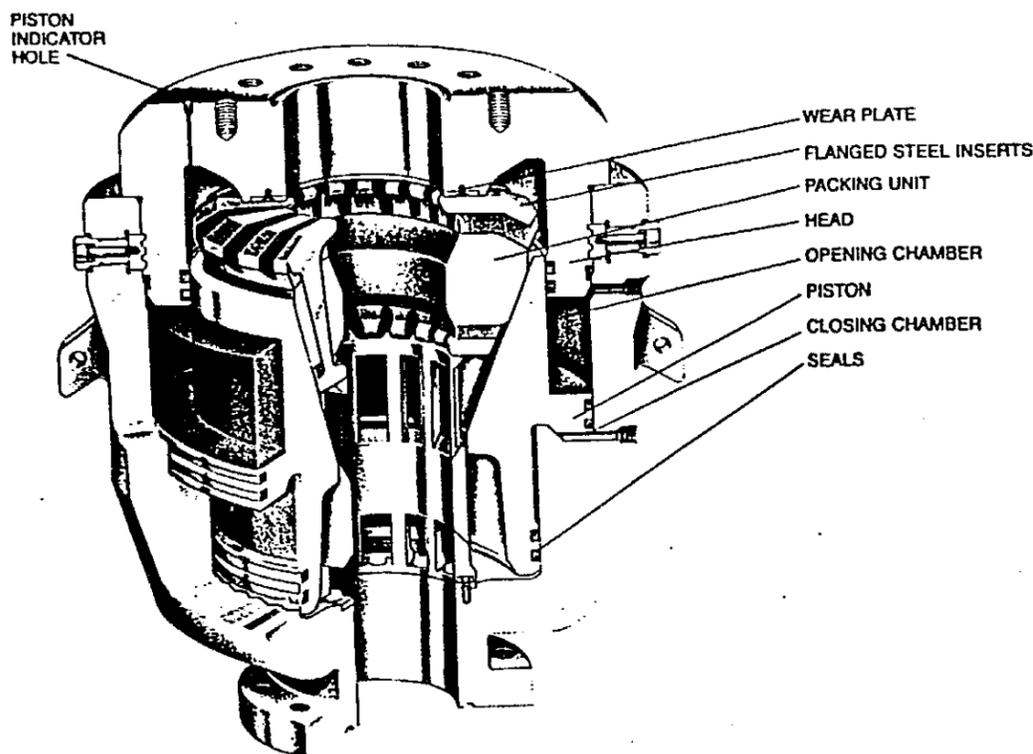
Shell (Hydrostatic) Testing of the BOP body exceeds the API accepted industry standards to provide a safe, reliable blowout preventer.

Acoustic Emission Hydrostatic Test Monitoring is used during the qualification test to provide 100% volumetric assurance of pressure vessel soundness.

Operating Chambers are Pressure Tested to rated working pressure of the BOP or 3000 psi, whichever is greater. This ensures strength, reliability, safety, and the ability to over-pressure the chambers in well-control situations.

Stainless Steel-lined Connection Ring Grooves are standard on all 10,000, 15,000 and 20,000 psi BOP's and on all 2000, 3000 and 5000 psi BOP's with bore sizes 13-5/8" and larger; they are optional on all other BOP's.

# GL, GK, MSP Operational Features



The Hydril GL, GK, MSP Annular BOPs are particularly qualified to meet the industry's needs for simple and reliable blowout protection. Over 40 years of operational experience provide the simplest, field proven mechanism in the industry.

**Only Two Moving Parts** (piston and packing unit) mean few areas are subjected to wear. The BOP is thus a safer, and more efficient mechanism requiring less maintenance and downtime.

**A Long Piston** with a length to diameter ratio approaching one eliminates tendencies to cock and bind during operations with off-center pipe or unevenly distributed accumulation of sand, cuttings, or other elements. This design ensures the packing unit will always reopen to full bore position.

**Back to Front Feedable Rubber** on the Packing Unit enables the packing unit to close and seal on virtually any shape in the drillstring or completely shut off the open bore and to strip tool joints under pressure. This feature permits confident closure of the BOP at the initial indication of a "kick" without delaying to locate the tool joint.

**The Conical Bowl Design** of the Piston provides a simple and efficient method of closing the packing unit. The piston serves as a sealing surface against the rubber packing unit; there is no metal-to-metal wear and thus longer equipment life results.

**Utilization of Maximum Packing Unit Life** is made possible with a piston indicator for measuring piston stroke. This measurement indicates remaining packing unit life and ensures valid testing.

**A Field Replaceable Wear Plate** in the BOP Head serves as an upper non-sealing wear surface for the movement of the packing unit. The wear plate provides a fast and economical method of repair in the field without costly machine shop welding, stress relieving and remachining. The wear plate protects the head, a major component of the pressure vessel, from work hardening. This becomes a must in H<sub>2</sub>S Service where hardness control of the pressure vessel becomes critical in preventing sulfide stress cracking.

**Flanged Steel Inserts** in the Packing Unit reinforce the rubber and control rubber flow and extrusion for safer operation and longer packing unit life.

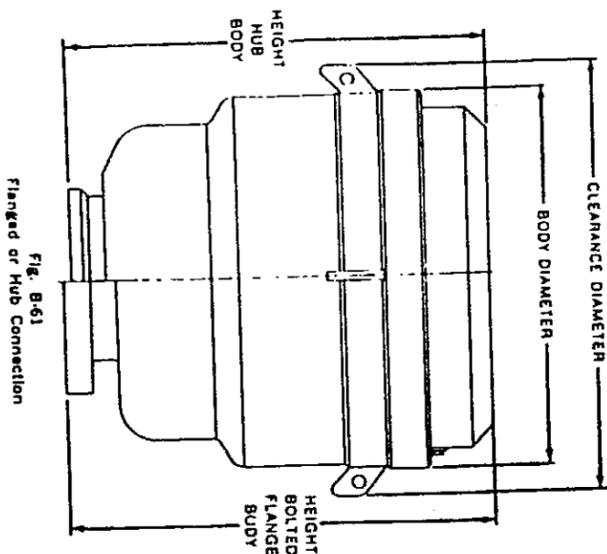
**The Packing Unit is Tested to Full Rated Working Pressure** at the factory and the tests are documented — before it reaches the well site — to ensure a safe, quality performance.

**The Packing Unit is Replaceable with Pipe** in the Bore, which eliminates pulling the drillstring for replacement and reduces operating expenses with more options for well control techniques.

**Large Pressure Energized Seals** are used for dynamically sealing piston chambers to provide safe operation, long seal life, and less maintenance.

**Piston Sealing Surfaces Protected by Operating Fluid** lowers friction and protects against galling and wear to increase seal life and reduce maintenance time.

HYDRIL TYPE "GK" BLOWOUT PREVENTERS  
ENGINEERING AND DIMENSIONAL DATA



SERIES	Approx. Weight
6" Series 900	2620
6" Series 1500	3940
7" 10,000 psi W.P.	12,200
10" Series 900	6300
10" Series 1500	8280
11" 10,000 psi W.P.	27,600
12" Series 900	8580
13 1/4" 6000 psi W.P.	13,800
16" Series 600	11,500
18" Series 600	14,000
20" Series 600	14,900

ENGINEERING AND DIMENSIONAL DATA, HYDRIL GK BLOWOUT PREVENTERS

Connector Size and Pressure Rating	Full Open Bore	Wt. Lbs. Flanged Bottom Connection	Wt. Lbs. Studded Bottom Connection	Height Flange Bottom Connection	Height Studded Bottom	Clearance Dia.	Body Dia.	**U. S. Gallons for full Piston Stroke	Piston Stroke Inches
6" -3000 psi	7 1/4"	2,620	2,500	32"	27 1/2"	32"	26"	2.65	4 1/2"
6" -5000 psi	7 1/2"	3,940	3,740	36 1/2"	30 1/2"	35 1/2"	29 1/2"	3.86	4 1/2"
7 1/2" -10,000 psi	7 1/2"	12,000	11,800	47 1/2"	41 1/2"	49 1/2"	43 1/2"	9.42	5 1/2"
8" -3000 psi	8 1/4"	3,560	3,470	37 1/2"	32 1/2"	34 1/2"	28"	4.33	5 1/2"
8" -5000 psi	8 1/2"	6,000	5,740	41 1/2"	34 1/2"	41"	34"	6.84	5 1/2"
9" -10,000 psi	9"	18,200	17,800	55 1/2"	48 1/2"	56 1/2"	50 1/2"	15.90	6 1/2"
10" -3000 psi	11"	5,300	5,140	39 1/2"	34 1/2"	40"	33 1/2"	7.43	6 1/2"
10" -5000 psi	11"	8,250	7,800	47 1/2"	39 1/2"	44 1/2"	37 1/2"	9.81	7 1/2"
11" -10,000 psi	11"	25,000	24,350	63 1/2"	55 1/2"	62 1/2"	56 1/2"	25.10	8 1/2"
12" -3000 psi	13 1/2"	8,784	8,522	45 1/2"	39 1/2"	47 1/2"	40 1/2"	11.36	7 1/2"
13 1/4" -5000 psi	13 1/4"	13,800	13,100	54 1/2"	45 1/2"	52 1/2"	45 1/2"	17.98	8 1/2"
13 1/2" -10,000 psi	13 1/2"	33,525	32,851	72 1/2"	63 1/2"	68 1/2"	61 1/2"	34.53	9 1/2"
16" -2000 psi	16 1/2"	11,417	11,100	49 1/2"	43 1/2"	53 1/2"	46 1/2"	17.42	8 1/2"
16" -3000 psi	16 1/2"	14,868	14,470	53 1/2"	47 1/2"	55 1/2"	48 1/2"	21.02	9 1/2"
16 1/2" -5000 psi	16 1/2"	20,830	20,000	61 1/2"	53 1/2"	59 1/2"	53 1/2"	28.7	10 1/2"
18" -2000 psi	17 1/2"	14,000	.....	53 1/2"	.....	55 1/2"	48 1/2"	21.09	9 1/2"

TYPE GK

\*Information Only. Replaced by MSP-20" -2000 psi  
\*\*GK Blowout Preventers are furnished with 1" opening & closing ports. 1 1/2" or 1 3/4" are available on special request.

## HOW THE BOP CONTROL SYSTEM FUNCTIONS

### Understanding the Schematic on Page 4

The item numbers in the following explanation are shown in the pictorial diagram of a typical, conventional accumulator as shown on page 4. The item numbers are listed and identified on pages 4 and 5.

The electric motor driven pump assembly (Item 10) takes fluid from the reservoir through the suction shutoff valve (Item 13) and strainer (Item 14), and forces hydraulic fluid through the check valve (Item 15) and shutoff valve (Item 16) to charge the system manifold and accumulators (Item 17).

This charging will continue until the system pressure reaches 3000 psi. The pressure switch (Item 11) senses this pressure, shuts off the electric power to the pump motor at 3000 psi, and restarts the motor if pressure drops to 2750 psi. The accumulator pressure is displayed on the ACCUMULATOR gauge (Item 28), and, in case of an overpressure condition, the accumulator relief valve (Item 18) vents to the tank at 3500 psi.

The system pressure is also present on the BY-PASS valve (Item 23) and the manifold relief valve (Item 24), which is set to vent to the reservoir tank at 3500 psi. The BY-PASS valve is used to select either full accumulator pressure or a lesser regulated pressure for operation of the annular preventer.

Two pressure reducing and regulating valves (Item 20, manually operated, and Item 27, air operated) are provided to adjust BOP operating pressures to the desired level. Pressure from the air operated regulator is read on the ANNULAR gauge (Item 30). Pressure from the manually operated regulator is read on the MANIFOLD gauge (Item 29).

Input air at about 125 psi is supplied to the system through an air strainer and air lubricator (Item 2). If hydraulic system pressure drops below 2900 psi, the air pressure switch (Item 4) will open and allow air to activate the air operated hydraulic pumps (Item 6). If pressures higher than 3000 psi are required, the air bypass valve (Item 3) can be opened to bypass the regulator and allow the pumps to continue to run. This bypass valve should be kept closed at all other times. Shutoff valves (Item 5) are supplied to control air supply to pumps.

The air/hydraulic pumps take fluid from the reservoir through a shutoff valve (Item 7) and strainer (Item 8) and pump through the check valve (Item 9) until accumulator pressure reaches 3000 psi (air only systems) or 2900 psi (air/electric systems).

If there are no leaks and the system is not used, the system remains at 3000 psi static pressure and neither the air supply nor the electric supply is used.

The control manifold is operated either at the unit or by air pressure from a remote control panel. This air pressure is applied through an air junction box (Item 39) and operates air cylinders coupled to the four-way control valves (Item 22), causing the system to either

open or close the selected preventers. Hydraulic fluid returned from the preventers is vented to the tank through the control valves.

When the system is used and accumulator pressure drops, both the electric and air pumps are immediately energized to recharge the system to full operating pressure.

### Accumulator/Pump Unit

Accumulator/pump units provide necessary high pressure hydraulic fluid for control of the blowout preventer stack. Each accumulator unit is equipped with a combination of electric and air operated hydraulic pumps. These pumps discharge high pressure hydraulic fluid into storage vessels called accumulator bottles. These bottles are precharged with compressible inert nitrogen gas. When fluid is introduced into the accumulator bottles the nitrogen is compressed and stores a tremendous amount of potential energy. Accumulator bottles are provided in either bladder or guided float types and in a variety of sizes.

All of the NL Shaffer accumulator units operate on the same principle. The air and electric operated hydraulic pumps are supplied with fluid from the reservoir through suction strainers. These pumps produce high pressure hydraulic fluid which is stored in the accumulator bottles. The air operated pumps are equipped with a hydro-pneumatic pressure switch which shuts off the pumps at 3000 psi. This pressure switch can be bypassed to attain pressures in excess of 3000 psi. However, the pump system contains a 3500 psi relief valve which must be isolated with the accumulator bottles when bypassing the hydro-pneumatic pressure switch. The electric operated pumps are equipped with a hydro-electric pressure switch which shuts off the pumps at 3000 psi and restarts the pumps when pressure drops to 2700 psi.

### Control Manifolds

Control manifolds direct the flow of the high pressure hydraulic fluid produced by the pumps through high flow shear-seal type regulators. Each manifold usually has two regulators, one manifold regulator to regulate pressure to the ram preventers and gate valves and one annular regulator to regulate pressure to the annular preventer. The manifold regulator is equipped with a bypass valve which bypasses the manifold regulator and supplies pump pressure to the ram preventers or gate valves. This is called the Shaffer double manifold design. The regulated pressure from the regulators is directed through 4-way shear-seal control valves. The open and close ports of these valves are connected to the open and close side of the preventers.

All of the NL Shaffer control manifolds operate on the same principle. The double manifold design pro-

vides independent supply to each regulator. This is essential in safe and dependable operation. Each control valve is supplied with nameplates to indicate open and close position. The valves should always be in either the close or open position. Never center the control valve handle as this will block both control ports. The control valves can be equipped with pneumatic or hydraulic cylinders for remote operation. The bypass valve is used to direct regulated pressure or unregulated pump pressure to the ram and gate valve control manifold. In the close position, this valve directs fluid from the manifold regulator to the welded supply header. In the open position, this valve directs fluid from the pump discharge to the welded supply header and shuts off the regulated pressure. The bypass valve should only be used in emergencies and can also be supplied with pneumatic or hydraulic cylinder for remote operation. The regulators on the manifold are either manually, air or hydraulically operated. The manifold regulator is usually manually operated and its pressure setting can only be changed at the manifold. The annular regulator can be any of the three different types of regulators. If no remote regulation is required, the manually operated regulator is used. If remote regulation is required, the air or hydraulically operated regulator is used depending on the type of remote control used. For remote regulation, a unit/remote selector valve must be selected to regulate from either the manifold or remote panel. Also when remote regulation is required, air transmitters or electric transducers are used for pressure readings from the manifold and accumulator unit.

#### **Air Operated Control Panels**

Air operated control panels provide for operation of blowout preventer control systems from locations other than the hydraulic control manifold. Several types of control panels are available: driller's control panels, auxiliary remote control panels, and mini-panels. Each control panel is manufactured to customer's requirements, and although physical size and number of controls may vary, all panels use identical components and operate in the same manner.

Driller's control panels usually are located on the rig floor. These panels feature a graphic representation of the blowout preventer stack and contain control valves to duplicate the functions of the hydraulic control manifold. In addition, driller's control panels also provide gauges to monitor BOP control system pressures.

Auxiliary remote control panels usually are located away from the well bore, at a site that would be less affected by blowouts or leaks. The auxiliary remote control panels are similar to the driller's panels in basic design but are reduced in size to provide only the most necessary controls for emergency operation. They normally do not contain duplicate pressure

gauges. If desired, however, auxiliary panels can be manufactured to provide complete remote control and pressure instrumentation for the BOP control system.

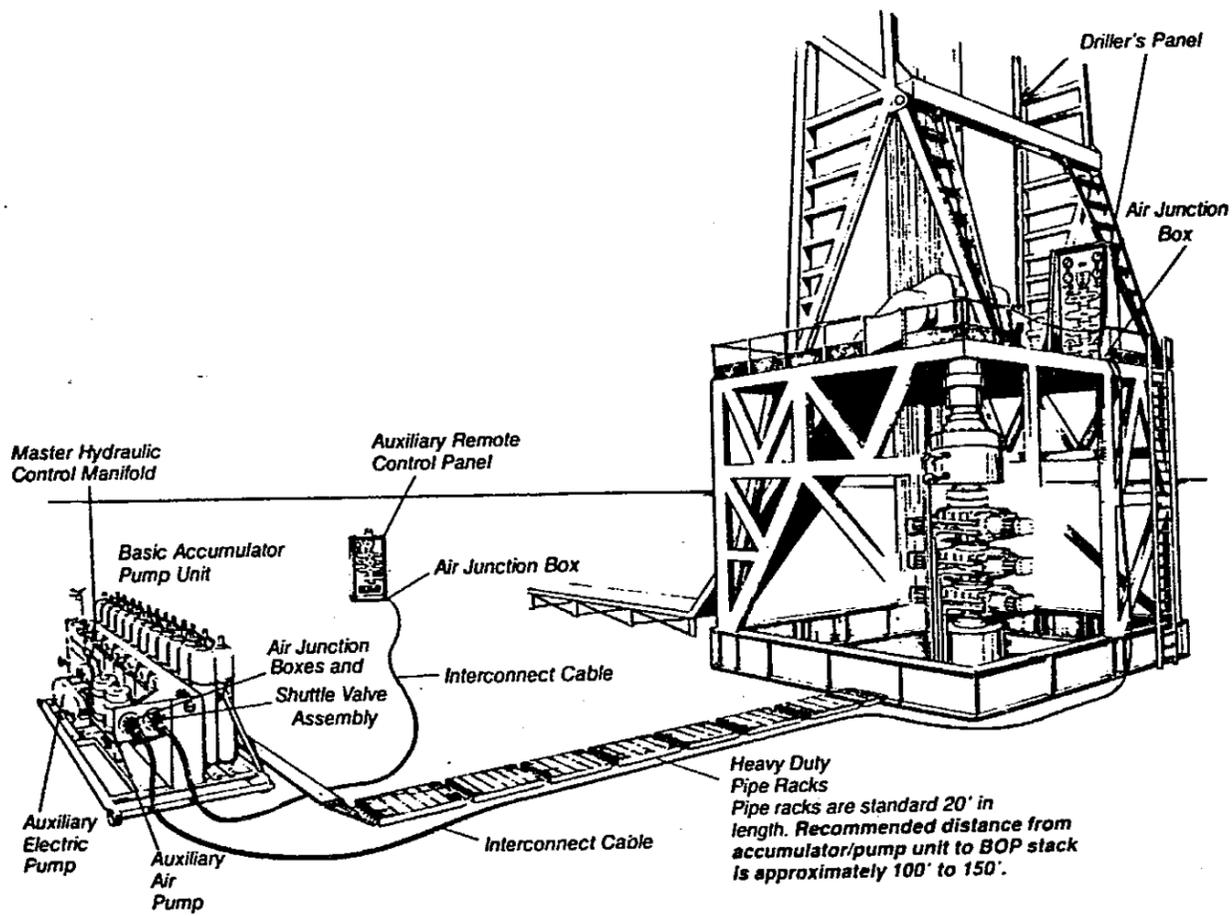
The air operated control panels are connected to the hydraulic control manifold through an air remote control cable. Each end of this cable is terminated in either a rectangular (JB) or round (RB) junction plate which mates with corresponding plates on the control panel and the hydraulic control manifold. When two or more remote control panels are specified, a shuttle valve assembly is mounted on the hydraulic control manifold to permit control from any of the remote panels.

The operation of all air control panels is similar. Air pressure at 90-120 psi is connected to the control panel and is applied to the function control valves through a master shutoff valve. To operate a function from the control panel, both the function control valve and the master shutoff valve must be activated at the same time. When these valves are activated, air pressure is transmitted through the air remote control cable to the junction plate on the hydraulic control manifold.

Each control valve on the hydraulic control manifold has an associated air cylinder which is tubed to the junction plate. These air cylinders are coupled to the control valves by means of a tail rod. When a function is activated at the control panel, the resulting air pressure causes the tail rod to extend or retract, and the valve handle is then pushed to the selected position.

Manifolds which have an air operated regulator for the annular pressure, also have a UNIT/REMOTE selector valve located on the manifold. Normally the valve is left in the REMOTE position, which allows for pressure regulation from the driller's remote panel. To change the regulated annular pressure at the unit, turn the selector valve to UNIT. Only the annular regulator is affected by the position of this valve. The remainder of the functions can be operated either at the panel or at the unit manifold. When resuming full control at the driller's panel, be sure the selector valve is placed in the REMOTE position.

**TYPICAL EQUIPMENT ARRANGEMENT**  
Conventional BOP Control



## SCHEMATIC OF CONVENTIONAL BOP CONTROL SYSTEM

**1. CUSTOMER AIR SUPPLY:** Normal air supply is at 125 psi. Higher air pressure may require an air regulator for No. 88660 air pumps.

**2. AIR LUBRICATOR:** Located on the air inlet line to the air operated pumps. Use SAE 10 lubricating oil.

**3. AIR BYPASS VALVE:** To automatic hydro-pneumatic pressure switch. When pressures higher than the normal 3,000 psi are required, open this valve. Keep closed at all other times.

**4. AUTOMATIC HYDRO-PNEUMATIC PRESSURE SWITCH:** Pressure switch is set at 2,900 psi cut-out when air and electric pumps are used. Otherwise set at 3,000 psi for air pumps alone. Adjustable spring tension control.

**5. AIR SHUT-OFF VALVES:** Manually operated — to open or close the air supply to the air operated hydraulic pumps.

**6. AIR OPERATED HYDRAULIC PUMPS:** Normal operating air pressure is 125 psi. (For No. 88550 pumps, maximum air pressure is 200 psi and for No. 88660 pumps maximum air pressure is 125 psi.)

**7. SUCTION SHUT-OFF VALVE:** Manually operated. Keep normally open. One for each air operated hydraulic pump suction line.

**8. SUCTION STRAINER:** One for each air operated hydraulic pump suction line. Has removable screens. Clean every 30 days.

**9. CHECK VALVE:** One for each air operated hydraulic pump delivery line.

**10. ELECTRIC MOTOR DRIVEN TRIPLEX OR DUPLEX PUMP ASSEMBLY.**

**11. AUTOMATIC HYDRO-ELECTRIC PRESSURE SWITCH:** Pressure switch is set at 3,000 psi cut-out and 250 psi cut-in differential. Adjustable.

**12. ELECTRIC MOTOR STARTER (AUTOMATIC):** Automatically starts or stops the electric motor driving the triplex or duplex pump. Works in conjunction with the automatic hydro-electric pressure switch and has a manual overriding on-off switch.

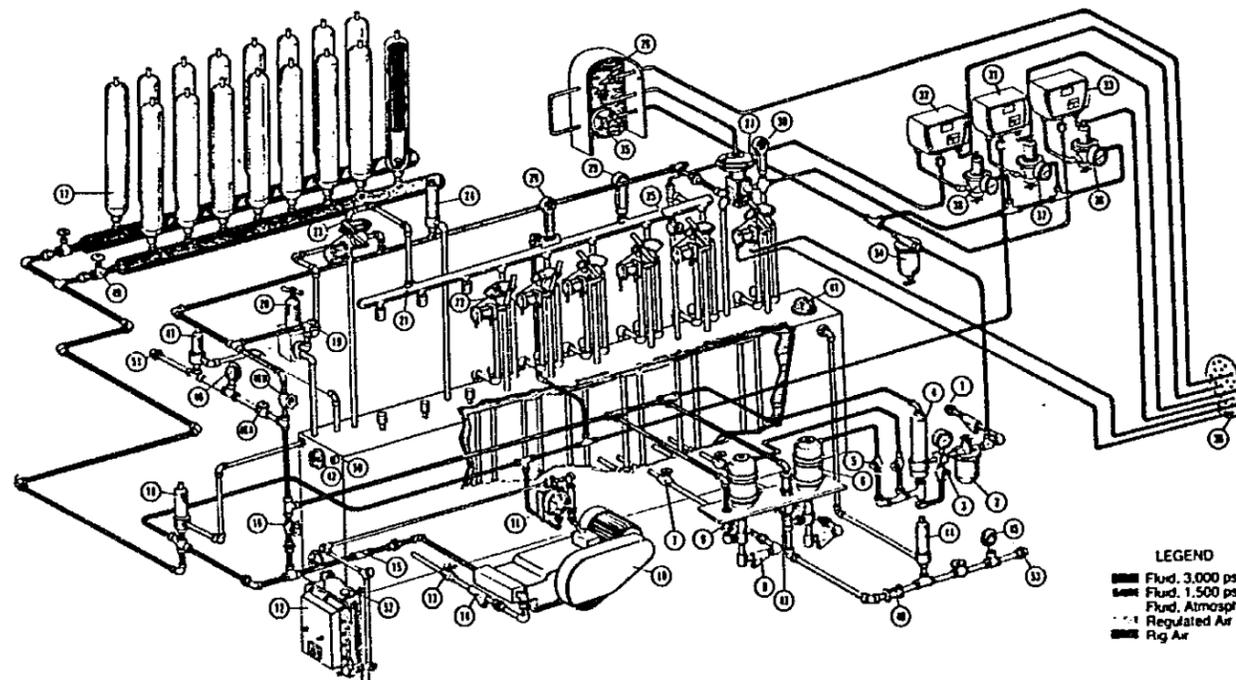
**13. SUCTION SHUT-OFF VALVE:** Manually operated, normally open. Located in the suction line of the electric pump.

**14. SUCTION STRAINER:** Located in the suction line of the electric pump.

**15. CHECK VALVE:** Located in the delivery line of the triplex or duplex pump.

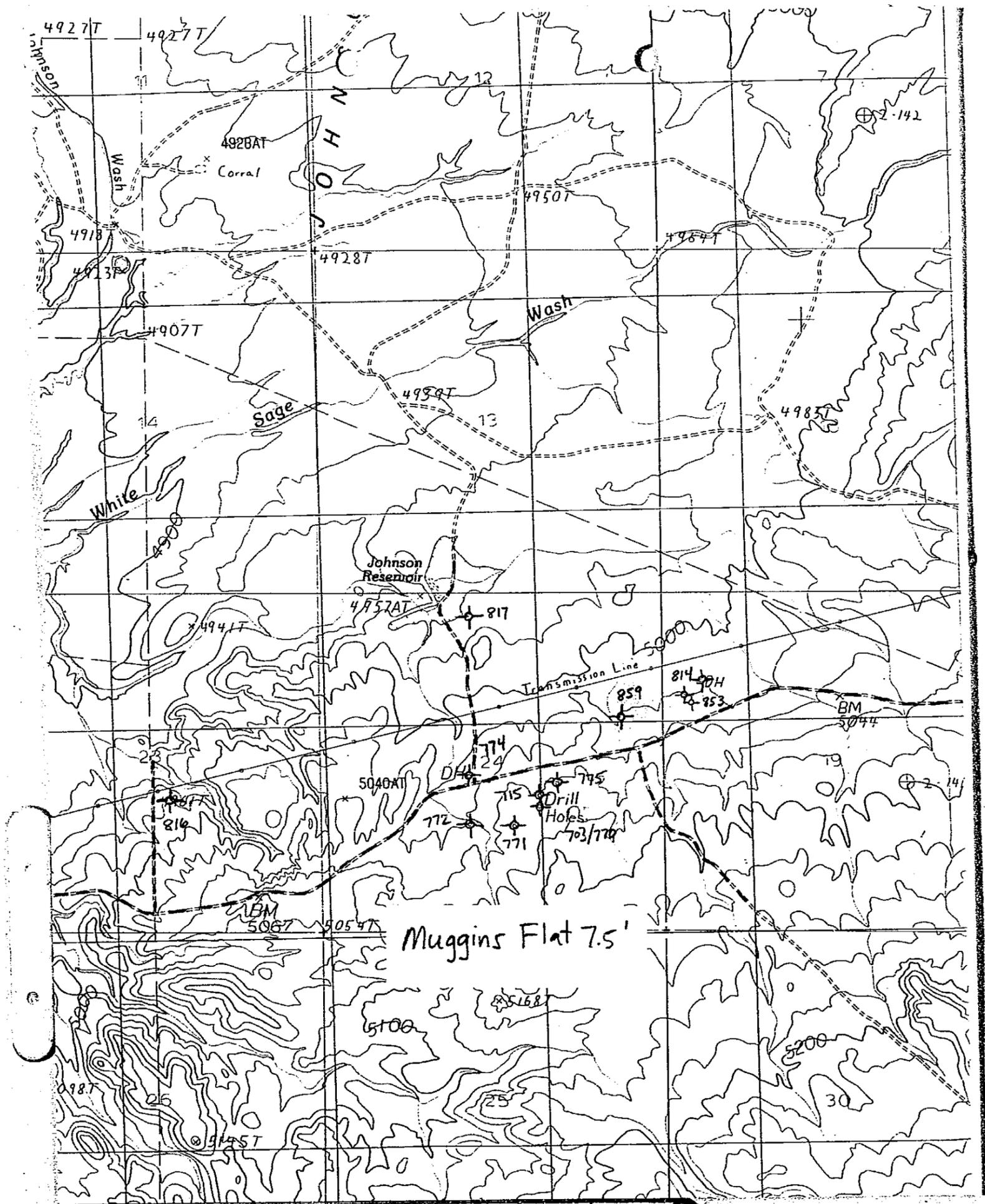
**16. ACCUMULATOR SHUT-OFF VALVE:** Manually operated. Normally in open position when the unit is in operation. Close when testing or skidding rig or when applying pressure over 3,000 psi to open side of ram preventers. OPEN WHEN TEST IS COMPLETED.

**17. ACCUMULATORS:** Check nitrogen precharge in accumulator system every 30 days. Nitrogen precharge should be 1000 psi  $\pm$  10% CAUTION: Use NITROGEN when adding to precharge. Other gases and air may cause fire and/or explosion.









**ORGANIZATION REPORT**

Full Name of the Company, Organization, or Individual  
**SHIELDS EXPLORATION COMPANY**

Post Office Address (Box or Street Address)  
**320 BELLINO DRIVE, PACIFIC PALISADES, CALIFORNIA 90272**

Plan of Organization (State whether organization is a corporation, joint stock association, firm or partnership, or individual)  
**CORPORATION**

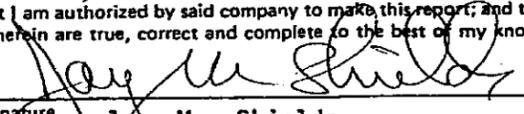
Purpose of Organization (State type of business in which engaged)  
**OIL & GAS EXPLORATION**

If a reorganization, give name and address of previous organization.

If a foreign corporation, give (1) State where incorporated	(2) Name and post office address of state agent	(3) Date of permit to do business in state
Principal Officers or Partners (if partnership) NAME	TITLE	POST OFFICE ADDRESS
JAY M. SHIELDS	PRESIDENT	Same As Above
MARGARET M. SHIELDS	SECRETARY-TREASURER (CFO)	" " "
THOMAS L. MACLEOD	VICE-PRESIDENT	301 BELLINO DR., PACIFIC PALISADES, CA 90272

DIRECTORS NAME	POST OFFICE ADDRESS
JAY M. SHIELDS	Same As Above
MARGARET M. SHIELDS	" " "
JAY MICHAEL SHIELDS	" " "
NANCY ROBERTS deFARIA	" " "
THOMAS L. MACLEOD	301 BELLINO DR., PACIFIC PALISADES, CA 90272

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the PRESIDENT of the SHIELDS EXPLORATION COMPANY (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

  
 Signature Jay M. Shields  
 Date June 10, 1990

STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION Organization Report File One Copy Form No. 1
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ORGANIZATION REPORT

AZ OIL & GAS  
CONSERVATION COMMISSION

MAY 24 1989

Full Name of the Company, Organization, or Individual  
**SHIELDS EXPLORATION COMPANY**

Post Office Address (Box or Street Address)  
**320 BELLINO DRIVE, PACIFIC PALISADES, CALIFORNIA 90272**

Plan of Organization (State whether organization is a corporation, joint stock association, firm or partnership, or individual)  
**CORPORATION**

Purpose of Organization (State type of business in which engaged)  
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MARGARET M. SHIELDS	SECRETARY-TREASURER (CFO)	" " "
THOMAS L. MACLEOD	VICE-PRESIDENT	301 BELLINO DR., PACIFIC PALISADES, CA 90272

DIRECTORS NAME	POST OFFICE ADDRESS
JAY M. SHIELDS	Same As Above
MARGARET M. SHIELDS	" " "
JAY MICHAEL SHIELDS	" " "
NANCY ROBERTS deFARIA	" " "
THOMAS L. MACLEOD	301 BELLINO DR., PACIFIC PALISADES, CA 90272

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the PRESIDENT of the SHIELDS EXPLORATION COMPANY (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Signature Jay M. Shields  
Date MAY 1, 1989

STATE OF ARIZONA  
OIL & GAS CONSERVATION COMMISSION  
Organization Report  
File One Copy  
Form No. 1

ORGANIZATION REPORT

RECEIVED

SEP 18 1986

Full Name of the Company, Organization, or Individual  
SHIELDS EXPLORATION COMPANY

Post Office Address (Box or Street Address)

320 BELLINO DRIVE, PACIFIC PALISADES, CA 90272

O & G CONSERV. COMM.

Plan of Organization (State whether organization is a corporation, joint stock association, firm or partnership, or individual)  
CORPORATION

Purpose of Organization (State type of business in which engaged)  
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	TITLE	POST OFFICE ADDRESS
JAY M. SHIELDS	PRESIDENT	ABOVE
MARGARET M. SHIELDS	SECRETARY-TREASURER	"
THOMAS L. MACLEOD	VICE-PRESIDENT	301 Bellino Drive Pacific Palisades, CA 90272

DIRECTORS NAME	POST OFFICE ADDRESS
JAY M. SHIELDS	AS ABOVE
MARGARET M. SHIELDS	"
JAY MICHAEL SHIELDS	"
NANCY ROBERTS deFARIA	1515 Lindacrest Dr., Beverly Hills, CA 90210
THOMAS L. MACLEOD	301 Bellino Dr., Pacific Palisades, CA 90272

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Signature: Jay M. Shields  
Date: Sept 15, 1986

STATE OF ARIZONA  
OIL & GAS CONSERVATION COMMISSION  
Organization Report  
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