



STATE OF NEW MEXICO  
**ENERGY AND MINERALS DEPARTMENT**  
OIL CONSERVATION DIVISION

TONEY ANAYA  
GOVERNOR

June 14, 1983

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87501  
(505) 827-5800

M E M O R A N D U M

TO: JOE D. RAMEY

FROM: GILBERT P. QUINTANA *BPQ*

SUBJECT: APPLICATION OF DOME PETROLEUM CORPORATION FOR SALT  
WATER DISPOSAL, SAN JUAN COUNTY, NEW MEXICO - CASE 7877

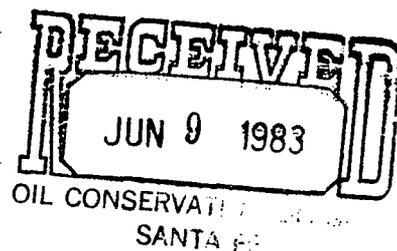
We recently discussed my concern about accepting data other than step-rate tests as valid indications of true reservoir fracture pressures. I would like to reiterate my recommendation and reasons why an ISIP in the subject case should not be used in lieu of a step-rate test in assigning a maximum pressure limit. My reasons are as follows:

1. It is general knowledge in the oil industry that step-rate tests are the most accurate method of determining reservoir fracture pressures. These sentiments are echoed in the attached letter from Amoco Production Company Research Center in Tulsa, Oklahoma.
2. Administrative approval of injection wells request step-rate tests as "proper showing" for increases in injection pressures. Since commencing my job at the OCD, I've handled injection well applications this way and have been informed by the District offices that they also comply with the same.

I recommend that engineering procedures for establishing injection pressures higher than the 0.2 psi/ft standard parallel, administrative approval procedures. This would not only reinforce good engineering practices within our Division but would develop consistency in our enforcement of Division Rules and Regulations concerning injection.

*ISIP 2100 #/in<sup>2</sup>*  
*.2 x 4796' = 959 #/in<sup>2</sup>*  
*1155 granted in Order*

June 6, 1983



Gilbert Quintana  
New Mexico Oil Conservation Division  
Land Office Building  
Santa Fe, New Mexico 87501

Dear Mr. Quintana,

This letter is in response to your question regarding the determination of reservoir parting pressures. Theoretically both the instantaneous shut-in pressure (ISIP) and the step rate test (SRT) methods can be used to determine reservoir parting pressure. I personally have reservations when accepting an ISIP as the parting pressure and consider it a poor engineering practice.

As you are well aware, the ISIP is the shut-in reservoir pressure measured immediately after fracturing a reservoir. During a fracture stimulation, especially in some of the more heterogeneous pay zones, multiple fractures will occur. As fracture pressure increases, weaker zones (often the better pay zones) fracture first. Consequently, an ISIP usually represents the parting pressure of the last zone to fracture during stimulation. On the other hand, a step rate test run in a heterogeneous reservoir will identify the pressure at which the first zone will break down. Consequently, I favor the SRT since operating at near an ISIP could result in fracturing a significant portion of the reservoir.

I do believe however the ISIP has its place. It is a tool that can be used with SRTs and can give an operator some guidelines before an SRT can be run. In thin homogeneous reservoirs where essentially all the rock should fracture at the same pressure, the ISIP and the SRT may indicate identical results.

I hope this is the kind of input you need to solve your problem. If you have any other questions on this or any other matter regarding the conservation of oil or natural gas, I will be happy to help.

Very truly yours,

A handwritten signature in cursive script that reads "J. B. Auman".

J. B. Auman  
Sr. Petroleum Engineer  
Amoco Production Company

JBA



STATE OF NEW MEXICO  
**ENERGY AND MINERALS DEPARTMENT**  
OIL CONSERVATION DIVISION

TONY ANAYA  
GOVERNOR

July 26, 1983

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87501  
(505) 827-5800

Dome Petroleum Corporation  
2900 Dome Tower  
1625 Broadway  
Denver, Colorado 80202

Attention: Robert S. Kelley, Sr. Production Engineer

Re: Exception to Plastic-Lined  
Tubing Requirement  
Order No. R-7308

Dear Mr. Kelley:

After consideration of the circumstances and a general consensus of agreement among our technical staff, you are granted an exception to the plastic-lined tubing requirement of Order No. R-7308. Should any problems arise from the granting of this exception, it will be rescinded. The Aztec district office should be kept informed as to the status of the well (Santa Fe 20-2).

Sincerely,

JOE D. RAMEY  
Director

JDR/GQ/fd

cc: Gilbert Quintana  
Aztec District  
✓ Case File 7877