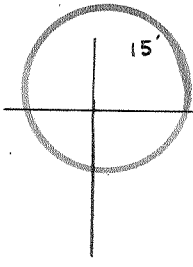
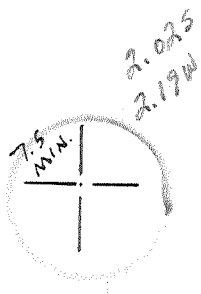


NORTH

J-363

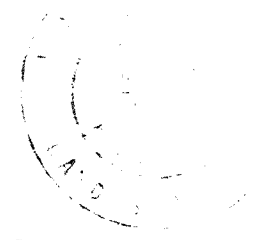


4905
440W

J-426

FILE NO. _____
 DRAWING NO. _____
 SCALE 1" = 1,000'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION HIGH POINT ELEV. 992, WEST OF SITE

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) Vincat W. Wood
 R.P.E. _____ L.L.S. 664



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



DATE MARCH 4, 1982
 OPERATOR'S WELL NO. KEM 193
 API WELL NO. _____
47 - 035 - 1683
 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 X STORAGE ___ DEEP X SHALLOW ___
 LOCATION: ELEVATION 878 WATER SHED TUG FORK
 DISTRICT RIPLEY COUNTY JACKSON
 QUADRANGLE RIPLEY 415'
 SURFACE OWNER WILLIAM D. MERICAL, ET AL. ACREAGE 127
 OIL & GAS ROYALTY OWNER LLOYD STAATS, ET AL. LEASE ACREAGE 127
 LEASE NO. 82-11-1028
 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 5274'
 WELL OPERATOR KAISER EXPLOR. & MINE. CO. DESIGNATED AGENT KAISER EXPLORATION & MINING CO.
 ADDRESS P.O. BOX 8 ADDRESS P.O. BOX 8
RAVENSWOOD, W. V. RAVENSWOOD, W. V.

APR 26 1982



IV-35
(Rev 8-81)

State of West Virginia
Department of Mines
Oil and Gas Division

Date May 11, 1983
Operator's
Well No. KEM - 193
Farm Lloyd Staats
API No. 47 - 035 - 1683

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 ___ / Shallow ___ /)

LOCATION: Elevation: 878' Watershed Tug Fork
District: Ripley County Jackson Quadrangle Ripley

COMPANY KAISER EXPLORATION & 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 William D. Merical et. al.
ADDRESS Staats Mill, WV 25279
MINERAL RIGHTS OWNER Lloyd Staats, et. al.
ADDRESS 5333 Frontier Dr. Charleston, WV
OIL AND GAS INSPECTOR FOR THIS WORK Richard Morris ADDRESS Box 372, Grantsville
PERMIT ISSUED 4/20/82
DRILLING COMMENCED 5/27/82
DRILLING COMPLETED 6/03/82
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 Cond.			
13-10"		426'	N/A
9 5/8			
8 5/8			
7		2411'	165 sks
5 1/2			
4 1/2		5280'	N/A
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Oriskany S.S. Depth 5154 feet
Depth of completed well 5317 feet Rotary X / Cable Tools _____
Water strata depth: Fresh N/A feet; Salt N/A feet DRILLED ON FLUID - NOT KNOWN
Coal seam depths: NONE Is coal being mined in the area? NO

OPEN FLOW DATA

Producing formation Oriskany S.S. Pay zone depth 5189-5219 feet
Gas: Initial open flow N/A Mcf/d Oil: Initial open flow --- Bbl/d
Final open flow N/A Mcf/d Final open flow --- Bbl/d
Time of open flow between initial and final tests N/A hours
Static rock pressure _____ psig (surface measurement) after _____ hours shut in
(If applicable due to multiple completion--)

Present Second producing formation Devonian Brown Shale Pay zone depth 4101-4371 feet
Gas: Initial open flow -- Mcf/d Oil: Initial open flow _____ Bbl/d
Final open flow 229 Mcf/d Oil: Final open flow _____ Bbl/d
Time of open flow between initial and final tests 4 hours
Static rock pressure 1156.5 psig (surface measurement) after 48 hours shut in

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

- 6/08/82 Oriskany S.S. Perforation
5189-5219
47 holes
- 6/10/82 Oriskany S.S. Frac:
40,600 # 20/40 sand
Total of 618 bbl of water and
125,000 SCF of N₂ used.
Treatment pressure = 3980 psig
ISIP = 4000 psig
- 3/4/83 Set permanent bridge plug at 4510'. Perforated the Brown Shale selectively
from 4101-4371, 20 holes, 0.39" diameter.
- 4/22/83 Foam frac the Brown Shale. .75 quality foam, 60,000# of 20/40 sand, treating pre
was 2370-3030 psig. 438 bbl of water with 268 bbls being sand laden. ISIP:
1500 psig; 5 minute SI: 1160 psig. Used 827,000 SCF nitrogen.

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fre and salt water, coal, oil and c
Shale			0	108	
Sandstone and shale			108	1205	
Sandstone			1205	1292	
Sandstone and shale			1292	1742	
Limestone			1742	2070	
Sandstone			2070	2180	
Shale			2180	2535	
Coffee shale			2535	2556	
Berea S.S.			2556	2566	s/g @ 2565
Shale			2566	3811	s/g @ 3793
Brown Shale			3811	4390	s/g @ 4262
Shale			4390	4778	
Marcellus			4778	5095	s/g @ 4837
Onondaga L.S.			5095	5154	
Oriskany S.S.			5154	5248	s/g @ 5195, 5238
Helderberg			5248	5317-TD	

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY

Well Operator

By: R. A. P.

Date: May 11, 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



Date: April 7, 19 82

FORM IV-2 (Obsolete) (12-81)

Operator's Well No. KEM #193

API Well No. 47 035 1683

State County Permit

STATE OF WEST VIRGINIA DEPARTMENT OF MINES, OIL AND GAS DIVISION OIL AND GAS WELL PERMIT APPLICATION

WELL TYPE: Oil / Gas x (If "Gas", Production x / Underground storage / Deep / Shallow x /)

LOCATION: Elevation: 878' Watershed: Tug Fork District: Ripley County: Jackson Quadrangle: Ripley

WELL OPERATOR Kaiser Exploration and Mining Co. DESIGNATED AGENT R. A. Pryce Address P. O. Box 8 Ravenswood, WV 26164

OIL & GAS ROYALTY OWNER Lloyd Staats, et al Address 5333 Frontier Dr. Charleston, WV 25312 Acreage 127 acres

SURFACE OWNER William D. Mercial, et al Address Staats Mill, WV Acreage 127 acres

FIELD SALE (IF MADE) TO: Address

OIL & GAS INSPECTOR TO BE NOTIFIED Name Richard Morris Address P. O. Box 372 Grantsville, WV

COAL OPERATOR None Address

COAL OWNER(S) WITH DECLARATION ON RECORD: Name William D. Mercial, et al Address Same

COAL LESSEE WITH DECLARATION ON RECORD: Name Address

RECEIVED APR 12 1982 OIL AND GAS DIVISION WV DEPARTMENT OF MINES

The undersigned well operator is entitled to operate for oil or gas purposes at the above location under a deed / lease X other contract / dated November 20, 19 80, to the undersigned well operator from Lloyd Staats

(IF said deed, lease, or other contract has been recorded:) Recorded on January 28, 19 81, in the office of the Clerk of the County Commission of Jackson County, West Va., in Lease Book 159 at page 41. A permit is requested as follows:

PROPOSED WORK: Drill x / Drill deeper / Redrill / Fracture or stimulate / Plug off old formation / Perforate new formation / Other physical change in well (specify) -planned as shown on the work order on the reverse side hereof.

The above named coal operator, coal owner(s), and coal lessee are hereby notified that any objection they wish to make or are required to make by Code 522-4-3 must be filed with the Department of Mines within fifteen (15) days after the receipt of this Application by the Department. Copies of this Permit Application and the enclosed plat and reclamation plan have been mailed by registered mail or delivered by hand to the above named coal operator, coal owner(s), and coal lessee on or before the day of the mailing or delivery of this Permit Application to the Department of Mines at Charleston, West Virginia.

PLEASE SUBMIT COPIES OF ALL GEOPHYSICAL LOGS DIRECTLY TO: WEST VIRGINIA OIL AND GAS CONSERVATION COMMISSION 1615 WASHINGTON STREET EAST CHARLESTON, WV 25311 TELEPHONE: (304) 348-3092

KAISER EXPLORATION AND MINING COMPANY Well Operator By R.A. Pryce Its General Manager

BLANKET BOND

PROPOSED WORK ORDER

(12-81)

THIS IS AN ESTIMATE ONLY:
ACTUAL INFORMATION MUST BE SUBMITTED ON FORM IV-35 UPON COMPLETION

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, 5274 feet Rotary X / Cable tools _____ /

Approximate water strata depths: Fresh, 378 feet; salt, _____ feet.

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

CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS			New	Used	FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS (Cubic feet)	PACKERS
	Size	Grade	Weight per ft			For drilling	Left in well		
Conductor									Kinds
Fresh Water	10 3/4"					420 250'	420 250'	150 sks class	A (to surface)
Coal									Sizes
Intermediate	7"					2441'	2441'	65 sks 50/50 100 sks class	pozmix A
Production	4 1/2"					5274'	5274'	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 12-20-82
BY [Signature]

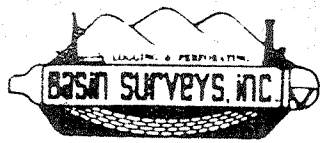
The following waiver must be completed by the coal operator and by any coal owner or coal lessee who has recorded a declaration under Code 22-4-20, if the permit is to be issued within fifteen (15) days of receipt thereof.

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 _____



Basin Surveys, Inc.

COMPENSATED DENSITY LOG

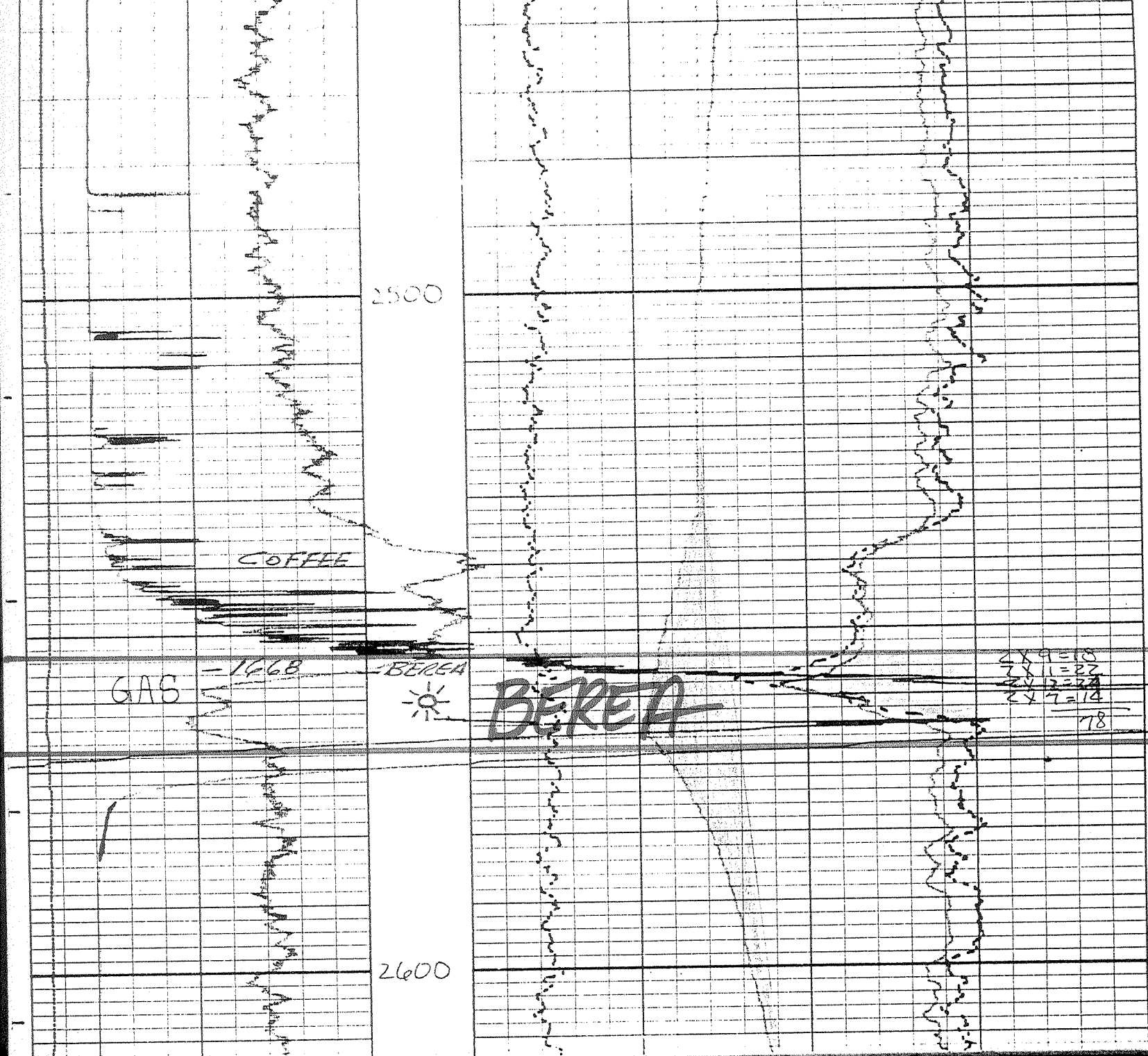
FILING NO. PERMIT NO. 47-035-1683 FIELD COPY	COMPANY KAISER EXPLORATION & MINING CO. WELL KEM 193 AFTER 12 HRS: 92 MCF FIELD RIPLEY DISTRICT (NATURAL) COUNTY JACKSON STATE WV
	LOCATION: Tug Fork RIPLEY QUAD. 47-035-1683-10-7 RGE

Permanent Datum: G.L.	Elev. 878	Elev. KB 888'
Log Measured From K.B.	10 Ft. Above Perm. Datum	D.F. NA
Drilling Measured From K.B.		G.L. 819'

Date	03 JUNE 82	23 JUNE 82	03 JUNE 82
Run No.	ONE	ONE	TWO
Type Log	TEMPERATURE	C-GR-LOG	GAS DETECTOR
Depth--Driller	5307	5307	5307'
Depth--Logger	5317	5317	5317'
Bottom logged interval	5317	5317	5317'
Top logged interval	2400	2421 (GR-GL)	2421'
Type fluid in hole	DRY	DRY	DRY
Salinity PPM Cl.	-	-	-
Density	-	-	-
Level	-	-	-
Max rec. temp deg F	-	-	-
Operating rig time	10 HRS	-	-
Recorded by	R. CRITES	-	-
Witnessed by	MR COX	-	-

Run No	Bore-Hole Record				Casing Record		
	Bit	From	To	Size	Wgt.	From	To
ONE	6.45		T.D.	7.0	-	G.L.	2424

THIS LOG AND LOG SHEET CONFORMS TO API RP 11



2500

COFFEE

GAS

1468

BEREA



BEREA

2600