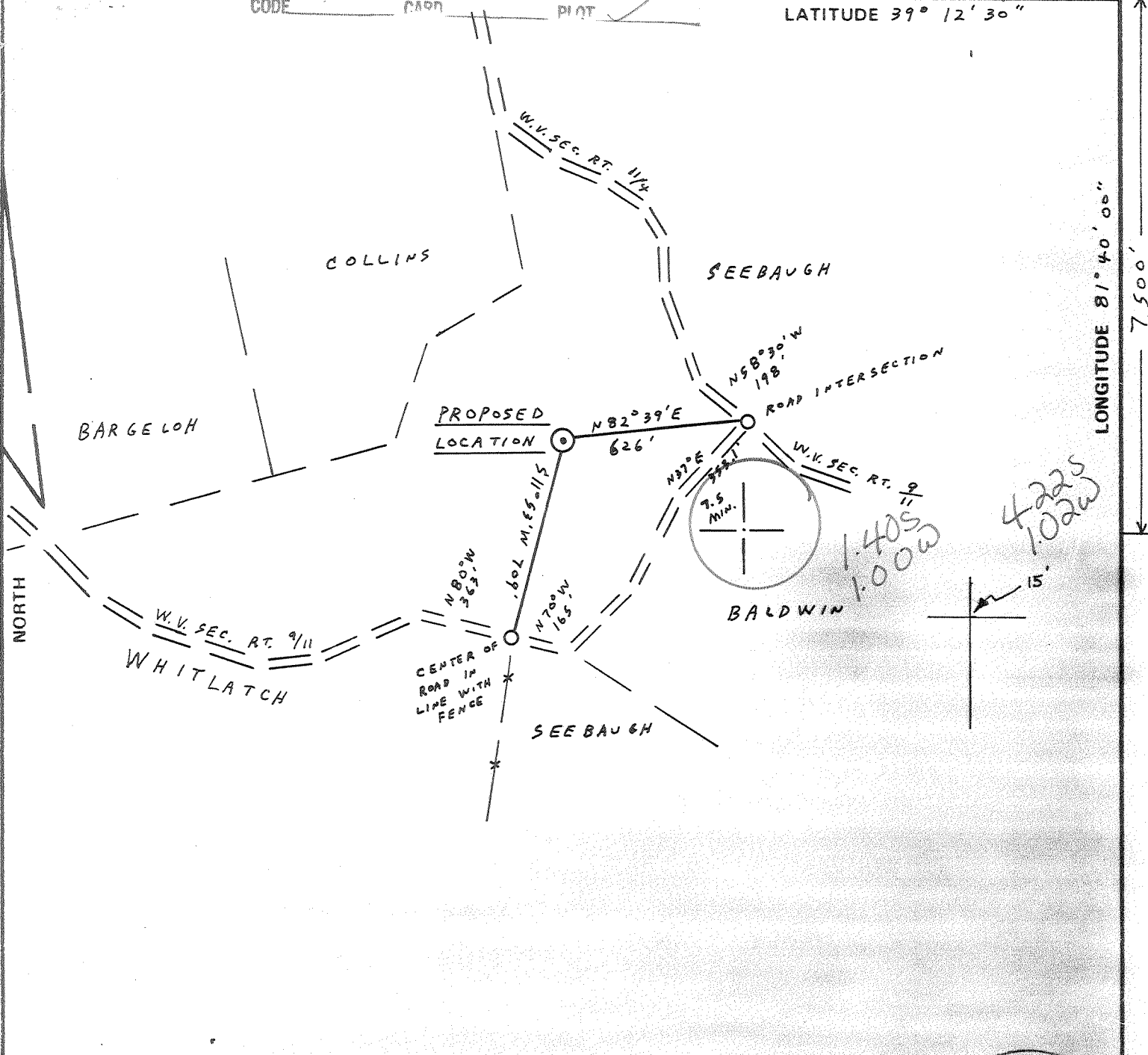


M.S. 9/20/82

5,300' 39 15
LATITUDE 39° 12' 30"

CODE MAP PILOT



LONGITUDE 81° 40' 00"

FILE NO. _____
 DRAWING NO. 5-10
 SCALE 1" = 500'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION INTERSECTION W. V. RT. 9/11 AND 1/2, ELEV. = 907

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF MINES.
 (SIGNED) Vincent W. Wood
 R.P.E. _____ L.L.S. 664



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 FORM IV-6 (8-78)



DATE AUGUST 31, 1982
 OPERATOR'S WELL NO. KEM 263
 API WELL NO. _____
47 - 107 - 1224-Frac.
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS,") PRODUCTION ___ STORAGE ___ DEEP X SHALLOW ___
 LOCATION: ELEVATION 865 WATERSHED DRY RUN
 DISTRICT HARRIS 2 COUNTY WOOD
 QUADRANGLE LUBECK, 7.5 MIN. 449 009 NW
 SURFACE OWNER WILBUR E. TENNANT ACREAGE 39.6
 OIL & GAS ROYALTY OWNER WILBUR E. TENNANT LEASE ACREAGE 39.6
 LEASE NO. 83-07-1326
 PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____
 PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
 TARGET FORMATION ORISKANY ESTIMATED DEPTH 4585'
 WELL OPERATOR KAISER EXPLOR. & MIN. CO. DESIGNATED AGENT KAISER EXPLORATION AND MINING CO.
 ADDRESS P.O. BOX 8 RAVENSWOOD, W.V. 26164 ADDRESS P.O. BOX 8 RAVENSWOOD, W.V. 26164

MAR 24 1986

WOOD 1224-Frac.

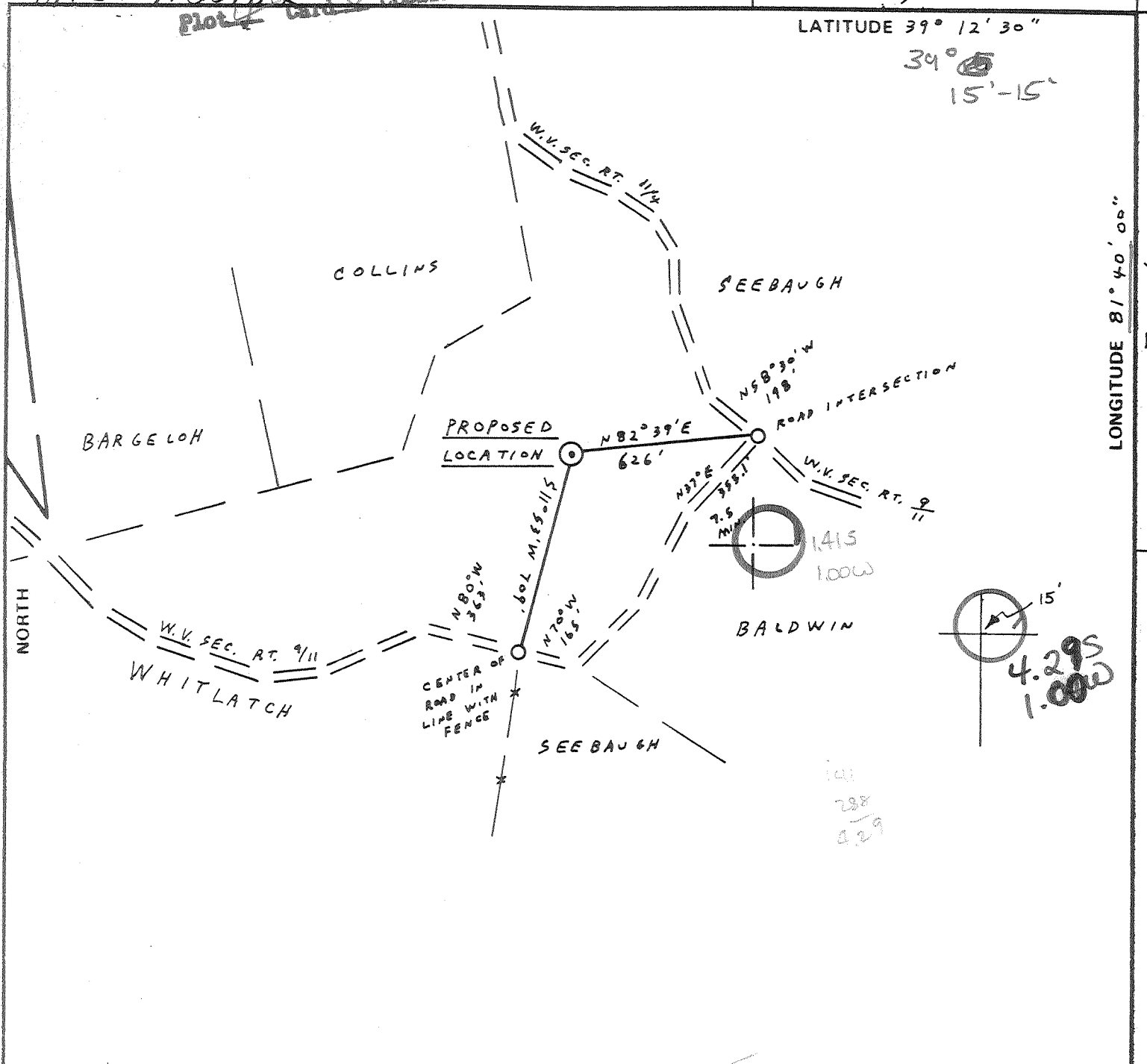
M.S. 9/20/82

Plot of Land CSD

LATITUDE 39° 12' 30"

39° 15'-15"

LONGITUDE 81° 40' 00"



FILE NO. _____
 DRAWING NO. 5-10
 SCALE 1" = 500'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION INTERSECTION W.V. RT. 9/11 AND 1/2, ELEV. = 907

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF MINES.
 (SIGNED) Vincent W. Wood
 R.P.E. _____ L.L.S. 664



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 FORM IV-6
 (8-78)



DATE AUGUST 31, 1982
 OPERATOR'S WELL NO. KEM 263
 API WELL NO. 47-107-1224
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS,") PRODUCTION ___ STORAGE ___ DEEP X SHALLOW ___
 LOCATION: ELEVATION 865 WATER SHED DRY RUN
 DISTRICT HARRIS COUNTY WOOD
 QUADRANGLE LUBECK, 7.5 MIN. Belville 15' NW
 SURFACE OWNER WILBUR E. TENNANT ACREAGE 39.6
 OIL & GAS ROYALTY OWNER WILBUR E. TENNANT LEASE ACREAGE 39.6
 LEASE NO. 83-07-1326
 PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____

SEP 28 1982

PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
 TARGET FORMATION ORISKANY ESTIMATED DEPTH 4585' deep well
 WELL OPERATOR KAISER EXPLOR. & MIN. CO. DESIGNATED AGENT KAISER EXPLORATION AND MINING CO.
 ADDRESS P.O. BOX 8 RAVENS WOOD, W.V. 26164 ADDRESS P.O. BOX 8 RAVENS WOOD, W.V. 26164



IV-35
(Rev 8-81)

Date June 13, 1986
Operator's WELL No. KEM #263
Farm Wilbur Tennant
API No. 47 - 107 - 1224

State of West Virginia
Department of Mines
Oil and Gas Division

Frac

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil ___ / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep X / Shallow ___ /)

LOCATION: Elevation: 865 GL Watershed Dry Run
District: Harris County Wood Quadrangle Lubeck 7.5'

COMPANY Kaiser Exploration and Mining Company

ADDRESS P.O. Box 8 Ravenswood, WV 26164

DESIGNATED AGENT R. A. Pryce

ADDRESS P. O. Box 8 Ravenswood, WV 26164

SURFACE OWNER Wilbur E. Tennant

ADDRESS New England, WV 26154

MINERAL RIGHTS OWNER same

ADDRESS _____

OIL AND GAS INSPECTOR FOR THIS WORK _____

ADDRESS _____

PERMIT ISSUED 9/21/82 | 3/20/86

DRILLING COMMENCED 10/18/82 | 4/24/86

DRILLING COMPLETED 10/24/82 | 6/05/86

IF APPLICABLE: PLUGGING OF DRY HOLE ON
CONTINUOUS PROGRESSION FROM DRILLING OR
REWORKING. VERBAL PERMISSION OBTAINED
ON _____

Casing Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cord.			
10 3/4" K3-10"	292' KB	292' KB	150 sks class
9 5/8			
8 5/8			
7	2065' KB	2065' KB	165 sks
5 1/2			
4 1/2		4520' KB	220 sks pos mi
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Oriskany Sandstone Depth 4422'-4428' feet

Depth of completed well 4520' feet Rotary X / Cable Tools _____

Water strata depth: Fresh -- feet; Salt -- feet Drilled on fluid,

Coal seam depths: -- Is coal being mined in the area? No
not known

OPEN FLOW DATA

Producing formation Devonian Brown Shale Pay zone depth 3609'-3775' feet

Gas: Initial open flow -- Mcf/d Oil: Initial open flow -- Bbl/d

* Final open flow 400 (est) Mcf/d Final open flow -- Bbl/d

Time of open flow between initial and final tests -- hours

Static rock pressure 750 psig (surface measurement) after -- hours shut in
(If applicable due to multiple completion--)

Second producing formation Berea Sandstone Pay zone depth 2121'-2123' feet

Gas: Initial open flow -- Mcf/d Oil: Initial open flow -- Bbl/d

* Final open flow -- Mcf/d Oil: Final open flow -- Bbl/d

Time of open flow between initial and final tests -- hours

Static rock pressure 750 psig (surface measurement) after -- hours shut in

* Open flows are commingled

new zones completed

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

- 4/24/86: Young's Wireline set Alpha permanent plug at 3876'(KB) dumped 1 bailer of calseal.
- 6/05/86: McCullough perforated the Brown Shale with 70 holes (0.39" dia) from 3609' to 3775'. *Huron*
- 6/05/86: Newsco 75 quality foam fractured the Shale with 695 MSCF nitrogen; 199 bbl sand ladened fluid; 60,000# of 20/40 sand; 290 bbls total fluid. Break down pressure: 3530 psig; ISIP: 1700 psig; 5 minute SIP: 1120 psig.
- 6/05/86: McCullough perforated the Berea with 10 holes (0.39" dia) from 2121' - 2123'.
- 6/05/86: Newsco 75 quality foam fractured the Berea with 45,000# of 20/40 sand; 524,700 scf total nitrogen; total sand ladened fluid: 164 bbl; total fluid: 254 bbls; ISIP: 1160 psig; 5 min. SIP: 1050 psig.

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fresh and salt water, coal, oil and gas
See original OG-10					

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY

Well Operator

By: RA R

Date: June 13, 1986

Note: Regulation 2.02(i) provides as follows:

"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including and encountered in the drilling of a well."



IV-35
(Rev 8-81)

Date January 31, 1983

Operator's

State of West Virginia

Well No. KEM #263

Department of Mines

Farm Wilbur Tennant

Oil and Gas Division

API No. 47 - 107 - 1224

WELL OPERATOR'S REPORT

OF

DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil ___ / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep X / Shallow ___ /)

LOCATION: Elevation: 865 GL Watershed Dry Run
District: Harris County Wood Quadrangle Lubeck 7.5'

COMPANY Kaiser Exploration and Mining Company

ADDRESS P. O. Box 8, Ravenswood, WV 26164

DESIGNATED AGENT R. A. Pryce

ADDRESS P. O. Box 8, Ravenswood, WV 26164

SURFACE OWNER Wilbur F. Tennant

ADDRESS New England, WV 26154

MINERAL RIGHTS OWNER Same

ADDRESS

OIL AND GAS INSPECTOR FOR THIS WORK Sam

Hershman ADDRESS Smithville, WV

PERMIT ISSUED 9/21/82

DRILLING COMMENCED 10/18/82

DRILLING COMPLETED 10/24/82

IF APPLICABLE: PLUGGING OF DRY HOLE ON
CONTINUOUS PROGRESSION FROM DRILLING OR
REWORKING. VERBAL PERMISSION OBTAINED
ON

Casing Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cord.			
10 3/4" 10 3/4"	292' (KB)	292' (KB)	150 sks Class A
9 5/8			
8 5/8	2065' (KB)	2065' (KB)	165 sks
7			
5 1/2		4520' (KB)	220 sks pozmix
4 1/2			
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Oriskany Sandstone Depth 4422'-4428' feet

Depth of completed well 4520' feet Rotary X / Cable Tools

Water strata depth: Fresh -- feet; Salt -- feet

Coal seam depths: -- Is coal being mined in the area? No

OPEN FLOW DATA

Producing formation Oriskany Sandstone Pay zone depth 4422'-4428' feet

Gas: Initial open flow Trace Mcf/d Oil: Initial open flow -- Bbl/d

Final open flow 150 Mcf/d Final open flow -- Bbl/d

Time of open flow between initial and final tests -- hours

Static rock pressure 1500 psig (surface measurement) after -- hours shut in

(If applicable due to multiple completion--)

Second producing formation Pay zone depth feet

Gas: Initial open flow _____ Mcf/d Oil: Initial open flow _____ Bbl/d

Final open flow _____ Mcf/d Oil: Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ hours

Static rock pressure _____ psig (surface measurement) after _____ hours shut in

MAY 29 1984

DETAILS OF PERFORMED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

11/16/82: Perforated the Oriskany Sandstone from 4422'-4428', with 24 holes, .41" diameter.

12/10/82: Crosslink fractured the Oriskany Sandstone with 60,000# 20/40 sand, 743 bbl water, 244 MSCF of nitrogen.

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all gas and salt water, coal, oil and gas
Soil & Shale			0	298	
Sand			298	342	
Shale			342	402	
Siltstone & Shale			402	648	
Sand			648	706	
Shale			706	796	
Siltstone & Shale			796	941	
Sand			941	961	
Shale			961	1049	
Sand & Shale			1049	1104	
Sand			1104	1145	
Siltstone & Shale			1145	1594	
Salt Sands			1594	1766	
Shale			1766	2100	
Coffee Shale (Sunbury)			2100	2121	
Berea Sand			2121	2124	Show gas
Shale			2124	3582	Show gas @ 3090, 3054, 3270
Brown Shale <i>H</i>			3542	3779	Show gas @ 3621, 3725
Shale			3779	4123	Show gas @ 4041, 4076
Marcellus Shale <i>Rh</i>			4123	4329	Show gas @ 4170
Onondaga Lime			4329	4420	
Oriskany Sand			4420	4456	Show gas @ 4425, 4440
Helderberg Lime			4456	4558	
Total Depth			4558		

(Attach separate sheets as necessary)

Kaiser Exploration and Mining Company

Well Operator

By: R. A. P.

Date: January 31, 1983

Note: Regulation 2.02(i) provides as follows:
 "The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

DRILLING CONTRACTOR (IF KNOWN) Clint Hurt & Associates, Inc.

Address P. O. Box 388

Elkview, WV 25071

GEOLOGICAL TARGET FORMATION, Oriskany

Estimated depth of completed well, 4585' feet Rotary / Cable tools /

Approximate water strata depths: Fresh, _____ feet; salt, _____ feet.

Approximate coal seam depths: _____ Is coal being mined in the area? Yes / No /

CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS (Cubic feet)	PACKERS	
	Size	Grade	Weight per ft	New	Used			For drilling
Conductor							Kinds	
Fresh Water	10 3/4"					250'	250'	150 sks class A (to surface)
Coal								Sizes
Intermediate	7"					2030'	2030'	65 sks 50/50 pozmix 100 sks Class A
Production	4 1/2"					4585'	4585'	225 sks 50/50 pozmix set
Tubing								
Liners								Perforations:
								Top Bottom

NOTE: Regulation 7.02 of the Department of Mines provides that the original and four copies of Form IV-2 must be filed with the Department, accompanied by (i) a plat in the form prescribed by Regulation 11, (ii) a bond in one of the forms prescribed by Regulation 12, or in lieu thereof the other security allowed by Code § 22-4-2, (iii) Form IV-9, "Reclamation Plan", applicable to the reclamation required by Code § 22-4-12b and Regulation 23, (iv) unless previously paid on the same well, the fee required by Code § 22-4-12a, and (v) if applicable, the consent required by Code § 22-4-8a from the owner of any water well or dwelling within 200 feet of the proposed well.

A separate Form IV-2 shall not be required for fracturing or stimulating a well where fracturing or stimulating is to be part of the work for which a permit is sought and is noted as such on the Form IV-2 filed in connection therewith.

THIS PERMIT MUST BE POSTED AT THE WELL SITE.
 ALL PROVISIONS BEING IN ACCORDANCE WITH CHAPTER 22,
 ARTICLE 4 OF THE W. VA. CODE, THE LOCATION IS HEREBY
 APPROVED FOR drilling. THIS PERMIT SHALL EXPIRE
 IF OPERATIONS HAVE NOT COMMENCED BY 5-21-83
 By [Signature]

The following waiver must be completed by the coal operator and by any coal owner or coal lessee who has recorded a declaration under Code 22-4-20, if the permit is to be issued within fifteen (15) days of receipt thereof.

WAIVER

The undersigned coal operator _____ / owner _____ / lessee _____ of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of the well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

Date: _____, 19____

By _____
 Its _____

RECEIVED
FEB 27 1986



1) Date: January 31, 19 86

2) Operator's Well No. KEM #263, Tennant

3) API Well No. 47 107 1224-F
State County Permit

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY
STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY, OIL AND GAS DIVISION
APPLICATION FOR A WELL WORK PERMIT

- 4) WELL TYPE: A Oil / Gas / B (if "Gas", Production / Underground storage / Deep / Shallow /
- 5) LOCATION: Elevation: 865' Watershed: _____
District: Harris County: Wood Quadrangle: Lubeck 7.5'
- 6) WELL OPERATOR Kaiser Exploration and Mining Company CODE: 2533-0 7) DESIGNATED AGENT R. A. Pryce
Address P. O. Box 8 Address Same
Ravenswood, WV 26164
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED Name Glen Robinson
Address Rt. 1, #6 Mt. Pleasant Estate
Mineral Wells, WV 26150
- 9) DRILLING CONTRACTOR: Name _____ Address _____
- 10) PROPOSED WELL WORK: Drill / Drill deeper / Redrill / Stimulate /
Plug off old formation / Perforate new formation /
Other physical change in well (specify) Plug Oriskany, squeeze Berea, frac Berea and
- 11) GEOLOGICAL TARGET FORMATION, Brown Shale, produce commingled
- 12) Estimated depth of completed well, _____ feet:
- 13) Approximate strata depths: Fresh, N/A feet; salt, N/A feet.
- 14) Approximate coal seam depths: N/A Is coal being mined in the area? Yes _____ / No /

15) CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS (Cubic feet)	PACKERS
	Size	Grade	Weight per ft.	New	Used	For drilling	Left in well		
Conductor									Kinds
Fresh water	10 3/4	h-40	45	X		292	292	150 sks class A	
Coal									Sizes
Intermediate	7"	J-55	20	X		2065	2065	165 sks class A	
Production	4 1/2"	N80	11.6	X		4520	4520	220 sks porous	Perforations:
Tubing	2 3/8"	J-55	4.6	X		4422			Top 4422 Bottom 4428
Liners									

OFFICE USE ONLY
DRILLING PERMIT

Permit number: 47-107-1224-Frac

Date: March 20, 19 86

This permit covering the well operator and well location shown below is evidence of permission granted to drill in accordance with the pertinent legal requirements subject to the conditions contained herein and on the reverse hereof. Notification must be given to the District Oil and Gas Inspector. (Refer to No. 8) Prior to the construction of roads, locations and pits for any permitted work. In addition, the well operator or his contractor shall notify the proper district oil and gas inspector 24 hours before actual permitted work has commenced.)

The permitted work is as described in the Notice and Application, plat, and reclamation plan, subject to any modifications and conditions specified on the reverse hereof.

Permit expires March 20, 1988 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <input checked="" type="checkbox"/>	Agent: <u>FLD</u>	Plat: <u>LS</u>	Casing Fee: <u>969339</u>	WPCP: <u>LS</u>	S&E: <u>LS</u>	Other: _____
			<u>969363</u>			

NOTE: Keep one copy of this permit posted at the drilling location.

John N. Johnston by Margaret J. Hass
Director, Division of Oil and Gas

File