Department of Mines, Minerals and Energy Division of Gas and Oil

Operations Name: J S ROSE Permit #: 3205

Well #:

VCP3593 VA File #: DI-0825

Department of Mines, Minerals and Energy Division of Gas and Oil P.O. Box 1416 Abingdon, Virginia 24210 703/676-5423

## COMPLETION REPORT

|                                                                                                                                                                          | Gas          | Coalbed Methan                                                                   | e X or In                         | jection                         | well                                                                         | 14                     | Q1 to    |                 |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------------------------------------------------------------|-----------------------------------|---------------------------------|------------------------------------------------------------------------------|------------------------|----------|-----------------|--|
| Date Well Completed:                                                                                                                                                     | 6/16/97      | Total Depth                                                                      | of Well: L                        | TD - 2                          | 2716 DTD -                                                                   | 2720                   |          |                 |  |
| Attach the Drilling Report; if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted. |              |                                                                                  |                                   |                                 |                                                                              |                        |          |                 |  |
| STIMULATION RECOR                                                                                                                                                        | 2            |                                                                                  |                                   |                                 |                                                                              |                        |          |                 |  |
| Zone 1:<br>32600# 12/20 SAND - 64'                                                                                                                                       |              | SEAMS*                                                                           | Formation S                       | timulated                       | With:                                                                        | 75Q FOA                | M W/     |                 |  |
| Perforated:                                                                                                                                                              | 1864         | to:                                                                              | 2290                              | No of                           | Perforations:                                                                | 11                     | Size:    | 0.34"           |  |
| Formation Broke Down at                                                                                                                                                  |              | PSIG                                                                             | 2270                              | _                               | rage Injection Rate:                                                         |                        | BPM      |                 |  |
| ISIP:                                                                                                                                                                    | 1532         | PSIG 5 Min SIP:                                                                  | 1506                              |                                 | Average Injection                                                            |                        | 2950     |                 |  |
| Date Stimulated:                                                                                                                                                         | 6/16/97      |                                                                                  | 1300                              | - 1010                          | irrainge injection                                                           | 11055410               |          |                 |  |
| * WARCREEK, UNNAM                                                                                                                                                        |              |                                                                                  | PEN, X-SEAN                       | I, POCO                         | #8, POCO #5 RID                                                              | ER                     |          |                 |  |
| Zone 1:                                                                                                                                                                  |              |                                                                                  | Formation St                      | imulated                        | With.                                                                        |                        |          |                 |  |
| Zone 1.                                                                                                                                                                  |              |                                                                                  | . Formation S                     | imulated                        | wiui.                                                                        | -                      |          |                 |  |
| Perforated:                                                                                                                                                              |              | to:                                                                              |                                   | No. of                          | Perforations:                                                                |                        | Size:    |                 |  |
| Formation Broke Down at                                                                                                                                                  |              | PSIG                                                                             |                                   | Aver                            | age Injection Rate:                                                          |                        |          |                 |  |
| ISIP:                                                                                                                                                                    |              | PSIG 5 Min SIP:                                                                  |                                   |                                 | Average Injection                                                            | Pressure               |          |                 |  |
| Date Stimulated:                                                                                                                                                         |              |                                                                                  |                                   | -                               |                                                                              |                        |          |                 |  |
|                                                                                                                                                                          |              |                                                                                  |                                   |                                 |                                                                              |                        |          |                 |  |
| Zone 3:                                                                                                                                                                  |              |                                                                                  | Formation St                      | imulated                        | With:                                                                        |                        |          |                 |  |
| Zone 5.                                                                                                                                                                  |              |                                                                                  | . Tormation St                    | immatcu                         | with.                                                                        |                        |          |                 |  |
|                                                                                                                                                                          |              |                                                                                  |                                   |                                 |                                                                              |                        |          |                 |  |
| Perforated:                                                                                                                                                              |              | to:                                                                              |                                   | No. of                          | Perforations:                                                                |                        | Size:    |                 |  |
|                                                                                                                                                                          |              | 10000                                                                            |                                   | -                               |                                                                              |                        | Size:    |                 |  |
| Formation Broke Down at                                                                                                                                                  |              | PSIG                                                                             |                                   | Aver                            | age Injection Rate:                                                          |                        | Size:    |                 |  |
|                                                                                                                                                                          |              | 10000                                                                            |                                   | Aver                            |                                                                              | Pressure               | Size:    |                 |  |
| Formation Broke Down at ISIP:                                                                                                                                            |              | PSIG                                                                             |                                   | Aver                            | age Injection Rate:                                                          |                        | Size:    |                 |  |
| Formation Broke Down at ISIP:                                                                                                                                            |              | PSIG PSIG 5 Min SIP: Natural                                                     |                                   | Aver<br>PSIG                    | age Injection Rate: Average Injection  After Stimulation                     | Pressure               |          |                 |  |
| Formation Broke Down at ISIP: Date Stimulated: FINAL PRODUCTION:                                                                                                         |              | PSIG<br>PSIG 5 Min SIP:                                                          |                                   | Aver<br>PSIG                    | age Injection Rate:<br>Average Injection                                     | Pressure               | Size:    | ESTED           |  |
| Formation Broke Down at ISIP: Date Stimulated: FINAL PRODUCTION: Zone (1)                                                                                                |              | PSIG PSIG 5 Min SIP: Natural                                                     |                                   | Aver<br>PSIG                    | age Injection Rate: Average Injection  After Stimulation                     | Pressure               |          | ESTED           |  |
| Formation Broke Down at ISIP: Date Stimulated: FINAL PRODUCTION: Zone (1) Zone (2)                                                                                       |              | PSIG PSIG 5 Min SIP: Natural                                                     |                                   | Aver<br>PSIG                    | age Injection Rate: Average Injection  After Stimulation                     | Pressure               |          | ESTED           |  |
| Formation Broke Down at ISIP: Date Stimulated: FINAL PRODUCTION: Zone (1) Zone (2) Zone (3)                                                                              |              | PSIG PSIG 5 Min SIP: Natural                                                     |                                   | Aver<br>PSIG                    | age Injection Rate: Average Injection  After Stimulation                     | Pressure               |          | ESTED           |  |
| Formation Broke Down at ISIP: Date Stimulated:  FINAL PRODUCTION:  Zone (1) Zone (2) Zone (3) Final Production if Gas                                                    |              | PSIG PSIG 5 Min SIP:  Natural BOD MCFD                                           | HOURS T                           | Aver<br>PSIG<br>ESTED           | age Injection Rate: Average Injection  After Stimulation  ROCK PRESS         | Pressure<br>n<br>SURE  | HOURS TI |                 |  |
| Formation Broke Down at ISIP: Date Stimulated: FINAL PRODUCTION: Zone (1) Zone (2) Zone (3)                                                                              |              | PSIG PSIG 5 Min SIP: Natural                                                     |                                   | Aver<br>PSIG<br>ESTED           | age Injection Rate: Average Injection  After Stimulation                     | Pressure<br>n<br>SURE  | HOURS TI | ESTED  s Tested |  |
| Formation Broke Down at ISIP: Date Stimulated:  FINAL PRODUCTION:  Zone (1) Zone (2) Zone (3) Final Production if Gas                                                    | 35           | PSIG PSIG 5 Min SIP:  Natural BOD MCFD  MCFD  MCFD                               | HOURS T                           | Aver<br>PSIG<br>ESTED           | age Injection Rate: Average Injection  After Stimulation ROCK PRESS          | Pressure<br>n<br>SURE  | HOURS TI |                 |  |
| Formation Broke Down at ISIP: Date Stimulated: FINAL PRODUCTION: Zone (1) Zone (2) Zone (3) Final Production if Gas Zones are Commingled *Use additional sheets with     | 35           | PSIG PSIG 5 Min SIP:  Natural BOD MCFD  MCFD  MCFD                               | HOURS To Hours Test 3) zones were | Aver PSIG  ESTED  ed  stimulate | age Injection Rate: Average Injection  After Stimulation  ROCK PRESS         | Pressure<br>n<br>SURE  | HOURS TI |                 |  |
| Formation Broke Down at ISIP: Date Stimulated: FINAL PRODUCTION: Zone (1) Zone (2) Zone (3) Final Production if Gas Zones are Commingled *Use additional sheets with     | a this forma | PSIG PSIG 5 Min SIP:  Natural BOD MCFD  MCFD  MCFD  MCFD  MCFD  MCFD  MCFD  MCFD | HOURS To Hours Test 3) zones were | Aver PSIG  ESTED  ed  stimulate | age Injection Rate: Average Injection  After Stimulation ROCK PRESS  148  d. | Pressure  BURE  PSIG 4 | HOURS TI |                 |  |
| Formation Broke Down at ISIP: Date Stimulated: FINAL PRODUCTION: Zone (1) Zone (2) Zone (3) Final Production if Gas Zones are Commingled *Use additional sheets with     | a this forma | PSIG PSIG 5 Min SIP:  Natural BOD MCFD  MCFD  MCFD  MCFD  MCFD  MCFD  MCFD  MCFD | HOURS To Hours Test 3) zones were | Aver PSIG  ESTED  ed  stimulate | age Injection Rate: Average Injection  After Stimulation ROCK PRESS  148  d. | Pressure  SURE  PSIG   | HOURS TI |                 |  |

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| Department of Mines, Minerals and Energy |
|------------------------------------------|
| Division of Gas and Oil                  |

Operations Name: JSROSE Permit #: 3205

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#### DRILLING REPORT

|                          | .1, § 1.36, trict of the nth, 1997. | _             | d Permittee<br>ENSON |             | report on Well<br>Virginia on | VCP3593<br>4 <sup>TH</sup> | in the day, |            |
|--------------------------|-------------------------------------|---------------|----------------------|-------------|-------------------------------|----------------------------|-------------|------------|
| County: DICK             | ENSON                               |               | Distric              | t: KENAD    | Y                             |                            |             |            |
| Surface Elevation: 2336  |                                     | Elev of Kelly | Bushing:             | 2346        | Quadrangle:                   | CANEY RIDGE                |             | - 4        |
| 1990 Ft. S               | of Latitude                         | 37 02 30      |                      | and         | 2130                          | Ft. W of Longitude         | 82 22 3     | 0          |
| DRILLING DATA            |                                     |               |                      |             |                               |                            |             |            |
| Date Drilling Commenced: | 6/1/97                              |               | Drilling (           | Contractor: | UNION DRILL                   | LING                       |             |            |
| Date Drilling Completed: | 6/4/97                              |               | Rig Type             | :           | X Ro                          | taryC                      | able Tool   |            |
| Total Depth of Well:     | LTD -                               | 2716          | DTD -                | 2720        | ,                             | \$ <del>-11222245555</del> |             |            |
| GEOLOGICAL DATA          |                                     |               |                      |             |                               |                            |             |            |
| Fresh Water at:          | 2010                                | feet          | DAMP                 | GPM         |                               | feet                       |             | GPM        |
|                          |                                     | feet          |                      | GPM         |                               | feet                       |             | GPM        |
| 2 0 122                  |                                     | feet          |                      | GPM         |                               | feet                       |             | GPM        |
| Salt Water at:           |                                     | feet          |                      | GPM         |                               | feet                       |             | GPM        |
|                          |                                     | feet<br>feet  |                      | GPM<br>GPM  |                               | feet<br>feet               |             | GPM<br>GPM |
|                          |                                     | 1001          |                      | OI WI       |                               | 1001                       |             | GI IVI     |
| COAL SEAMS:              |                                     |               |                      |             |                               | MINING IN ARE              | A           |            |
| NAME                     | TOP                                 | BOTTO         | M T                  | HICKNESS    | YES                           | NO                         | MINE        | D OUT      |
| KENNEDY                  | 714                                 | 718           |                      | 4           | - <del></del> -:              |                            |             |            |
| RAVEN                    | 913                                 | 917           |                      | 4           |                               |                            |             |            |
| JAWBONE                  | 1064                                | 1069          |                      | 5           |                               |                            |             |            |
| BECKLEY                  | 1941                                | 1943          |                      | 2           |                               |                            |             |            |
| X-SEAM                   | 2061                                | 2063          |                      | 2           |                               |                            |             |            |
| POCO #5 RIDER<br>POCO #3 | 2387                                | 2390          |                      | 3 2         |                               |                            |             |            |
| POCO #2                  | 2500<br>2530                        | 2502<br>2534  |                      | 4           |                               |                            |             |            |
| 1000 #2                  | 2550                                | 2554          |                      | ,           |                               |                            |             |            |
| GAS AND OIL SHOWS:       |                                     |               |                      |             |                               |                            |             |            |
| FORMATION                | <u>FOP</u> <u>B</u> 0               |               | HICKNES              | S IPF (N    | (CFD/BOPD)<br>ODOR            | PRESSURE I                 | HOURS T     | ESTED      |

Form DGO-GO-14

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Department of Mines, Minerals and Energy Division of Gas and Oil

Operations Name: J S ROSE

Permit #:

3205

Well #: VA File #:

VCP3593 DI-0825

Cuttings or samples Cuttings or samples

are have

are not have not

available for examination by a member of the Virginia Division of Mineral Resources been furnished to the Virginia Division of Mineral Resources

## ELECTRIC LOGS AND SURVEYS

List logs run on wellbore:

GR/ DEN/TMP

Did log disclose vertical location of a coal seam?

Yes X No

#### SURVEY RESULTS

| DEPTH<br>OF SURVEY | DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL | DEPTH<br>OF SURVEY | DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL |
|--------------------|-----------------------------------------------|--------------------|-----------------------------------------------|
| 200                | 1/4°                                          | 1600               | 1°                                            |
| 247                | 1/4°                                          | 1745               | 1°                                            |
| 400                | 1/2°                                          | 1853               | 3/40                                          |
| 600                | 1/2°                                          | 1912               | 3/40                                          |
| 800                | 3/40                                          | 1987               | 1°                                            |
| 1000               | 3/40                                          | 2000               | 1°                                            |
| 1065               | 3/40                                          | 2200               | 1 1/4°                                        |
| 1200               | 3/4°                                          | 2337               | 1 1/4°                                        |
| 1400               | 3/40                                          | 2496               | 1 1/4°                                        |
| 1541               | 3/4°                                          | 2529               | 1 1/4°                                        |

### CASING AND TUBING

|                                         |              |     |                 |        | CEMENT<br>USED |          |      | PACKERS OR<br>BRIDGE PLUGS |        |  |
|-----------------------------------------|--------------|-----|-----------------|--------|----------------|----------|------|----------------------------|--------|--|
|                                         | SIZE         | TOP | BOTTOM          | LENGTH | IN CU/FT       | CEMENTED | KIND | SIZE                       | SET AT |  |
| Conductor                               | 11 3/4       |     | 32              | 22     | GROUTED        |          |      |                            |        |  |
| Surface                                 |              |     |                 |        |                |          |      |                            |        |  |
| Water Protection                        | 8 5/8        |     | 393             | 383    | 112(132)       | 6/2/97   |      |                            |        |  |
| Coal Protection                         |              |     |                 |        |                |          |      |                            |        |  |
| Other Casing and<br>Tubing Left in Well | 4 ½<br>2 3/8 |     | 2678<br>2444.55 | 2668   | 580(748)       | 6/4/97   |      |                            |        |  |

# Liners

REMARKS: Shut down, fishing jobs, depths and dates, caving, lost circulation, etc.

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Department of Mines, Minerals and Energy

Division of Gas and Oil

Operations Name: J S ROSE Permit #: 3205

2716

Well #:

VCP3593 VA File #: DI-0825

DRILLER'S LOG

Compiled by: ENGINEERING

|      |                  | <b>GENERAL</b> |       | D    | EPTH   |           |         |
|------|------------------|----------------|-------|------|--------|-----------|---------|
| AGE  | <b>FORMATION</b> | LITHOLOGY      | COLOR | TOP  | BOTTOM | THICKNESS | REMARKS |
| PENN | SAND, SHALE &    | THIN COALS     |       | 0    | 714    | 714       |         |
|      | KENNEDY          |                |       | 714  | 718    | 4         |         |
|      | SAND, SHALE &    | THIN COALS     |       | 718  | 913    | 195       |         |
|      | RAVEN            |                | 913   | 917  | 4      |           |         |
|      | SAND, SHALE &    |                | 917   | 1064 | 147    |           |         |
|      | <b>JAWBONE</b>   |                |       | 1064 | 1069   | 5         |         |
|      | SAND, SHALE &    | ;THIN COALS    |       | 1069 | 1941   | 872       |         |
|      | BECKLEY          |                |       | 1941 | 1943   | 2         |         |
|      | SAND, SHALE &    | THIN COALS     |       | 1943 | 2061   | 118       |         |
|      | X-SEAM           |                |       | 2061 | 2063   | 2         |         |
|      | SAND, SHALE &    | THIN COALS     |       | 2063 | 2387   | 324       |         |
|      | POCO #5 RIDER    |                |       | 2387 | 2390   | 3         |         |
|      | SAND, SHALE &    | THIN COALS     |       | 2390 | 2500   | 110       |         |
|      | POCO #3          |                |       | 2500 | 2502   | 2         |         |
|      | SAND, SHALE &    | THIN COALS     |       | 2502 | 2530   | 28        |         |
|      | POCO #2          |                |       | 2530 | 2534   | 4         |         |
|      | SAND, SHALE &    | THIN COALS     |       | 2534 | 2716   | 182       |         |
|      |                  |                |       |      |        |           |         |
|      |                  |                |       |      |        |           |         |
|      |                  |                |       |      |        |           |         |

Permittee:

LOGGER'S TOTAL DEPTH

EQUITABLE RESOURCES ENERGY COMPANY

(Company)

By:

(Signature)

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