

May 23, 2001

## MEMO

To: Ben Gonzales

From: Patricio W. Sanchez



RE: EPCMU #24 (F-6) Water Injection Well.

Ben,

The NMOCD called today regarding this well because on the "Bradenhead Test Report" the casing showed a pressure of 1372 PSIG. I discussed this with Mr. Greer and the thought that we both arrived at is that there is possibly a small gas bubble in the casing-tubing annulus.

We would like the pressure to be bled-off slowly while monitoring what type of fluid is coming out of the annulus. Place a chart recorder on the annulus and monitor it for a week. I have attached a copy of the last two Bradenhead Tests and the MIT that was done in 1997. Send your 7 day chart and blow-down test results to the office when you are done and we'll get with the NMOCD for further guidance regarding this well.

C NMOCD, ARG, MRD, Well file EPCMU#24(F-6)

Attached – Bradenhead tests, 1997 MIT, NMOCD Order No. R-6448

6-26-01



NEW MEXICO ENERGY, MINERALS  
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
AZTEC DISTRICT OFFICE  
1000 RIO BRAZOS ROAD  
AZTEC NM 87410  
(505) 334-6178 FAX: (505) 334-6170  
[http://nemnr.state.nm.us/ocd/District II/3district.htm](http://nemnr.state.nm.us/ocd/District%20II/3district.htm)

**BRADENHEAD TEST REPORT**  
(Submit 2 copies to above address)

5/23/01

8:00 AM - spoke  
w/ Charlie Poirier  
w/ NMCD - question  
regarding  
casing press.

Date of Test 5/14/01 Operator Benson Martin Greer API #30-0 39-08180  
Property Name EPCmu Well No. F-6 Location: Unit F Section 6 Township 24N Range 1E  
Pressure(Shut-In or Producing) Injection (water) Tubing 0 Intermediate N/A Casing 1372 Bradenhead 0

OPEN BRADENHEAD AND INTERMEDIATE TO ATMOSPHERE INDIVIDUALLY FOR 15 MINUTES EACH

TIME	PRESSURES:		BRADENHEAD FLOWED	INTERMEDIATE FLOWED
	INTERMEDIATE	CASING		
5 minutes			Steady Flow	
10 minutes			Surges	
15 minutes			Down to Nothing	
20 minutes			Nothing <u>X</u>	
25 minutes			Gas	
30 minutes			Gas & Water	
			Water	

If bradenhead flowed water, check all of the descriptions that apply below:

CLEAR \_\_\_\_\_ FRESH \_\_\_\_\_ SALTY \_\_\_\_\_ SULFUR \_\_\_\_\_ BLACK \_\_\_\_\_

REMARKS:

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

By Ben L. Longfellow Witness \_\_\_\_\_

\_\_\_\_\_  
(Position)

NEW MEXICO OIL CONSERVATION COMMISSION  
1000 Rio Brazos Road  
Aztec, New Mexico

BRADENHEAD TEST REPORT

(Submit 2 copies to above address)

Date of Test 6-18-98 Operator Benson-Montiv-Greer Drilling Co.  
Lease Name East Puerto Chiguto <sup>Manco</sup> Well No. 24 Location U E Sec. 6 Twp. 26N Rge. 1E  
Pressure (Shut-in) or Flowing) Dwt. Tubing 10 Casing 10 Bradenhead 0

OPEN BRADENHEAD TO ATMOSPHERE FOR 15 MINUTES.

Casing or Tubing Pressure, Dwt.

Bradenhead Flowed:

5 Min. \_\_\_\_\_  
10 Min. \_\_\_\_\_  
15 Min. \_\_\_\_\_  
20 Min. \_\_\_\_\_  
25 Min. \_\_\_\_\_  
30 Min. \_\_\_\_\_

Steady Flow \_\_\_\_\_  
Surges \_\_\_\_\_  
Down to Nothing \_\_\_\_\_  
Nothing X \_\_\_\_\_  
Gas \_\_\_\_\_  
Gas & Water \_\_\_\_\_  
Water \_\_\_\_\_

If Bradenhead flowed water check description below:

Clear \_\_\_\_\_  
Fresh \_\_\_\_\_  
Salty \_\_\_\_\_  
Sulfur \_\_\_\_\_  
Black \_\_\_\_\_

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

By Royce Smith  
Supervisor Position

Witness \_\_\_\_\_



STATE OF NEW MEXICO

ENERGY, MINERALS and NATURAL RESOURCES DIVISION  
OIL CONSERVATION DIVISION  
AZTEC DISTRICT OFFICEBRUCE KING  
GOVERNOR

JUL 23 1997

ANITA LOCKWOOD  
CABINET SECRETARY1000 RIO BRAZO  
AZTEC, NEW MEXICO  
88601MECHANICAL INTEGRITY TEST REPORT  
(TA or UIC)Date of Test 7-11-97 Operator Benson-Markiv-Greer Oil Corp  
Lease Name E. Puerto Chiquito Well # 24 Location: Unit E Sec 6 Twn 26N Rge 1ELand Type: State     
Federal X  
Private     
Indian   Well Type: Water Injection X  
Salt Water Disposal     
Gas Injection     
Producing Oil/Gas     
Pressure Observation   Temporarily Abandoned Well (Y/N): NTA Expires: U.A.Casing Pres. 0  
Bradenhead Pres. 140  
Tubing Pres. 140  
Int. Casing Pres. U.A.Tbg. SI Pres.     
Tbg. Inj. Pres.   Max. Inj. Pres.   Pressured annulus up to 970 psi. for 30 mins. Test passed failed.

## REMARKS:

Started test by bleeding off pressure on tubing annulus to 0. Pressured up tubing annulus to 970 psi at 11:48. Multiphased pressure of 1500 psi gauge) pressure on tubing annulus after 30 mins 960 psi. Pressure drop within 10% allowable bleed-off, well passed M.I.T.

Start - 970#  
End - 960#

10% pressure drop.

By

Roger Smith  
(Operator Representative)FORLMAI  
(Position)

Witness

Ernest Carlson  
(NMOCD)

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION FOR THE PURPOSE OF  
CONSIDERING:

CASE NO. 6944  
Order No. R-6448

APPLICATION OF BENSON-MONTIN-GREER  
DRILLING CORPORATION FOR A PRESSURE  
MAINTENANCE PROJECT, RIO ARRIBA  
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on July 9, 1980,  
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 26th day of August, 1980, the Division  
Director, having considered the testimony, the record, and the  
recommendations of the Examiner, and being fully advised in the  
premises,

FINDS:

(1) That due public notice having been given as required  
by law, the Division has jurisdiction of this cause and the  
subject matter thereof.

(2) That the applicant, Benson-Montin-Greer Drilling Corpo-  
ration, seeks authority to institute a pressure maintenance  
project on its East Puerto Chiquito-Mancos Unit Area in Townships  
26 and 27 North, Ranges 1 East and 1 West, NMPM, Rio Arriba County,  
New Mexico, by the injection of gas, air, LPG, water, or chemicals  
into the Mancos formation through seven wells located in Sections  
4, 6, and 7, Township 26 North, Range 1 East, Sections 19, 28, and  
29, Township 27 North, Range 1 East, and Section 25, Township 27  
North, Range 1 West.

(3) That of the aforesaid seven wells, gas would be injected  
into three existing wells located up-structure, being applicants'  
Well No. C-2 located in Unit C of Section 28 and Well No. G-29  
located in Unit G of Section 29, both in Township 27 North, Range  
1 East and Well No. D-4 located in Unit D of Section 4, Township  
26 North, Range 1 East, while water and chemicals would be in-  
jected into two existing wells located down-structure, being

applicants' Well No. F-6 located in Unit F of Section 6, Township 26 North, Range 1 East, and Well No. H-25 located in Unit H of Section 25, Township 27 North, Range 1 West, and also into two new wells to be drilled down-structure, to be located in Unit G of Section 7, Township 26 North, Range 1 East, and Unit E of Section 19, Township 27 North, Range 1 East.

(4) That although the proposed enhanced recovery injection program will involve the injection of fluids into the reservoir in its present primary state of depletion as a pressure maintenance program and continue on into secondary recovery, it will then, by the addition of so-called "tertiary chemicals," proceed into a tertiary recovery operation to depletion.

(5) That it is expected that the initial gas injection for pressure maintenance will recover some 600,000 barrels of oil not recoverable under primary depletion alone, that the continued gas injection and waterflooding for secondary recovery will recover an additional 400,000 barrels, and that the continued gas injection, water injection, and added tertiary chemicals will result in the recovery of yet another 400,000 barrels, for a total estimated 1,400,000 barrels of otherwise unrecoverable oil, thereby preventing waste.

(6) That prior to placing any well on injection, applicant should test and inspect the casing and cement on such well to ensure the integrity of same, and make such repairs as may be deemed necessary by the supervisor of the Aztec district office of the Division.

(7) That all injection should be through tubing set in a packer, and the casing-tubing annulus should be loaded with sweet oil or other inert fluid.

(8) That the operator should take all steps necessary to ensure that the injected fluids enter only the proposed injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(9) That there are two wells in the project area, both located within one-half mile of a proposed gas injection well, which should be investigated and re-entered if necessary to perform such remedial or plugging operations as are deemed appropriate by the supervisor of the Aztec district office of the Division prior to commencement of gas injection; said wells are the S & B Drilling Company's Jicarilla 287 Well No. 0-4, located

in Unit O of Section 21, and its Jicarilla 287 Well No. L-3, located in Unit L of Section 28, both in Township 27 North, Range 1 East.

(10) That the water and water/chemical injection wells, or injection pressurization system, should be so equipped as to limit injection pressure at the wellhead to no more than 0.2 psi per foot of depth to the uppermost perforation, or in the case of an open hole completion, to the depth of the casing shoe; that the gas injection wells, or gas injection pressurization system, should be so equipped as to limit gas injection pressure at the wellhead to no more than 500 psi. That the Division Director should have authority to administratively authorize pressure limitations in excess of the above upon a showing by the operator that such higher pressures will not result in fracturing of the confining strata.

(11) That provision should be made for the drilling of additional wells at orthodox and unorthodox locations for production, and for approval of same as injection wells administratively without notice and hearing.

(12) That special rules for the project should be adopted whereby allowables may be transferred from injection wells and shut-in wells to other wells for production.

(13) That the proposed project should be known as the BMG East Puerto Chiquito-Mancos Enhanced Recovery Project, and should be governed by the provisions of Rules 701, 702, and 703 of the Division Rules and Regulations not inconsistent herewith.

(14) That the proposed project is in the interest of conservation, will prevent waste and protect correlative rights, and should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, Benson-Montin-Greer Drilling Corporation, is hereby authorized to institute an enhanced recovery project on its East Puerto Chiquito-Mancos Unit Area, East Puerto Chiquito-Mancos Oil Pool, Rio Arriba County, New Mexico, by the injection of fluids into the Mancos formation as follows:

Gas Injection:

<u>Well No.</u>	<u>Unit Letter</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>
D-4	D	4	26N	1E
C-2	C	28	27N	1E
G-29	G	29	27N	1E

Water and/or Chemical Injection:

<u>Well No.</u>	<u>Unit Letter</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>
F-6	F	6	26N	1E
H-25	H	25	27N	1W
To be drilled	G	7	26N	1E
To be drilled	E	19	27N	1E

(2) That said project shall be known as the BMG East Puerto Chiquito-Mancos Enhanced Recovery Project.

(3) That Special Rules and Regulations governing the BMG East Puerto Chiquito-Mancos Enhanced Recovery Project are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS  
FOR THE  
BMG EAST PUERTO CHIQUITO-MANCOS  
ENHANCED RECOVERY PROJECT

RULE 1. The project area shall consist of all those proration units within the boundary of the East Puerto Chiquito-Mancos Unit Area upon which is completed a well in the East Puerto Chiquito-Mancos Oil Pool.

RULE 2. The project area shall receive a project area allowable, and said project area allowable shall be equal to 320 times the number of developed 160-acre proration units in the project area.

RULE 3. The project allowable may be produced from the wells in the project area in any proportion.

RULE 4. The Division Director shall have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations anywhere within the boundary of the East Puerto Chiquito-Mancos Unit Area, provided however, no unorthodox location shall be closer than ten feet to a quarter-quarter section line, and provided further that no such unorthodox location shall be closer than 330 feet to the outer boundary of the unit area unless such well is covered by a lease-line agreement with the operator of lands offsetting the well, and a copy of the lease-line agreement accompanies the application for such unorthodox location, or unless such operator has waived objection to the proposed unorthodox location in writing, and his waiver accompanies the application.



RULE 5. Application for approval of additional wells to be drilled for or converted to injection shall be filed in accordance with Rule 701 of the Division Rules and Regulations, and may be approved by the Division Director without notice and hearing.

RULE 6. Injection of any medium into any injection well shall be through tubing, and the tubing shall be set as near as is practicable to the uppermost perforation in the injection zone, or, in the case of an open-hole completion, as near as is practicable to the casing shoe.

RULE 7. The casing-tubing annulus of each injection well shall be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

RULE 8. Water/chemical injection wells or the injection pressurization system for same shall be so equipped as to limit injection pressure at the wellhead to no more than 0.2 psi per foot of depth to the injection zone; gas injection wells, or the gas injection pressurization system shall be so equipped as to limit injection pressure at the wellhead to no more than 500 psi. The Division Director may authorize higher injection pressures upon satisfactory showing that such pressures will not result in fracturing of the confining strata.

RULE 9. The operator shall immediately notify the supervisor of the Division's Aztec district office of the failure of the tubing, casing, or packer in any injection well, the leakage of water, oil, or gas from or around any producing well, or the leakage of water, oil, or gas from or around any plugged and abandoned well, anywhere in the project area, and shall take such timely steps as may be necessary or required to correct such failure or leakage.

RULE 10. No injection well shall be placed on active injection until it has been inspected and tested to ensure the integrity of the well's casing and cementing program. If such casing and cementing program is found to be defective in any proposed injection well, such repairs as may be deemed necessary by the Supervisor of the Aztec district office of the Division shall be made before placing the well on injection.

RULE 11. The operator shall file reports for this project on Division Form C-115 in accordance with Rule 704(1) of the Division Rules and Regulations and may later be required to file additional information in accordance with Rule 704(5).

(4) That prior to commencement of gas injection, applicant shall investigate and re-enter if necessary to perform such remedial or plugging operations as are deemed appropriate by the Supervisor of the Aztec district office of the Division the following two wells: S & B Drilling Company's Jicarilla 287 Well No. O-4 located in Unit O of Section 21, and its Jicarilla 287 Well No. L-3, located in Unit L of Section 28, both in Township 27 North, Range 1 East.

(5) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION



JOE D. RAMEY  
Director

S E A L

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