

FILE NO. _____
 DRAWING NO. _____
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION SPOT ELEV. 590 AT RTE 56 NORTH OF LOCATION

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) Dennis L. Fisher
 R.P.E. _____ L.L.S. 670

STATE OF WEST VIRGINIA
 PLACE SEAL HERE

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



DATE MARCH 25 1982
 OPERATOR'S WELL NO. KEM 185
 API WELL NO. 47 - 035 - 1684-F
 STATE COUNTY PERMIT

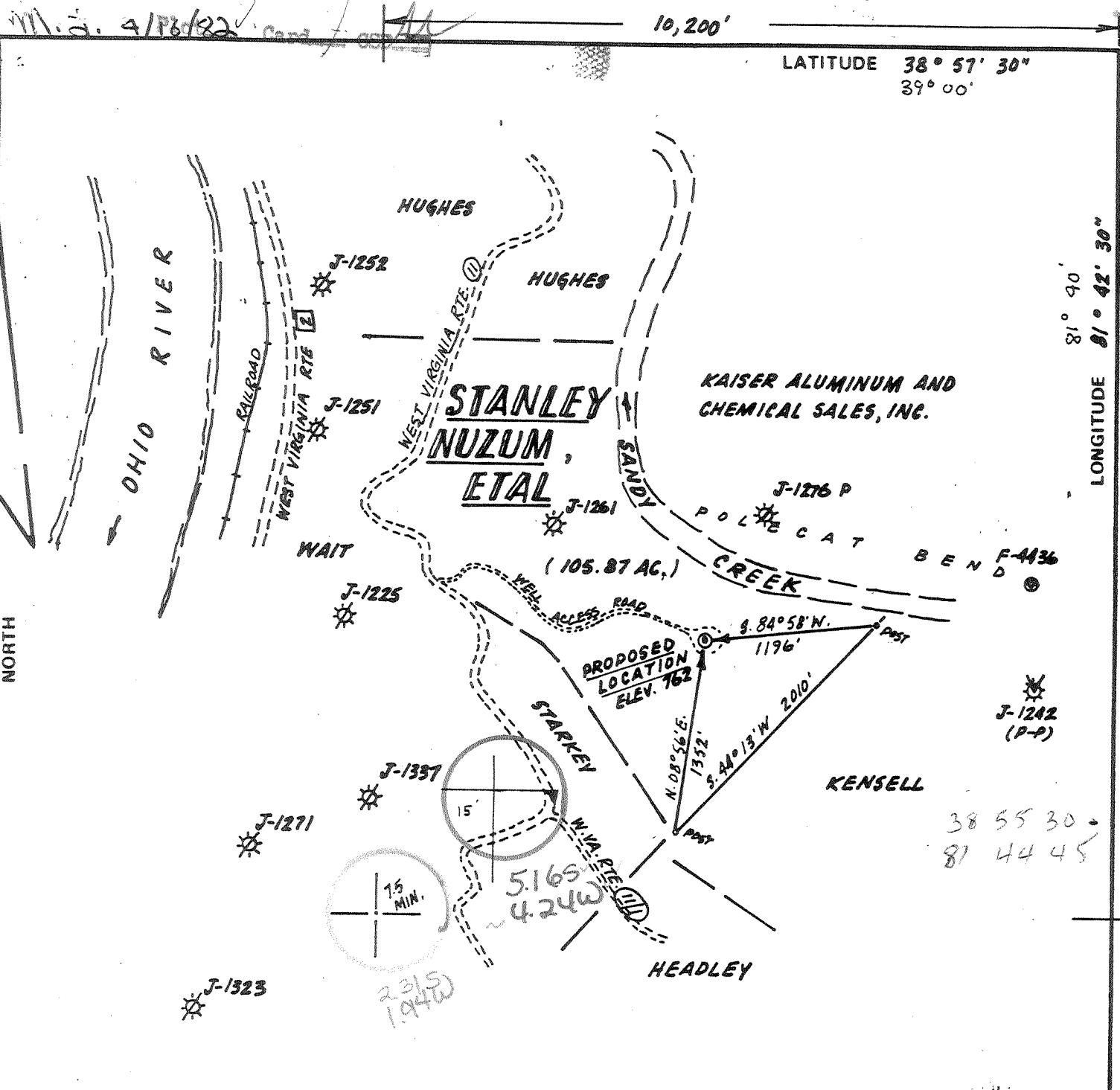
STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION

WELL TYPE: OIL _____ GAS X LIQUID INJECTION _____ WASTE DISPOSAL _____
 (IF "GAS,") PRODUCTION X STORAGE _____ DEEP X SHALLOW _____
 LOCATION: ELEVATION 762 WATER SHED SANDY CREEK
 DISTRICT RAVENSWOOD 2 598 COUNTY JACKSON
 QUADRANGLE SANDYVILLE (7.5') RIPLEY (15') 112 NW
 SURFACE OWNER STANLEY NUZUM, ETAL ACREAGE 105.87
 OIL & GAS ROYALTY OWNER STANLEY NUZUM, ETAL LEASE ACREAGE 105.87
 LEASE NO. _____
 PROPOSED WORK: DRILL X CONVERT _____ DRILL DEEPER _____ REDRILL _____ FRACTURE OR STIMULATE _____ PLUG OFF OLD FORMATION _____ PERFORATE NEW FORMATION _____ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____

MAR 31 1986

PLUG AND ABANDON _____ CLEAN OUT AND REPLUG _____
 TARGET FORMATION N-CARB. SAND ESTIMATED DEPTH _____
 WELL OPERATOR Kaiser Exploration & Mining Co. DESIGNATED AGENT Kaiser Exploration & Mining Company
 ADDRESS P.O. Box 8, Ripley, West Virginia 26001 ADDRESS P.O. Box 8, Ripley, West Virginia 26001
465 N. Ripley (342)

owwd - Deep well 6-0



FILE NO. _____
 DRAWING NO. _____
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION SPOT ELEV. 590 AT RTE 56 NORTH OF LOCATION

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 (SIGNED) Dennis L. Fisher
 R.P.E. _____ L.L.S. 610

PLACE SEAL HERE

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



DATE MARCH 25 1982
 OPERATOR'S WELL NO. KEM 185
 API WELL NO. 47 - 035 - 1684
 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 762 WATER SHED SANDY CREEK
 DISTRICT RAVENSWOOD COUNTY JACKSON
 QUADRANGLE SANDYVILLE (7-5') RIPLEY (15') NW
 SURFACE OWNER STANLEY NUZUM, ETAL ACREAGE 105.87
 OIL & GAS ROYALTY OWNER STANLEY NUZUM, ETAL LEASE ACREAGE 105.87
 LEASE NO. _____
 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 N-BURG SAND ESTIMATED DEPTH 5252'
 WELL OPERATOR KAISER EXPLORATION & MINING CO DESIGNATED AGENT KAISER EXPLORATION & MINING COMPANY
 ADDRESS PO BOX B, RAVENSWOOD, WEST VIRGINIA 26160 ADDRESS PO BOX B, RAVENSWOOD, WEST VIRGINIA 26160

APR 26 1982

6-6-82 DEEP WELL (342)

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

See previous IV-35

4/17/86 Young's Wireline perf Berea with 13 holes from 2246 - 2249'.

4/24/86 Halliburton foam frac Berea. Used 45,000# 20/40 sand; Total N₂: 598 MCF; total fluid: 284 bbls; ISIP: 1660 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 Previous IV-35 | | | | | |

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY
Well Operator

By: R. A. P.

Date: October 6, 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 coal, encountered in the drilling of a well."



IV-35
(Rev 8-81)

Date August 19, 1982
Operator's
Well No. KEM - 185
Farm Nuzum
API No. 47 - 035 - 1684

RECEIVED
NOV 1 1982

State of West Virginia
Department of Mines
Oil and Gas Division

OIL & GAS DIVISION
DEPT. OF MINES

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 ___ / Underground Storage ___ / Deep ___ / Shallow ___ /)

LOCATION: Elevation: 762' Watershed Sandy Creek
District: Ravenswood County Jackson Quadrangle Sandyville

COMPANY Kaiser Exploration and Mining Company

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

DESIGNATED AGENT Same

ADDRESS _____

SURFACE OWNER Stanley Nuzum

ADDRESS P. O. Box 101, Ravenswood, WV 26164

MINERAL RIGHTS OWNER Same

ADDRESS _____

OIL AND GAS INSPECTOR FOR THIS WORK Richard

Morris ADDRESS Box 372, Grantsville, WV

PERMIT ISSUED April 20, 1982

DRILLING COMMENCED June 5, 1982

DRILLING COMPLETED June 12, 1982

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

| Casing & Tubing Size Cond. | Used in Drilling | Left in Well | Cement fill up Cu. ft. |
|--|---------------------|-----------------|------------------------------|
| 20-16 | | | |
| 13-10" | 255 | 255 | 100 sks |
| 9 5/8 | | | |
| 8 5/8 | 2110 | 2110 | 200 sks |
| 7 | | | |
| 5 1/2 | 5241 | 5241 | 425 sks |
| 4 1/2 | | | |
| 3 | | | |
| 2 | | | |
| Liners used | | | |

GEOLOGICAL TARGET FORMATION Williamsport Sandstone Depth 5276-5279 feet

Depth of completed well 5300 feet Rotary X / Cable Tools _____

Water strata depth: Fresh _____ feet; Salt _____ feet

Coal seam depths: _____ Is coal being mined in the area? _____

OPEN FLOW DATA

Producing formation Devonian Brown Shale Pay zone depth 3410-3905 feet

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

Final open flow 275 Mcf/d Final open flow -- Bbl/d

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

Static rock pressure 630# psig (surface measurement) after 0.5 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

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

Plug back to ^{4004 KB} 3,560 (KB) ~~4000~~

Brown Shale perforations: 3654-3899 (20 holes 0.39" diameter)

Brown Shale frac: 75 quality foam, breakdown 1380 psig; treating pressure 2050 psig;
total sand: 60,000 lbs 20/40 sand; total nitrogen: 625,000 SCF;
Total fluid: 315 BBL; treated with up to 10 PPG of sand, treating
rate 12 BPM; 5 minute shut-in pressure 1070 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 |
|------------------------|-------|--------------|----------|-------------|--|
| Shale | | | 0 | 176 | |
| Sand | | | 176 | 272 | |
| Shale and sand | | | 272 | 470 | |
| Sand | | | 470 | 520 | |
| Shale | | | 520 | 605 | |
| Sand | | | 605 | 735 | |
| Shale | | | 735 | 995 | |
| Sand and Shale | | | 995 | 1617 | |
| Lime | | | 1617 | 1782 | |
| Shale | | | 1782 | 1850 | |
| Sand | | | 1850 | 1920 | |
| Shale | | | 1920 | 2226 | |
| Coffee Shale | | | 2226 | 2249 | |
| Berea Sandstone | | | 2249 | 2253 | |
| Shale | | | 2253 | 3670 | Show of gas at 3560 |
| Brown Shale | | | 3670 | 3900 | Show of gas at 3800, 3960 |
| Shale | | | 3900 | 4250 | |
| Marcellus Shale | | | 4250 | 4484 | |
| Onondaga Limestone | | | 4484 | 4562 | |
| Oriskany Sandstone | | | 4562 | 4604 | Show of gas at 4600 |
| Helderberg | | | 4604 | 4778 | Show of gas at 4760 |
| Salina | | | 4778 | 5276 | |
| Williamsport Sandstone | | | 5276 | 5279 | |
| Lockport | | | 5279 | 5300 | |
| Total Depth | | | 5300 | | |

3654
2253

1401

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY

Well Operator

By: R. A. P.

Date: August 19, 1982

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."



Date: April 7, 19 82

Operator's Well No. KEM #185

API Well No. 47 035 1684

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: 762' Watershed: Sandy Creek District: Ravenswood County: Jackson Quadrangle: Sandyville

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

OIL & GAS ROYALTY OWNER Stanley Nuzum, et al Address P. O. Box 101 Ravenswood, WV 26164

COAL OPERATOR None Address

ACREAGE 105.87

COAL OWNER(S) WITH DECLARATION ON RECORD:

SURFACE OWNER Same Address

Name Same Address

ACREAGE

Name APR 12 1982

FIELD SALE (IF MADE) TO: Address

Address OIL AND GAS DIVISION WV DEPARTMENT OF MINES

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

COAL LESSEE WITH DECLARATION ON RECORD: Name Address

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 December 10, 19 80, to the undersigned well operator from Stanley W. & Betty L. Nuzum

Recorded on May 27, 19 80, in the office of the Clerk of the County Commission of Jackson County, West Va., in Lease Book 161 at page 246. 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 §22-4-3 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 / de Its General Manager

MARKET BOARD

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, Newburg

Estimated depth of completed well, 5252' feet Rotary X / Cable tools /

Approximate water strata depths: Fresh, 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 | 13 3/8" | | | | | 250' | 250' | 280 sks class A | (to surface) |
| Coal | | | | | | | | | Sizes |
| Intermediate | 9 5/8" | | | | | 2140 | 2140 | 275 sks 50/50 100 sks class A | pozmix A |
| Production | 7" | | | | | 5252 | 5252 | 150 sks 50/50 100 class A | Depth set pozmix |
| 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

