

**EAST VACUUM GRAYBURG SAN ANDRES UNIT  
ATTACHMENT VII TO FORM C-108  
APPLICATION FOR AUTHORIZATION TO INJECT WATER  
AND CARBON DIOXIDE**

**DATA ON THE PROPOSED OPERATION  
OF INJECTION WELLS**

The proposed average and maximum daily water injection rate is:

Average daily rate 1,200 BWPD, Maximum daily rate 2,200 BWPD

The proposed average and maximum daily carbon dioxide rate is:

Average daily rate 3,000 MMSCFD, Maximum daily rate 5,000 MMSCFD

Both the water and carbon dioxide systems are closed.

The proposed average and maximum surface injection pressures for water are:

Average injection pressure 1,000 PSIG, Maximum\* injection pressure 1,350 PSIG

The proposed average and maximum surface injection pressures for carbon dioxide are:

Average injection pressure 1,500 PSIG, Maximum\* injection pressure 1,850 PSIG

\* Maximum injection pressures are based on pre-existing Unit injection pressure allowable which are based on actual San Andres fracture gradients.

There are two sources of injection water makeup, San Andres produced water from Phillips operated East Vacuum Grayburg San Andres Unit and Ogallala fresh water from the EVGSAU water supply wells. Both waters have been injected into the San Andres formation since 1979, and are compatible with each other and the San Andres formation. The two sources of carbon dioxide are from reinjected produced gas and purchased pipeline sales gas. The gas composition is approximately:

CARBON DIOXIDE	91 %
HYDROGEN SULPHIDE	2 %
NITROGEN	2 %
HYDROCARBON	5 %

Carbon dioxide has been injected into the San Andres Formation since 1985 under the authority on NMOCD Order No. R6856 dated 12/16/81.