

TABLE OF COURSES & DISTANCES

| | |
|-----------------------------|----------------------------|
| ① S 32°-30' W, 1948.14' | ⑭ N 50°-00' W, 363.00' |
| ② N 60°-31'-50" W, 959.53' | ⑮ N 41°-45' E, 1518.00' |
| ③ N 16°-01'-50" E, 1604.02' | ⑯ S 65°-30'-40" E, 496.43' |
| ④ N 50°-45' W, 471.90' | ⑰ S 16°-15' W, 495.00' |
| ⑤ N 15°-45' E, 391.00' | ⑱ S 20°-15' E, 379.50' |
| ⑥ N 50°-45' W, 485.10' | ⑲ S 15°-15' E, 726.00' |
| ⑦ N 46°-30' E, 907.50' | ⑳ S 38°-45' W, 577.50' |
| ⑧ S 55°-00' E, 1712.70' | ㉑ S 05°-15' W, 792.00' |
| ⑨ N 51°-45' E, 1039.50' | ㉒ S 26°-30' W, 742.50' |
| ⑩ N 44°-15' E, 389.40' | ㉓ S 28°-00' E, 279.00' |
| ⑪ N 63°-45' E, 561.00' | ㉔ S 63°-00' W, 561.00' |
| ⑫ N 68°-30' E, 445.50' | ㉕ S 33°-00' W, 1518.00' |
| ⑬ N 52°-30' E, 341.85' | ㉖ S 50°-00' W, 478.59' |
| ⑭ N 57°-15' W, 433.95' | ㉗ N 47°-15' W, 957.00' |
| ⑮ N 55°-15' W, 288.75' | |

B.M. U.S.G.S. H-23 1921 EL. 1299.00'
 LATITUDE: 39°-17'-30"
 LONGITUDE: 78°-38'-00"
 RELATIVE ACCURACY OF WORK 1938
 HANGING ROCK QUADRANGLE

75' loc bla 218/200
 2245 39° 17' 30"
 0.88 W 78° 40'
 calc 15' loc

New Location .
 Drill Deeper
 Redrill
 Abandonment

"I, the undersigned, hereby certify that this map is correct to the best of my knowledge and belief and shows all the information required by paragraph 6 of the rules and regulations of the oil and gas section of the mining laws of West Virginia."

Company HAMPSHIRE GAS CO.
 Address 1100 H ST., WASHINGTON, D.C.
 Farm GOLDIE & NELLIE RUCKMAN FARM
 Tract _____ Acres 311 Lease No. 426
 Well (Farm) No. 17 Serial No. _____
 Elevation (Spirit Level) 1437.00' *August 75' quad*
 Quadrangle HANGING ROCK - SW
 County HAMPSHIRE District SHERMAN
 Engineer John D. Coleman
 Engineer's Registration No. 4231
 File No. _____ Drawing No. 66-16-3
 Date AUGUST 29-36 Scale 1" = 2000'

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION
 CHARLESTON

WELL LOCATION MAP

FILE NO. HAM-25
(converted to storage well)

+ Denotes location of well on United States Topographic Maps, scale 1 to 62,500, latitude and longitude lines being represented by border lines as shown.

- Denotes one inch spaces on border line of original tracing.

DEEP WELL



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

Rotary
Spudder
Cable Tools
Storage

Quadrangle Hanging Rock
Permit No. HAM-25

WELL RECORD

Oil or Gas Well Gas (KIND)

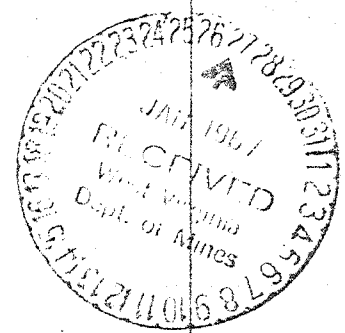
Company Hampshire Gas Company
Address 1100 H St., N. W., Washington, D. C.
Farm Goldie & Nellie Ruckman Acres 311
Location (waters) _____
Well No. 17 Elev. 1437
District Sherman County Hampshire
The surface of tract is owned in fee by Goldie and Nellie Ruckman
Address Augusta, West Va.
Mineral rights are owned by Goldie and Nellie Ruckman
Address Augusta, West Va.
Drilling commenced September 7, 1966
Drilling completed October 14, 1966
Date Shot From _____ To _____
With _____
Open Flow /10ths Water in _____ Inch
/10ths Merc. in _____ Inch
Volume 59600 GFD _____ Cu. Ft.
Rock Pressure 438 PSIG lbs. 62 hrs.
Oil _____ bbls., 1st 24 hrs.
WELL ACIDIZED (DETAILS) See Reverse Side
WELL FRACTURED (DETAILS) _____

| Casing and Tubing | Used in Drilling | Left in Well | Packers |
|-------------------|------------------|--------------|----------------|
| Size | | | |
| 16 | | | Kind of Packer |
| 13 3/8 | | 30 | |
| 10 9-5/8 | | 1447 | Size of |
| 8 1/4 | | | |
| 7 | | 5161 | Depth set |
| 5 3/16 | | | |
| 4 1/2 | | | |
| 3 | | | Perf. top |
| 2 3/8 Tubing | | 5303 | Perf. bottom |
| Liners Used | | | Perf. top |
| | | | Perf. bottom |

Attach copy of cementing record.
CASING CEMENTED 7 SIZE 5161 No. Ft. 10/10/66 Date
Amount of cement used (bags) See Reverse Side
Name of Service Co. Dowell
COAL WAS ENCOUNTERED AT _____ FEET _____ INCHES
_____ FEET _____ INCHES
_____ FEET _____ INCHES

RESULT AFTER TREATMENT (Initial open flow or bbls.) 712500 GFD
ROCK PRESSURE AFTER TREATMENT 1965 PSIG HOURS 12-1/2 hours
Fresh Water _____ Feet 163,239,254 Salt Water _____ Feet
Producing Sand Oriskany Depth 5303-5336

| Formation | Color | Hard or Soft | Top | Bottom | Oil, Gas or Water | Depth | Remarks |
|-------------------------------------|---------|------------------|------|--------|-------------------|-------------|------------|
| Siltstone Shale and Sandstone | Red | <i>Catskill</i> | 0 | 390 | Water | 163,239,254 | |
| Siltstone and Shale | Gray | | 390 | 530 | | | Sandy |
| Shale | Gray | | 530 | 600 | | | |
| Siltstone | Gray | | 600 | 845 | | | |
| Sandstone | Gray | | 845 | 880 | | | |
| Shale and Siltstone | Gray | | 880 | 3400 | | | Occ. Sandy |
| Siltstone | Dk. Gy. | | 3400 | 3515 | | | Calcareous |
| Siltstone | Gray | | 3515 | 4450 | | | |
| Shale and Siltstone | Gray | | 4450 | 4720 | | | |
| Shale | Black | <i>Marcellus</i> | 4720 | 5025 | | | |
| Metabentonite | Brown | | 5025 | 5026 | | | |
| Shale | Gray | <i>Needmore</i> | 5026 | 5151 | | | |



5025
1437
3588

| Formation | Color | Hard or Soft | Top 15' | Bottom | Oil, Gas or Water | Depth Found | Remarks |
|---|--|--------------|---------|-----------|-------------------|--------------------------|-----------------------|
| Sandstone | White & Gray | | 5151 | 5301 | Gas | 5160, 5184 5218, 5265 | Calcareous (Oriskany) |
| Limestone | Gray | | 5301 | 5336 (TD) | | | Sandy Helderberg |
| 485 | | | | | | | |
| <u>CEMENTING RECORD</u> | | | | | | | |
| 13-3/8" Csg. | Cemented to surface with 40 Sks. construction cement, 2-1/2% calcium chloride. | | | | | | |
| 9-5/8" Csg. | Cemented to surface with 650 Sks. Class "A" cement, 2% calcium chloride. | | | | | | |
| 7" Csg. | Cemented to surface in three stages: | | | | | | |
| | 1st stage - 200 Sks Class "A" with 300 Gals. of Dowell Cement on bottom. | | | | | | |
| | 2nd stage - 200 section of Dowell Seal Ring. | | | | | | |
| | 3rd stage - 716 Ft. ³ of Dowell Lite Poz II (1:1) with 21 Sks. of Class "A" on bottom. | | | | | | |
| <u>STIMULATION RECORD</u> | | | | | | | |
| First Treatment - | 8000 Gals. 28% inhibited HCL and 1000 gals 3% inhibited HCL as overflush, 200 standard ft ³ N ₂ per bbl. of treatment. | | | | | | |
| Second Treatment - | 8000 gals 28% inhibited HCL and 8000 gals 1% inhibited HCL as overflush, with 250 standard FT ³ N ₂ per bbl. of treatment. | | | | | | |
| <i>RI card - Acidized open hole from 5161 to 5336 Gas @ 5160-84 and 5218-65 back.</i> | | | | | | | |

Date Jan 10, 1967

APPROVED HAMPSHIRE GAS COMPANY Owner

By Johnny S. Ketchum
Superintendent (Title)
Natural Gas Production and Storage