



**Application for a Certificate of Qualification for the Lease Line Expansion Project at the  
East Vacuum Grayburg San Andres Unit**

---

August 14, 2003

The following data is provided in accordance with procedure requirements for a Certificate of Qualification for the expansion of an Enhanced Oil Recovery Project. Data provided is for a lease line expansion project, East Vacuum Grayburg San Andres Unit, Vacuum Grayburg San Andres Pool, Lea County, New Mexico.

- a. Operators name and address: ConocoPhillips Company  
4001 Penbrook Street  
Odessa, Texas 79762
- b. Description of the project area:
  1. Plat outlining the project area. See Attachment 1, Plat of Existing and Proposed expansion to the East Vacuum Grayburg San Andres unit Enhanced Oil Recovery Project.
  2. Description of the project area.

The proposed expansion to the current CO<sub>2</sub> flood project area is approximately defined as follows: the NW/4, SE/4 equivalent, the W/2, NE/4, SE/4 equivalent, the NE/4, NE/4, SE/4 equivalent, the NW/4, SE/4, SE/4 equivalent, and the S/2, SE/4, SE/4 equivalent of Section 31, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico; and the SW/4, SW/4, NW/4 equivalent, the NW/4, NW/4, SW/4 equivalent, and the SW/4, SW/4, SW/4 equivalent of Section 32, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico; and the NW/4, NW/4, NW/4 equivalent of Section 5, Township 18 South, Range 35 East, NMPM, Lea County, New Mexico, comprising 156 acres, more or less.
  3. Total acres. The current project is flooding approximately 3151 acres with CO<sub>2</sub>, and the proposed lease line expansion to this project will flood approximately 156 acres.
  4. Name of subject pool and formation. Vacuum Grayburg San Andres Pool  
San Andres Formation
- c. Status of operations in the project area:
  1. The project area is currently unitized under the name East Vacuum Grayburg San Andres Unit, having been approved under Division Order R-5871 on November 27, 1978.
- d. Method of recovery to be used:
  1. Fluids to be injected. ConocoPhillips Company will inject carbon dioxide (CO<sub>2</sub>) or a mixture of natural gas and CO<sub>2</sub> from the Ryan-Holmes liquid recovery plant in operation at the East Vacuum

Grayburg San Andres unit. Produced water will also be used as an injectant in a water-alternating-gas (WAG) cycle.

2. Division Order approving the project. The original water injection project covering 7025 acres was approved by the Division in order number R-5897 dated January 16, 1979. This order was amended by Order R-6856, approving injection of carbon dioxide, on December 16, 1981.

Injection of CO2 into the wells included in this expansion was approved by the Division on March 24, 2000 (wells #395, #396, #398, and #399) in administrative order PMX-203 and on November 28, 2001 (wells #3127-007, #3127-006, #3127-005, and #3236-008) by Amendment of Administrative orders PMX -88, 90, 91, and 95.

e. Description of the project:

1. A list of producing wells. See Attachment 2 for a list of producing wells in the current project area and a list of producing wells in the expanded project area.
2. A list of injection wells. See Attachment 3 for a list of injection wells in the current project area and a list of injection wells in the expanded project area.
3. Capital cost of additional facilities.

Total capital cost of the project is as follows:

Convert eight existing lease line wells to CO2 WAG service:	740,000
Extend the injection gas distribution system to the lease line area:	360,000
<b>Total Capital Cost:</b>	<b>\$1,100,000</b>

4. Total project cost.

Total project costs include initial capital expenditures as well as the cost of injected fluids and over a period of eleven years as detailed in the forecasts provided. The project will also require routine maintenance and water injection, but these costs are not included in the following detail:

Initial capital costs:	1,100,000
Cost of purchased CO2:	7,200,000
Cost of recycling incremental gas:	5,900,000
<b>Total Project Cost:</b>	<b>\$ 14,200,000</b>

Note: Costs shown are based on a flat rate per MCF CO2 and are not discounted with time.

5. The estimated total value of the additional production that will be recovered as a result of this project:

The following is the incremental oil production forecast for the East Vacuum Grayburg San Andres Unit lease line project area:

Year	Oil Production (MBOPY)	Value \$ Using \$20/BO
2004	19	\$ 387,211
2005	86	\$ 1,724,366
2006	124	\$ 2,488,735
2007	153	\$ 3,051,902
2008	171	\$ 3,410,393
2009	179	\$ 3,573,999
2010	176	\$ 3,512,932
2011	120	\$ 2,403,842
2012	54	\$ 1,073,774
2013	25	\$ 493,289
2014	11	\$ 229,135
Totals	1117	\$22,349,576

6. Anticipated date for commencement of injection:

The anticipated date for commencement of injection is October 1, 2003.

7. Type of fluid to be injected and the anticipated volumes:

See item d.1 above for a description of the fluids to be injected. The forecasted injection volumes are as follows:

Year	CO2 Injection (MCFD)	Water Injection (BWPD)
2003	12,000	0
2004	6,000	4,000
2005	6,000	4,000
2006	6,000	4,000
2007	6,000	4,000
2008	6,000	4,000
2009	6,000	4,000
2010	4,000	3,000
2011	2,000	1,000
2012	1,000	1,000
2013	500	

8. If application is made for an expansion of an existing project, explain what changes in technology will be used or what additional geographic area will be added to the project area:

This expansion is entirely geographic in nature. The expanded area is defined in section b.2 above. This area has not been subjected to CO2 injection or flooding as evidenced by the low GOR compared to the GOR of all wells in the original project area (see Attachment 4 and 5). See Attachment 1 for a map of the current project and the proposed lease line expansion.

- f. Production data: Provide graphs, charts and other supporting data to show the production history and production forecast of oil, gas, casinghead gas and water from the project area.

Attachment 4: Historical production plot (oil, gas, water) for the current East Vacuum Grayburg San Andres Unit project area.

Attachment 5: Historical production plot (oil, gas, water) for the wells currently in the lease line project expansion area.

Attachment 6: Forecast production plot (oil, gas) for the lease line expansion project.

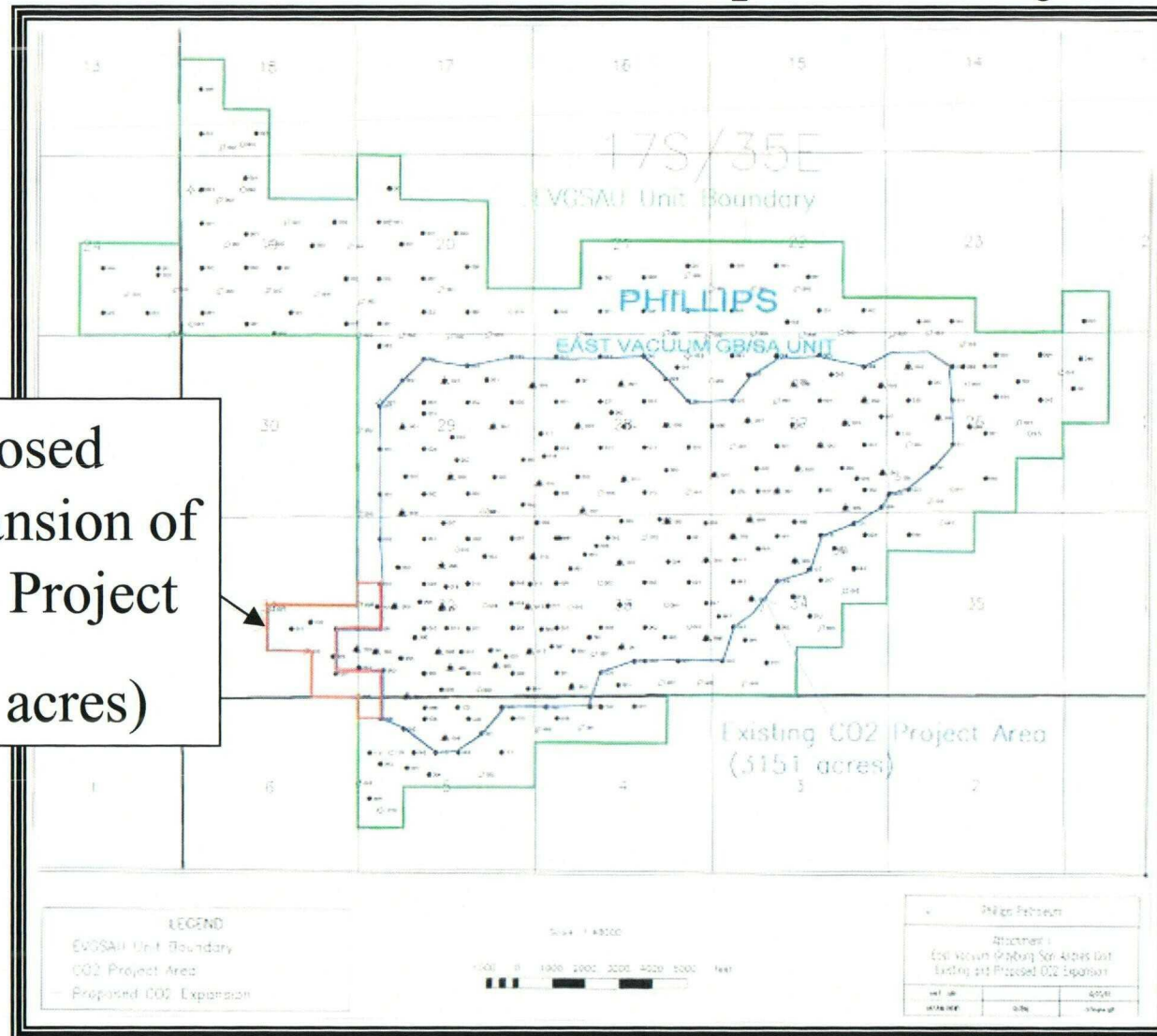
Attachment 7: Map of the proposed lease line development.

# Attachment 1

## East Vacuum Grayburg-San Andres Unit

### Lease Line Expansion Project

Proposed  
Expansion of  
CO2 Project  
(156 acres)



**Attachment 2**  
**East Vacuum Grayburg San Andres Unit**  
**Producing Wells in the Current Project Area**

Tract-Well	Tract-Well	Tract-Well	Tract-Well
0449-115	2801-003	3202-005	3332-002
0449-128	2801-004	3202-006	3332-003
0524-002	2801-008	3202-007	3332-021
0524-008	2801-009	3202-012	3332-389
0524-036	2801-010	3202-014	3333-001
0524-098	2801-011	3202-015	3333-003
0524-118	2801-013	3202-016	3333-004
0546-001	2801-014	3202-017	3333-007
0546-038	2801-016	3202-018	3333-008
0546-093	2801-017	3202-019	3345-001
0546-119	2801-018	3202-020	3345-035
0546-123	2819-001	3202-021	3366-001
2622-001	2819-002	3202-384	3366-029
2622-030	2819-003	3202-385	3373-002
2622-031	2819-004	3229-001	3373-028
2622-041	2864-001	3229-002	3374-001
2631-022	2864-012	3229-003	3374-003
2631-110	2864-013	3229-004	3374-004
2648-001	2864-051	3229-005	3440-001
2648-004	2865-002	3229-009	3440-003
2648-023	2913-001	3229-010	3440-007
2648-126	2913-002	3229-011	3456-001
2658-011	2913-003	3229-012	3456-003
2717-001	2913-004	3229-013	3456-004
2717-002	2913-006	3229-390	3456-005
2717-004	2913-010	3236-001	3456-008
2717-006	2923-001	3236-002	3456-011
2720-001	2923-052	3236-003	3467-018
2720-003	2923-054	3236-004	3467-027
2720-004	2941-026	3236-005	3467-121
2720-005	2944-003	3236-007	
2720-007	2944-049	3236-009	
2721-003	2947-050	3308-001	
2721-020	2957-001	3308-002	
2721-388	2962-003	3308-003	
2738-003	2963-001	3308-004	
2738-004	2963-002	3308-005	
2738-005	2963-003	3308-006	
2739-001	2980-002	3308-007	
2739-002	2980-004	3315-002	
2739-005	3127-002	3315-003	
2739-006	3127-003	3315-004	
2739-007	3127-009	3315-005	
2739-008	3202-001	3315-011	
2739-393	3202-003	3328-001	
2801-002	3202-004	3328-002	

**East Vacuum Grayburg San Andres Unit  
Producing Wells in the Expanded Project Area**

Tract-Well

0524-008

3127-001

3127-002

3127-003

3127-008

3127-009

3127-397

3229-001

3229-002

3229-010

3229-011

3229-012

**Attachment 3**  
**East Vacuum Grayburg San Andres Unit**  
**Injection Wells in the Current Project Area**

Tract-Well	Tract-Well
0524W001	3315W008
0524W006	3328W003
2622W004	3332W001
2622W043	3332W032
2717W003	3333W002
2717W005	3333W005
2717W007	3333W006
2720W002	3345W383
2720W006	3373W001
2721W001	3374W002
2721W002	3374W387
2721W007	3456W002
2738W002	3456W006
2738W007	3456W007
2738W008	3456W009
2738W392	
2739W003	
2739W004	
2801W001	
2801W005	
2801W006	
2801W007	
2801W012	
2801W015	
2865W001	
2913W007	
2913W009	
2913W011	
2941W001	
2947W001	
2963W004	
2980W003	
3127W004	
3202W008	
3202W009	
3202W010	
3202W011	
3202W013	
3202W033	
3229W006	
3229W007	
3229W008	
3229W386	
3236W006	
3315W001	
3315W006	



**East Vacuum Grayburg San Andres Unit  
Injection Wells in the Expanded Project Area**

Tract-Well

3127W005

3127W006

3127W007

3127W395

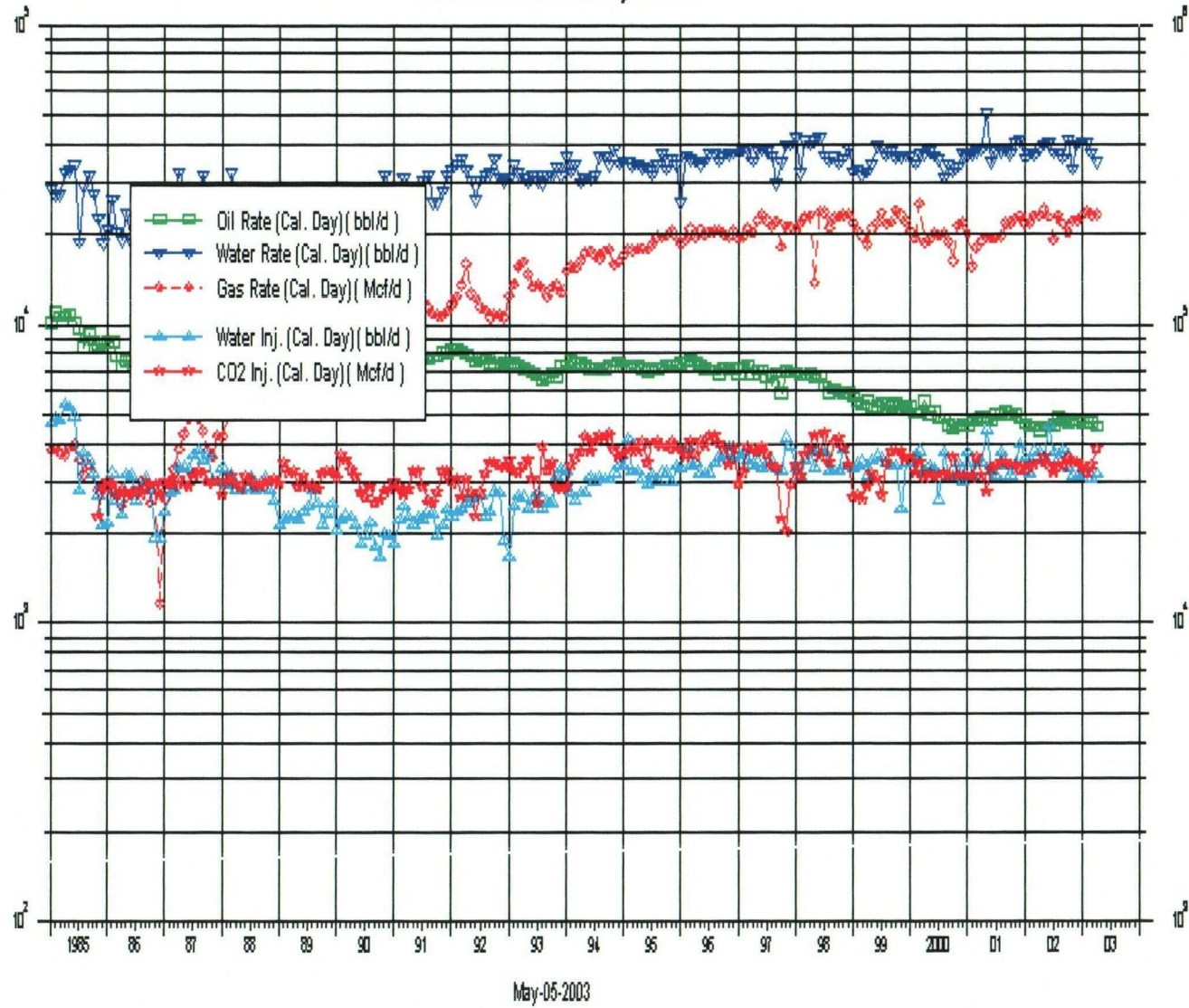
3127W396

3127W398

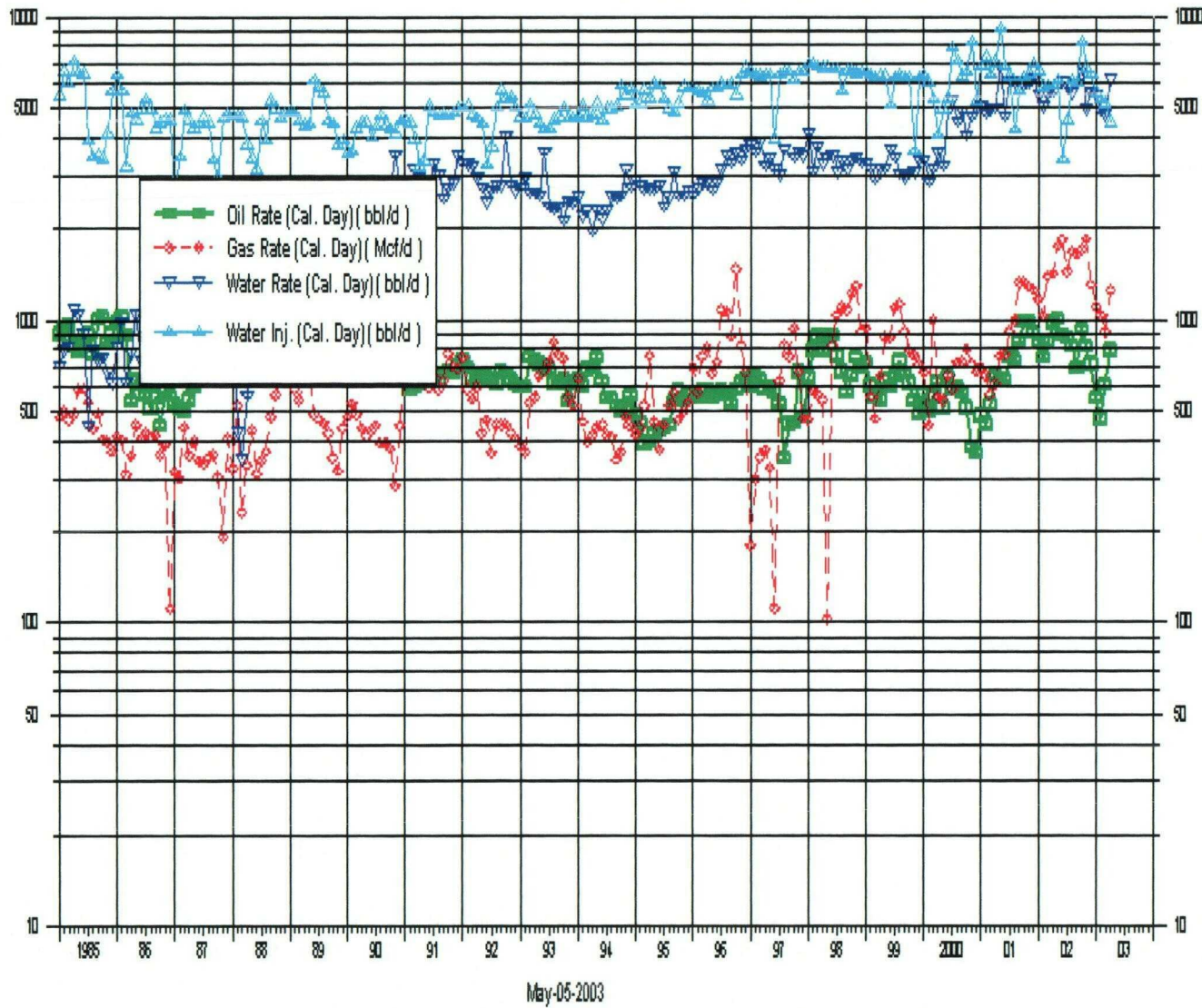
3127W399

3236W008

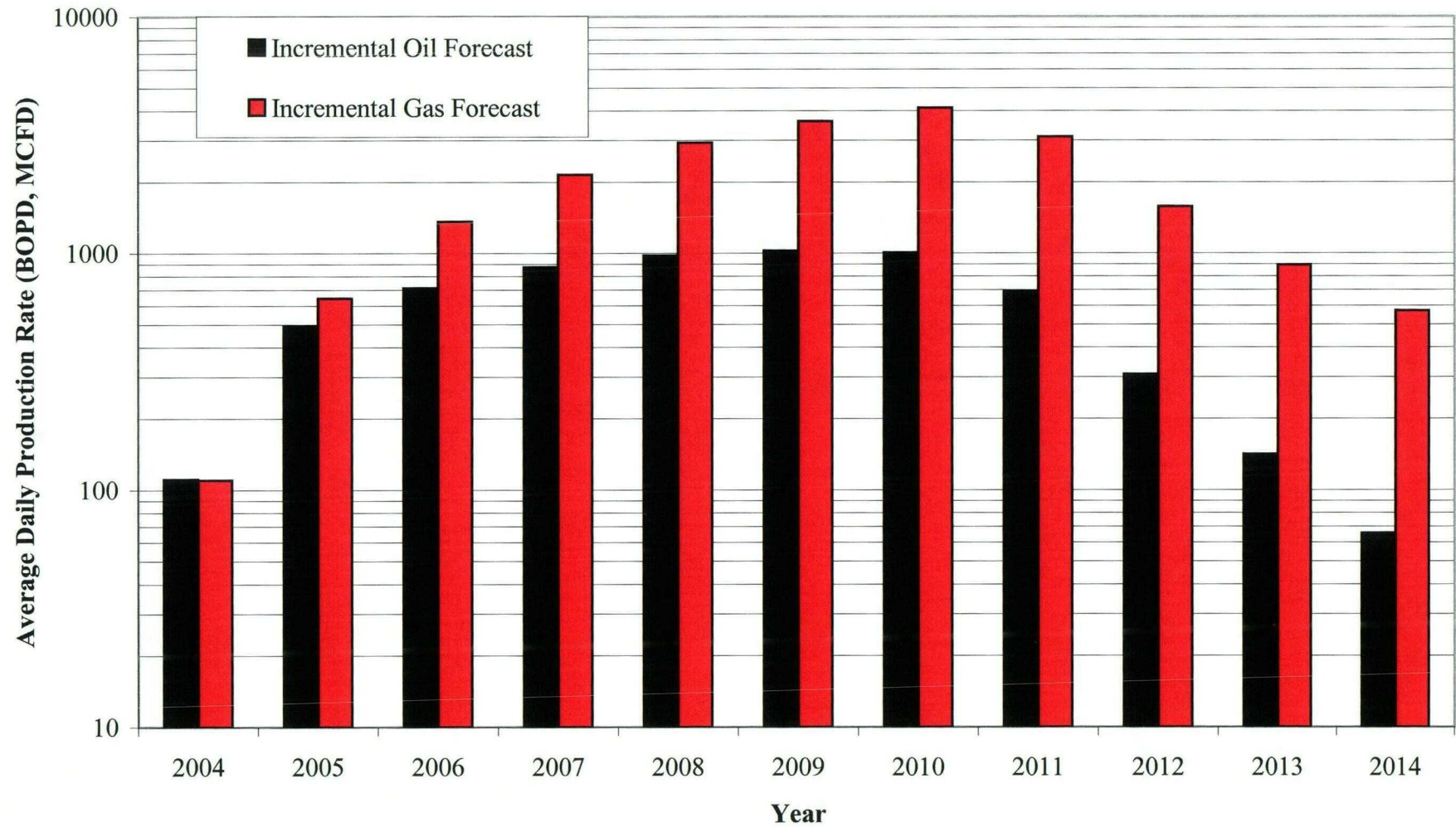
Attachment 4  
EVGSAU Current CO2 Project Area



Attachment 5  
EVGSAU Expanded Project Area

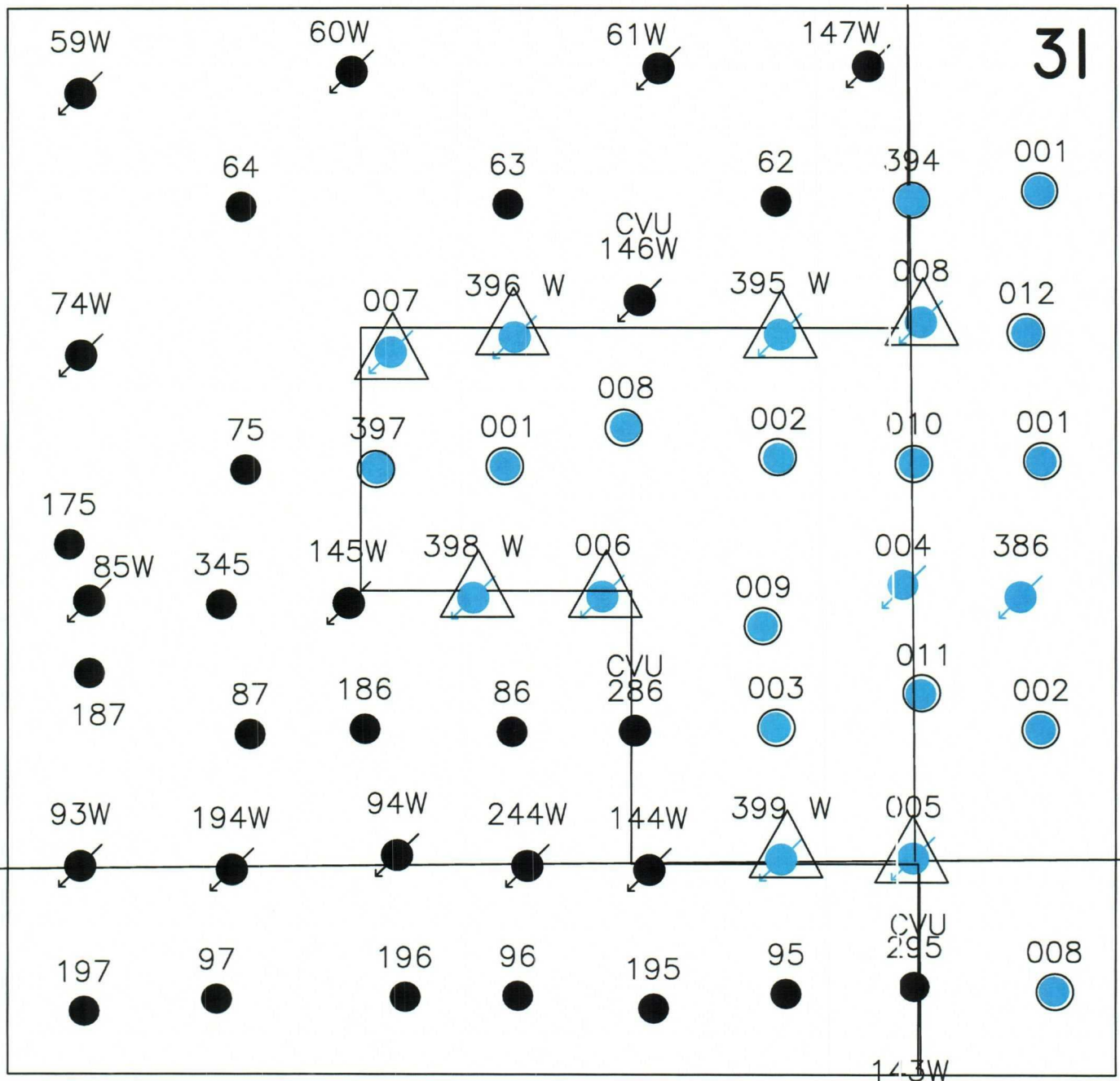




## Attachment 6 EVGSAU Lease Line Project





# ATTACHMENT 7



**LEGEND**  
 Proposed WAG Injector Conversion  
 Producers Affected by Lease Line Expansion Project

**ConocoPhillips**

ConocoPhillips Company  
 Proposed Lease Line Expansion Project  
 EVGSAU  
 Lea County, New Mexico