COMMONWEALTH OF KENTUCKY

ENERGY & ENVIRONMENT CABINET
Department for Natural Resources
Division of Oil & Gas

Oil & Gas Well Operator's Manual

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State Fire Marshall's Office
Kentucky Emergency Management
United States Environmental Protection Agency
United States Army Corps of Engineers

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Kentucky UNBRIDLED SPIRIT

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FOREWORD

For over 100 years, exploration for oil and gas has occurred in the Commonwealth of Kentucky. Conservation of these resources was addressed by the ratification of the interstate compact to conserve oil and natural gas in 1942. This compact was later repealed, amended and re-enacted by joint resolution of the General Assembly in 1948.

Regulation regarding these exploration and conservation efforts began in 1960 by the formation of the Kentucky Oil and Gas Conservation Commission and the Oil and Gas Division under the Department for Natural Resources. From 1960 until the present, various other agencies have adopted regulations regarding the numerous activities related to the exploration of oil and gas in Kentucky. These agencies, as listed throughout this document, have developed regulations regarding the activities which in many cases overlap and possibly add confusion to the regulated community as to which agency and regulation apply to a given situation. In order to provide a better understanding of all the regulations and agencies responsible for these regulations, this manual was prepared. Use of this manual shall hopefully provide guidance to compliance with the respective regulation of the appropriate agency and the manner under which operations should be conducted.

The Division of Oil and Gas wishes to acknowledge and express appreciation to the following team members that participated in the preparation of this manual. They include the following: Rick Bender (resigned), Brian Gilpin (retired), and Marvin Combs from the Division of Oil and Gas; Dan Juett, Jim Sproles and Gene Blair (retired) from the Division of Water; James Hale and Tim Hubbard from the Division of Waste Management, Ralph Dennis from the Public Service Commission; Rodney Raby and James Helm from the State Fire Marshal's Office; and Charles P. Susie and Michael Sanders representing the Kentucky Oil and Gas Association.

In addition, the Division would also like to thank the U.S. Department of Energy for the financial support of this effort. The regulated community should use this document as a reference manual and shall serve as a useful tool for achieving compliance and fostering further exploration efforts in the Commonwealth of Kentucky. The Department of Energy should be commended for their support and encouragement of this and other similar projects.

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INTRODUCTION

This handbook was prepared by a task force consisting of representatives from state regulatory agencies and the oil and gas industry under a grant from the U.S. Department of Energy. The purpose of this handbook is to serve as a guidance document and reference manual for oil and gas well operators in dealing with state and federal agencies which regulate the various phases of drilling, production, operation and abandonment of oil and gas wells.

The manual is composed of sections listed in chronological order from Pre-Drilling through Well Abandonment and Site Closure which an operator would typically follow in drilling, operating and plugging an oil or gas well in Kentucky. A simplified step-by-step checklist using this format is included (See Pages xi-xiii). A Well Operator's Activity Chart is included describing regulatory agencies' involvement in the various phases of operation (See Pages xiv-xviii). A narrative describing each phase of well operation with regulatory agency requirements is included and listed in the Table of Contents.

The appendix contains directories of state and federal agencies and personnel, regulatory agency forms and other information to assist the well operator in complying with Kentucky statutes and regulations. Forms shown in Appendix B of this manual are for example and are not intended for official use. It is recommended the agency having regulatory control of the forms be contacted concerning any requirements for form use and reproduction.

This manual is presented as a general reference and illustrates those practices which have been proven in a safe and workman-like manner to conform to State and Federal regulation at the time of printing. It is beyond the scope of this manual to cite every applicable state and federal regulation and statute, and thus this manual is not intended to take the place of one's responsibility to know and understand all applicable regulations and statutes. Statutes and regulations referred to in this manual are not provided in their complete form. The reader is encouraged to read the full text of each statute and regulation and seek counsel if and when necessary for clarification as to the applicability of each.

Updates: Periodic updates will occur as regulatory and statutory changes mandate, specific questions should be directed to:

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SIMPLIFIED STEP-BY-STEP CHECKLIST (☑) PROCEDURE FOR DRILLING A WELL IN KENTUCKY

Section 1. Pre-Drilling and Permitting a Well

- ❒ **Prepare a Game Plan** for each well drilled. It is recommended that the operator prepare an overall game plan that incorporates all actions to be undertaken by the operation. This plan should include all impacts to the environment and the rights of all parties involved.

- ❒ **Post Bond** with Division of Oil and Gas. See Page 1.

- ❒ **Obtain a Gathering Line License** with Division of Oil and Gas. See Page 12.

- ❒ **Prepare a Well Plat** of the well location. See Page 4.

- ❒ **Prepare a Well Permit application.** See Page 5.

- ❒ **Prepare an Operations and Reclamation Plan.** See Page 6.

- ❒ **Submit Well Permit (include well plat and reclamation plan) package** to the Division of Oil and Gas.

- ❒ **Obtain a Flowline/Gathering Line Permit.** See Page 13.

- ❒ **Obtain Permits for Stream/River Crossing.** See Page 18.

- ❒ **Construct access road and wellsite in accordance with the Operations and Reclamation Plan** and construct drilling pit adequate to contain drilling fluids and prevent flow into streams. See Page 6.

- ❒ **Plan for Management and Disposal** of waste generated by the operation including construction of the drilling pit. See Page 27.

Section 2. Drilling

- ❒ **Notify Division of Oil and Gas Inspector** (on permit) 24 hrs. before spudding. See Page 24.

- ❒ **Contain and Dispose of Drilling Muds/Fluids** in accordance with applicable regulations. See Page 27.

- ❒ **Post Drilling Permit** at the well site during drilling.

Simplified Step-by-Step Checklist (☑) Procedure for Drilling a Well in Kentucky

- ❒ **Set Surface and/or Intermediate Casing** in accordance with regulations. See Page 25.

- ❒ **Provide Oil and Gas inspector with Total Depth,** amount of casing, if run and cement quantity immediately following completion of drilling. See Page 24.

- ❒ **Contain and Clean-up Oil Spills, Leaks, Discharges or Releases** of pollutants immediately. For reportable spills notify Environmental Response Team 1-800-928-2380. See Page 52.

Section 3. Well Completion and Operation

- ❒ **File Well Records** with Division of Oil and Gas 90 days after reaching total depth. See Page 30.

- ❒ **File As-Built Well Plat in Coal Areas and Inclination/Directional Surveys** with Division of Oil and Gas 30 days after reaching total depth. See Page 31.

- ❒ **Register Tank Battery** with Division of Water within 60 Days after production begins. See Page 38.

- ❒ **Submit Annual Production Report** to Division of Oil and Gas on or before April 15th for previous year. See Page 54.

- ❒ **Dispose of Waste** in accordance with applicable regulations. See Page 50.

- ❒ **Contain and Clean-up Oil Spills, Leaks, Discharges or Releases** of pollutants immediately. For reportable spills notify Environmental Response Team 1-800-928-2380. See Page 52.

- ❒ **Perform Periodic Inspection and Reclamation Maintenance** of disturbed areas, inspect BMP's as required by Operations and Reclamation Plan. See Page 41.

- ❒ **File Fluid Disclosure for Hydraulically-Fractured Wells** of disturbed areas, inspect BMP's as required by Operations and Reclamation Plan. See Page 34.

Simplified Step-by-Step
Checklist (☑) Procedure
for Drilling a Well in Kentucky

Section 4. Abandonment and Closure

❒ **Plug Well** in accordance with Division of Oil & Gas Inspector's instruction.
See Page 59.

❒ **Remove Debris** and associated equipment in conjunction with site closure.
See Page 60.

❒ **Remove Equipment** upon closure of lease activities and contact Division of Water for inactivation of registration. See Page 60.

❒ **File Plugging Affidavit** with the Division of Oil and Gas. See Page 59.

❒ **Perform Final Reclamation** of disturbed areas in accordance with the Operations and Reclamation Plan, and provide written notification to the Division of Oil & Gas.
See Page 61.

❒ **Request Release of Bond** upon completion of site closure, filing of records or transfer of wells to another operator. See Page 62.

WELL OPERATOR'S ACTIVITY CHART

DOG-Division of Oil & Gas
DOW-Division of Water
DWM-SWB-Division of Waste Management-Solid Waste Branch
DWM-HWB-Division of Waste Management-Hazardous Waste Branch
DAQ-Division of Air Quality
SFM-Kentucky State Fire Marshall
USEPA-US Environmental Protection Agency

ACTIVITY	STATE/FEDERAL REGULATORY AGENCY	FEE	PERMIT REQUIRED	REGULATORY AGENCY FORM NO.	TIME	ADMINISTRATIVE REGULATION OR STATUTE	REMARKS
I. PRE-DRILLING				ED-5, ED-6			Blanket Bond
Bonding of Well	DOG	Individual Bond Based on Depth	No	ED-14 ED-16 ED-20	Life of Well	805 KAR 1:050 KRS 353.590	Individual Well Bond Based on Depth **PAGE 1**
Gathering Line Flow Line License	DOG	$100	Yes	ED-20	Required Annually	805 KAR 1:190	Annually renewable license **Page 12**
Well Plat	DOG	None	No	Approved Well Plat	Less Than 1 Year	805 KAR 1:030 KRS 353.590(4)	Reg. Eng & L.S.-Coal L.S.-Non-Coal **Page 4**
Well Permit	DOG	$350	Yes	Approved Well Plat ED-1	1 Year	KRS 353.570 KRS 353.580 KRS 353.590	Required on All Wells Drilled, Deepened or Re-Opend, Spud within 1 Year **Page 5**
Well Site Reclamation Plan	DOG	None	Yes	ED-1 ED-10	1 Year	805 KAR 1:170 KRS 353.5901	Required for all permits received after June 24, 2015-BMP's **Page 6**
Shallow Wells	DOG	Permit Fee $350	Yes	ED-3	1 Year	KRS 353.510 KRS 353.610	Less than 6,000 ft. or above base of Dev. Shale **Page 10**
Vertical Deep Wells	DOG	Permit Fee Basesd on Depth	Yes	ED-7 ED-3	1 Year	805 KAR 1:100 805 KAR 1:130	Vertical wells drilled below 6,000 ft. **Page 11**
Horizontal Deep Wells	DOG	Permit Fee Based TVD & MD	Yes	ED-7	1 Year	805 KAR 1:100 805 KAR 1:130 KRS 353.570	10,000' wildcat measured along lateral path of wellbore **Page 21**
Well Spacing Variance	DOG	None	No	None	1 Year	KRS 353.620	Director Approval After Hearing **Page 11**
Pooling of Oil & Gas Interests	DOG	None	No	None	None	KRS 353.630	Pooling Hearing **Page 12**
Gathering Line License	DOG	$100-Annual Commercial operator $200-Domestic Well	Yes	ED-11		805 KAR 1:190	Annual Fee Requirement **Page 12**
Gathering Line Permit	DOG	$100-Oil Flowline $200-Gas Flowline	Yes	ED-11		805 KAR 1:190	Required on all Producing Wells **Page 13**
Well Permits In Coal Regions	DOG	Permit Fee ($350)	Yes	ED-1	1 Year	KRS 353.050	15-Day hold on Permit for Coal Co. Evaluation **Page 15**
Coalbed Methane Well Regulations	DOG	Permit Fee ($350)	Yes	CBM-2	1 Year	805 KAR 9:010 through 805 KAR 9:100	1,500 Ft. between CBM Wells 750 Ft. from Propeerty Line **Page 16**

WELL OPERATOR'S ACTIVITY CHART

ACTIVITY	STATE/FEDERAL REGULATORY AGENCY	FEE	PERMIT REQUIRED	REGULATORY AGENCY FORM NO.	TIME	ADMINISTRATIVE REGULATION OR STATUTE	REMARKS
Well Permits In Gas Storage Fields	DOG	Permit Fee ($350)	Yes	ED-1	1 Year	805 KAR 1:080	Notify Gas Storage Field operator **Page 17**
Stream Crossings Wetlands, Stream Discharge	DOW	None	Yes	Construct across or along stream	Prior to Construction	401 KAR 4:060 KRS 141.125	Stream Obstruction Requires permit **Page 18**
Stream/Wetlands Waters of the United States Well-Site	US Army Corps of Engineers	None	Yes	Map of Area	None	Clean Water Act River/Harbor Act	Corp of Engineer Stream Requirements **Page 20**
Objection Well by Coal Oper.	DOG	None	No	None	None	KRS 353.060	DOG Hearing **Page 15**
Twin Wells	DOG	Permit Fee $350	Yes	Well Plat ED-3	1 Year	KRS 353.610(2)	Wells Must Produce from Different Zones **Page 21**
Directional or Horizontal Wells	DOG	Based on Depth	Yes	EDD-3 ED-7 ED-8	1 Year	805 KAR 1:140 KRS 353.550	Drilling Requirements **Page 21**
II. DRILLING							
Spudding-Drilling	DOG	See Well Permit	Yes	ED-3	1 Year	KRS 353.660	Notify DOG Inspector 24 Hrs before Spud Contact Instpector at Total Depth **Page 24**
Blow-Out Preventer (BOP)	DOG	None	Yes	ED-7	Installed after setting Int. casing	805 KAR 1:130 805 KAR 1:140 KRS 353.520	Testing/Working Pressure Requirements **Page 24**
Protection of Fresh Water Zones	DOG	None	No	None	None	805 KAR 1:020 KRS 353.520	Casing Set 30 ft. Below Aquifer, Cement to Surface **Page 25**
Drilling Pits	DOW	None	No	No	None	401 KAR 5:090 KRS 151.125 KRS 224.100	Open no longer than 30 days After 30 days-Holding Pit **Page 26**
Storage of Drilling Fluids Disposal of Trash	DWM	None	No	None	None	401 KAR 31:030 KRS 224.40-760	All fluids must be contained to prevent environmental issues All trash disposed off-site **Page 27**
Drilling through Coal Seams	DOG	None	No	None	None	KRS 353.080 KRS 353.100	Casing set 30 ft. below deepest coal-cement to surface **Page 28**
Drill Samples	DOG	None	No	No	None	KRS 353.660	Deposit at KGS designtaed sample location facility **Page 28**
Drilling Deeper than Permitted Depth	DOG	None	No	No	None	805 KAR 1:120 KRS 353.590	Amend depth within 10 days May require additional bonding **Page 28**
III. WELL COMPLETION-OPERATION							
Well Completion Filing of Well Records	DOG	None	No	ED-3 ED-38	90 Days 30 Days	KRS 353.660	File ED-3 90 Days After Drilling, File Electric Logs File ED-38 if P & A **Page 30**

WELL OPERATOR'S ACTIVITY CHART

ACTIVITY	STATE/FEDERAL REGULATORY AGENCY	FEE	PERMIT REQUIRED	REGULATORY AGENCY FORM NO.	TIME	ADMINISTRATIVE REGULATION OR STATUTE	REMARKS
As-Built Plat in Coal Areas	DOG	None	No	As-Built Well Plat	30 Days	KRS Chapter 353 KRS Chapter 352	Submit within 30 days 15 ft. surface/150 ft. @ deepest workable coal seam **Page 31**
Directional Inclination Surveys	DOG	None	No	No	Dir/Incl. Surveys Submitted after drlg.	805 KAR 1:140 KRS 353.550 KRS 352	Directional surveys required on all horizontal wells Dir/Incl surveys in coal areas **Page 21 & 31**
Hydraulic Fracturing	USEPA	None	No	No	48 hrs after Frac	Safe Drinking Water Act	Diesel fuel additive prohibited 2 day notification prior to frac **Page 33**
VOC Emission Standards	USEPA DAQ	None	No	Form DEP 5034		401 KAR 50-68 40 CFR 60	Apply to any well fraced after 23-Aug-11 **Page 33**
High-Volume Horizontal Hydraulic Fracturing	DOG	None	No	Fluid Disclosure See Remarks		805 KAR 1:110 KRS 353.6606	80,000/stage; 320/000 aggregate Fracfocus fluid disclosure https://fracfocus.org/ **Page 34**
Groundwater Source Testing Requirements	DOG	None	No	ED-40	90 days prior to Frac 3 to 6 mos. after Frac	805 KAR 1:110 KRS 353.6606	Deep Hor. High-Volume Fracs; 90 days prior to frac., 3 to 6 months following frac treatment **Page 34**
Disposal of Completion Fluids	DWM	None	No	No	None	401 KAR 31:030 401 KAR 47:150	Permit-by-rule Dispose off-site **Page 35**
Tank Battery Tier II Reporting	KY Emergency Mgmt	Tier 2 Facility $40	Yes	Tier 2 Report	Annually Jan-1 to 1-Mar	KRS 39E.050	Electronic reportiing Refer to website **Page 35**
Registration of Oil & Gas Facility	DOW	None	No	Registration Form	60 Days	401 KAR 5:090	Register Facility within 60 Days **Page 38**
Danger Sign on Storage Facilities [Tank Battery]	DOG DOG	None None	No No	None None	None None	KRS 353.656 KRS 353.656	Posted on Oil Tank Battery **Page 39**
Storage and Piping Systems Compliance	SFM	$50.00	Yes	Const. above Grd Tanks Pet. Prod. Haz. Mat.	Before Const.	815 KAR 10:050 NFPA 30 Ky. Fire Prev. Code	Pipe & Tank must comply with NFPA 30 & Current Ed. Of Fire Prev. Code **Page 39 **
Spill Prevention Control and Countermeasure (SPCC) Plan	DOW	None	Yes	SPCC Plan	Upon Facility Start-up	EPA 40 CFR Parts 110 & 112 401 KAR 5:090 KRS 151.125	Plan musy be in Accordance with 40 CFR 112 **Page 40**
Transfer of Well Ownership	DOG	$25/well	No	ED-13	None	KRS 353.590	New operator to file updated Registration Form **Page 42**
Transfer of Oil & Gas Facility	DOW	None	No	Updated Reg. Form	60 Days	401 KAR 5:090	Within 60 days of Ownership Change **Page43**
Holding Pits	DOW	$100.00	Yes	Construction & Operation Plan	30 Days before Construction	401 KAR 5:090 KRS 151.125	Pit utilized for Storage of Produced Water **Page 44**

WELL OPERATOR'S ACTIVITY CHART

ACTIVITY	STATE/FEDERAL REGULATORY AGENCY	FEE	PERMIT REQUIRED	REGULATORY AGENCY FORM NO.	TIME	ADMINISTRATIVE REGULATION OR STATUTE	REMARKS
Improperly Abandoned Wells-Temporary Abandonment Permits	DOG	None	Yes	Up to 2 Years	2 Yrs Maximum	KRS 353.550	Well records must be on file need Inspector approval **Page 45 **
Well Testing Permits	DOG	$25/Well	Yes	Test Permit File Rpt. Of Investigation	60 Days	KRS 353.730	File Report of Investigation 60 days after Testing **Page 46**
Injection Wells	EPA	None	Yes	7520-6			EPA (404) 347-3379 Comply with EPA
Class II Wells	DOG	$350/well	Yes	ED-3 ED-23	1 Year	805 KAR 1:110 805 KAR 1:020	requirements **Page 47**
Produced Water Disposal	DOW	Depends upon Disposal Method	Yes	Disposal of Produced Water KPDES	None	401 KAR 5:090 KRS 151.125	Disposal of Produced Water must not Violate Water Quality **Page 48**
Vacuum Pumps	DOG	None	No	ED-9	None	805 KAR 1:040 KRS 353.560	Identify all wells with 1,000 ft. **Page 49**
Operator Classification of Hazardous Waste	DWM-HWB	None	No	None	None	401 KAR 32:010 401 KAR 30-31 KRS 224.46-510	Generate less than 220 lbs. hazardous waste per month **Page 50**
Groundwater Protection Plan (GPP)	DOW	None	No	None	Upon Facility Start-up	401 KAR 5:037 KRS 224.01-010 KRS 224.10-100	Have an acceptable GPP in accordance with KRS 224 **Page 51**
Reporting Spills, By-Passes Leaks of Oil, Produced Fluids, and Chemicals	DOW	None	No	None	Report Spills Immediately	401 KAR 5:015 401 KAR 5:090 KRS 224.10-100 KRS 224.70-110 KRS 151.125	Spills that reach waterways and have potential impact contact DOW-ERT immediately at 1-800-928-2380 **Page 52**
	DWM-HWB	None	No	None	Report Spills Immediately	KRS 224.01-400 KRS 224.01-405	Otherwise on soil report to DWM ERT. If more than 25 gal. of oil or 75 gal. of diesel fuel **Page 52**
N.O.R.M. Oil & Gas Reporting	Cabinet for Human Res.-Rad. Br.	None	No	None	Report if detected		Monitor tubulars for Radiation Exposure **Page 54**
Oil & Gas Production Reporting	DOG	None	No	ED-17	Submit by April 15th	KRS 353.206	Submit by April 15th for Prior Yrs. Production **Page 54**
IV. WELL ABANDONMENT & SITE CLOSURE							
Plugging of Wells	DOG	None	No	ED-38	File 30 Days After Plugging	805 KAR 1:060 805 KAR 1:070 KRS 353.120	Contact Inspector for Plugging Instructions **Page 59**
Closure of Oil & Gas Facility	DWM DOW	None	No	None	After Operations Cease	401 KAR 5:090 KRS 151.125 KRS 224.10-100	Tanks Removed, Site Reclaimed **Page 60**
Well-Site Final Reclamation and Closure	DOG	None	No	None	1 Year	805 KAR 1:170 KRS 353.5901	Operator files written notice after final reclamation **Page 61**
Bond Release	DOG	None	No	None	None	805 KAR 1:050 KRS 353.590 (5)	Well(s) plugged, records filed or well transferred **Page 62**

WELL OPERATOR'S ACTIVITY CHART

ACTIVITY	STATE/FEDERAL REGULATORY AGENCY	FEE	PERMIT REQUIRED	REGULATORY AGENCY FORM NO.	TIME	ADMINISTRATIVE REGULATION OR STATUTE	REMARKS
Bond Forfeiture	DOG	None	No	None	45 Days After Notification	805 KAR 1:050 KRS 353.590 (5)	Operator may get extension or appeal forfeiture **Page 62**
V. INSPECTION & ENFORCEMENT						KRS 353.220	Inspectors May inspect any well,
Division of Oil & Gas Inspection & Enforcement Policy	DOG	None	No	None	Anytime	KRS 353.990 KRS 353.991 KRS 353.992	wellsite or gathering line at any time **Page 64**
Division of Water & Waste Management inspection & Enforcement Policy	DOW DWM	None	No	None	Anytime	401 KAR 5:090 KRS 224.10-100 KRS 224.10-410 KRS 224.99-100	Inspectors may inspect any oil & gas facility at anytime **Page 64**
Public Service Commission Enforcement Policy	PSC	None	No	None	Anytime	KRS 278-900 KRS 278.992	Inspectors may inspect any pipeline facility at anytime **Page 65**

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REGULATORY AUTHORITY

Division of Oil and Gas

The Department for Natural Resources, Division of Oil and Gas is responsible for:

- Regulating the bonding, permitting, site construction, drilling, casing, operating and plugging of all wells, reclamation of well sites and regulating associated flow lines and gathering lines in Kentucky.
- Protecting the correlative rights of mineral owners.
- Conserving and protecting the crude oil and natural gas resources of Kentucky.
- Ensuring fresh water aquifers and mineable coal seams are protected from unreasonable damage due to production of crude oil and natural gas.

Statute-KRS Chapter 353

Division of Water

The Department for Environmental Protection, Division of Water is responsible for:

- Preserving the water resources of Kentucky.
- Prevention, abatement and control of all water pollution.
- Regulating water pollution from oil and gas facilities.

Statute-KRS Chapters 146, 151 and 224

Division of Waste Management

The Department of Environmental Protection, Division of Waste Management is responsible for:

- Ensuring waste management activities within Kentucky are conducted in a manner to protect human health, safety and the environment.
- Regulating hazardous waste, solid waste, special waste, abandoned sites, underground storage tanks and remediation of chemical and petroleum releases to the environment.

Statute-KRS Chapter 224

Regulatory Authority

Public Service Commission

The Public Service Commission is responsible for:

- Inspecting and safety management of, natural gas transmission within the state and utility owned lines, compressor stations, meters, regulators and other pipeline facilities operated by oil and gas companies and natural gas utilities in Kentucky.
- Providing inspection and approval for farm taps.
- Responding to reported gas line leaks and potential hazards relating to state regulated pipelines.
- Regulating the rate utilities charge consumers for natural gas usage.
- Ensuring the quality of gas for consumers.

Public Service Commission responds to reported gas line leaks, potential hazards relating to pipelines as well as dictates the rate utilities charge consumers for natural gas usage.

Statute-KRS Chapter 278

State Fire Marshal's Office

The Kentucky State Fire Marshal is responsible for:

- Inspecting to ensure safe storage and handling of all flammable and combustible liquids near oil or gas wells and related production facilities.

Statute-KRS Chapter 227

Underground Injection Control Section

The U.S. Environmental Protection Agency, Underground Injection Control Section is responsible for:

- Preventing contamination of groundwater resources (USDW's) from underground injection.
- Regulating Class II wells which are injection and/or disposal wells associated with the production of oil and natural gas.

Federal Regulation-40 CFR 100 to 149

I. PRE-DRILLING

Bonding

Division of Oil and Gas

The Division of Oil and Gas requires a performance bond to be on file before a well is drilled or acquired from another operator. This bond is posted to ensure the proper plugging and abandonment of wells and to ensure the filing of well records with the Division. Should an operator fail to correct a violation, the bond may be forfeited by the Division and the funds deposited into the "State-bid" plugging program account for plugging and abandonment of orphan wells in the Commonwealth.

• **INDIVIDUAL BONDS** should accompany the well permit application when it is submitted to the Division of Oil and Gas. Bonds for individual wells are based on the total depth of the well as listed below:

DEPTH (FT.)	BOND AMOUNT ($)
0-500'	$ 500
501'-1,000'	$1,000
1,001'-1,500'	$1,500
1,501'-2,000'	$2,000
2,001'-2,500'	$2,500
2,501'-3,000'	$3,000
3,001'-3,500'	$3,500
3,501'-4,000'	$4,000
4,001'-4,500'	$5,000
4,501'-5,000'	$6,000
5,001'-5,500'	$7,000
5,501'-6,000'	$8,000

NOTE: Bonding for wells permitted to 4,000 ft. is designated for plugging purposes, whereas wells permitted below 4,001 ft. are for both plugging and well-site reclamation purposes.

Individual Deep Well Bonding: (For deep wells permitted after June 24, 2015)
Vertical Deep Well (See deep well definition): $25,000
Horizontal Deep Well: $40,000
The Kentucky Oil & Gas Commission may establish higher bond for any individual well based on projected costs to plug the well and reclaim the well site.

• **BLANKET BOND** may be established to cover all wells operated by an operator and shall be on file at the Division of Oil and Gas prior to permitting or acquiring wells. Any violation against a well listed under a Blanket Bond will prohibit any future wells being permitted or transferred under that Blanket Bond. Forfeiture of any portion of a blanket bond will prohibit any additional drilling operation.

The various types of bonds accepted for both blanket and individual bonds include:

CASH – Certified Check, Cashier's Check, Money Order or CASH.

SURETY - Obtained from an insurance company. Division assigned "Power of Attorney" from insurance company.

LETTER OF CREDIT - Obtained from bank or other financial institution.

CERTIFICATE OF DEPOSIT - Obtained from bank or other financial institution. Original Certificate of Deposit must be on file with Division along with verification form. A Certificate of Deposit may serve for a blanket bond, provided the first five thousand dollars ($5,000.00) of the blanket bond is posted with the division in cash.

INDIVIDUAL PROPERTY BOND – A lien on the property to cover one well for domestic use. The property bond must be combined with a $1,000 cash bond.

BONDING AMENDMENT

Effective July 15, 2006, KRS 353.590 has been amended due to legislative action to include a Blanket Bond Tier Schedule based on the well operator being classified as "Qualified" or "Non-Qualified" as described below:

Qualified

- Operator must have a blanket bond on file prior to July 15, 2006 and have no outstanding, unabated violations
- Operator must have a record of compliance with all DOG statutes and regulations for a period of thirty-six (36) months
- Provide proof of financial ability to plug and abandon wells covered by the blanket bond

Qualified Blanket-Bond Tier Schedule

No. of Wells	Bond Amount
1-25 Wells	$10,000
26-100 Wells	$25,000
101-500 Wells	$50,000
501+ Wells	$100,000

An operator which is operating more than 25 wells under an existing blanket bond prior to this amendment will continue to operate under the $10,000.00 bond. If new acquisitions or permitting places the operator in a new tier, the bonding guidelines for that tier will apply.

Non-Qualified

- Operator has more than ten (10) violations of KRS chapter 353 within the thirty-six (36) period
- Operator has outstanding, unabated violations which have not been appealed

- Operator has had a forfeiture of an individual bond or partial forfeiture of a blanket bond And has no agreement with DOG for plugging of the well(s)
- Operator has a permit or permits upon which a portion or the entire bond has been forfeited and the proceeds have been spent by DOG to plug the well(s)

Non-Qualified Blanket-Bond Tier Schedule

No. of Wells	Bond Amount
1-100 Wells	**$50,000**
101 + Wells	**$100,000**

Deep Well Blanket Bonding (For deep wells permitted after June 24, 2015)
1 to 10 Vertical Deep Wells: $200,000
1 to 10 Horizontal Deep Wells: $320,000

For bonding requirements on Coalbed Methane wells, refer to that section.

Regulation-805 KAR 1:050
Statute-KRS 353.590
Forms-Surety, Letter of Credit, Certificate of Deposit (Forms ED-5, ED-6, ED-16 and ED-20, See Appendix B)

Well Plat

Division of Oil and Gas

Before a well is permitted, the operator shall have a map or plat of the proposed well location drawn on 8 1/2" by 14" bond or tracing paper prepared by a land surveyor registered in Kentucky. If the well is in coal producing regions of Eastern Kentucky (Appalachian Basin) or Western Kentucky (Illinois Basin) both a registered engineer and registered land surveyor shall certify the plat. A map identifying the coal producing regions of Kentucky is located in Appendix A. The plat shall include and be prepared as follows:

- **Proposed well location, elevation and distance from property lines**

- **Location of well by bearing and distance, relative to two permanent monuments that appear on a 7.5' USGS Topographic Maps**

- **Latitude and longitude and Carter Coordinates for the proposed well location**

- **Scale of the plat drawn on 1" equals 100', 200', 300', 400', 500', 600' or 800'**

- **All oil or gas producing wells within 1,000' of the proposed well**

- **Lease boundary, surface owner, mineral royalty owner and adjacent mineral owner**

- **Elevation as determined by instrument or calculation**

- **Certification of the plat by the surveyor, and engineer if required, reading as follows: *"I hereby certify that the above plat is accurate and correct and satisfies the requirements of 805 KAR 1:030 to the best of my knowledge and belief,"* followed by the written signature of the person preparing the plat, mailing address, registration number and telephone number**

- **Date of plat within one (1) year of date of application of permit**

After a well is permitted, the well location shall not be changed. Permitted wells which are drilled at a location other than the coordinates listed on the plat and permit are considered as wells drilled without a valid permit.

A well shall not be drilled within one hundred fifteen (150) feet of any building without a signed waiver from the building owner. The waiver shall be included with the well plat and permit application. An example of a properly prepared well plat is located in Appendix A.

Regulation-805 KAR 1:030
Statute-KRS 353.590 Section 4
Time-Plat shall be less than 1 year old when submitted with permit application

Well Permit

Division of Oil and Gas

An APPLICATION FOR PERMIT shall be filed with the Division of Oil and Gas before a well is **drilled, deepened** or **re-opened** for production of natural gas, crude oil, water supply for enhanced recovery, brine (produced-water) disposal or injection into a reservoir for the purpose of enhanced recovery. A permit is also required to drill stratigraphic test holes or to operate any well currently in violation in which the previous well operator's bond has been forfeited. The permit application is to include a fee based on the depth:

- Permit fee for wells drilled to a true vertical depth of less than 6,000 ft. (shallow wells): **$350.00**
- Permit fee for vertical wells drilled from 6,001-7,000 ft.: **$500**
- Permit fee for vertical wells drilled from 7,001 ft. or deeper: **$600**
- Permit fee for horizontal wells drilled to a measured depth of less than 10,000 ft.: **$5,000**
- Additional horizontal deep wells on same well pad (less than 10,000 ft.): **$3,000**
- Permit fee for horizontal wells drilled to a measured depth of more than 10,001 ft.: **$6,000**
- Additional horizontal deep wells on same well pad (more than 10,000 ft.): **$4,000**
- Multi-lateral wells will be assessed **$500** for each lateral wellbore

Permit fees shall be made payable to the "Kentucky State Treasurer," three copies of the well plat and if an individual bond is used, submit bond with application. Applicant should ensure the following information on the application is as follows:

- **Well operator's name shown on application shall be identical to name listed on bond**

- **Well operator shall provide permanent street address (P. O. Box numbers are not acceptable)**

- **Person signing application shall be an officer or partner of the company and the title of person shall be typed or clearly written**

- **Information on permit application (such as lease name, well number, elevation, and Carter Coordinate location) shall correspond to the information on well plat**

- **All blanks shall be filled in completely or the application will be returned**

When the permit is issued, the well shall be spudded within one year of the date issued or the permit will expire. Wells drilled after a permit has expired are in violation for drilling without a permit. Samples may be required on any well permit; if a permit has been stamped "Samples Required," or if so noted on the permit, refer to the Drill Sample Section.

Cancellation of permits before expiration requires the operator to contact the Frankfort office by letter, requesting the permit be cancelled. The inspector will inspect the location and notification shall be sent to the operator once the permit has been cancelled. The operator should cancel a

permit as soon as possible after the decision is made not to drill the well. Permit extensions for an additional year shall be granted if the operator submits a letter to the Division of Oil and Gas requesting an extension prior to the permit expiration date and includes a check for $300 (less than the initial permit fee of $350).

Statutes-KRS 353.570, 353.580 and 353.590
Form-APPLICATION FOR PERMIT (Form ED-1, See Appendix B)
Fee-$350.00
Time-Permit valid for 1 year from issue date

Well Site Reclamation Plan

Division of Oil and Gas

Effective June 24, 2015 all well permit applications require an OPERATIONS AND RECLAMATION PLAN. The plan requires the well operator to identify proposed construction activities required in building the access road and well site boundary which is defined as all areas of surface disturbance by a well operator excluding the access road. The plan must also include Best Management Practices (BMP's) which are measures or demonstrated practices, intended to control erosion and sedimentation from disturbed areas and protect waters of the Commonwealth. BMP's are vegetative, structural, or managerial practices used to prevent erosion and protect soil and water resources as well as adjacent properties from runoff and excessive sedimentation, if specific conditions of a site may change during construction, the well operator is advised to address these changes in the plan with the inspector.

Listed below are common BMP's utilized near or down-slope of access roads and well sites to control erosion, sedimentation and runoff. Diagrams of these BMP's are included in Appendix A:

- **Silt Fences** are sediment barriers that allow water to pass through but traps soil and other debris. Silt fences are composed of geotextile mesh material supported by stakes installed down-slope of disturbed areas on the contour and up-slope of streams or environmentally-sensitive areas. To install a silt fence: 1) Dig a trench for proposed fence. 2) Tuck mesh fabric into trench at least eight (8) inches to prevent undercutting then backfill on the uphill side of the fence. 3) Install support stakes on the downhill side and space on six (6) foot centers or less, four (4) foot centers around curves where runoff may be concentrated. 4) Backfill on the uphill side of the fence. Fences cannot be removed until area has stabilized.
- **Check Dams** are small dams composed of large gravel or rock placed in drainage channels or ditches to control runoff by reducing water velocity through the dam. Rock-check dams may be dispersed in the same ditch or channel situated at regular intervals depending on grade and water volume.
- **Composite Filter Socks (Fiber rolls)** are mesh fabric tubes filled with composted material staked in the ground and placed perpendicular to runoff to control erosion and retain sediment below disturbed areas.
- **Ditches** are man-made trenches used for drainage along access roads or around well-sites for diverting water runoff into natural drainage ways.

- **Vegetative Filter Strip** are land areas of native vegetation designed to trap sediment from water runoff and stabilize soil surfaces.
- **Water bars** are small ditches or ridges of compacted soil constructed diagonally across an access road to divert water runoff.
- **Broad-based dips** are gentle dips or waves in the access road, constructed to minimize erosion by diverting water movement off the road to ditches or natural drainage channels
- **Erosion control blanket (or mats)** are protective blankets or rolls applied to exposed soil, the blanket or mat contains seed mixtures, straw and fertilizer and a tackifier to hold in place; when installed on slopes should be laid parallel to slope

The Operations and Reclamation plan requires the well operator to list all fertilizer and seed mixtures to be used on the disturbed areas. A listing of recommended herbaceous (seed) mixtures are found in Appendix A. In addition, the plan shall also include an 8 1/2" by 14" map of the area to be disturbed; drawn to a scale of 1"=400' containing a legend with the operator's and surface owner's name listed on the map. The map shall also show the surface owner lease boundary, proposed access road, location of proposed BMP's, well site, pit location, buildings, water wells, drainage patterns on and away from disturbed area, water bodies, proposed gas gathering lines or oil flowlines and storage facilities using symbols listed on Form ED-10. The operator may use an enlarged area of a 7.5' USGS (1:24,000) topographic quadrangle rather than constructing a separate map.

Listed below are steps or considerations the well operator should utilize from site planning through well site closure to maintain compliance with regulatory requirements of the Reclamation and Operations Plan:

1. **Site Planning**-Prior to beginning construction, develop a construction plan to incorporate BMP's to minimize erosion and sedimentation to include the following:
    - Plan access road from state route to proposed well location
    - Utilize existing topography to minimize erosion (Avoid steep slopes, minimize amount of disturbed area, utilize USGS 7.5' topographic maps to determine water flow)
    - Identification of all streams/waterways potentially impacted by disturbance
    - Identify karst features (i.e. sinkholes) which may be conduits to groundwater requiring BMP's installation around feature to prevent groundwater degradation.
    - Preserve existing vegetation wherever possible, especially trees
    - Identify drainage channel near access road and well site for location of culverts and ditches and determine surface water control by the location of ditches and outlets for runoff control
    - Identify locations for BMP's installations for sediment and erosion control
2. **Construction**-Access road and well site constructed with BMP's installed as needed and temporary erosion control measures implemented until such time as permanent measures established.
    - Access road should be crowned and minimum 12-14 ft. wide, kept below 20% grade, greater in short distances
    - Access road stabilized with compacted soil, crushed stone, aggregate or gravel

- Access road shall include diagonal water bars (water breaks or cross drains), side drainage ditches and culverts (30^0 angle downgrade) within natural drainage to control runoff and prevent erosion.
- Install sediment barriers (silt fences, hay bales) where soil loss may occur
- Install temporary erosion control measures of access road to minimize sedimentation until permanent control measures are implemented
- Timber cut (for landowner) or stacked below access road for riprap
- Diversion ditches constructed around well site and adjacent to access roads and above cut slopes
- Culverts installed in natural drainage ways
- Install rock check dams as needed in ditches
- Reduce water velocities across well site to prevent erosion flows.
- Construct pits in stable portion of well site (non-fill areas)
- Verify disturbed area perimeter is protected to prevent off-site sedimentation and keep off-site runoff from flowing across highly eroded areas during construction

3. **Reclamation after Well Completion-**Stabilize all disturbed areas, remove all debris from well-site.
    - Establish temporary native species vegetation (seed and mulched) as soon as possible on well site, access road berms and all slopes (See Seed Mixtures in Appendix A). Steep slopes should be scarified with dozer tracks if possible to promote vegetation
    - Remove all fluids from pit (evaporation, Class II-D, land application)
    - Vegetative filter strips to be maintained for erosion control and filter for runoff
    - Construct diversion drainage to accept runoff from access roads, well site and other areas which may interfere with surface owner's property
    - Consider installation of gates to keep unauthorized vehicles out (based on landowner approval)
4. **Maintenance of Reclaimed Well Site and Access Road (production phase)-**Establish permanent vegetation, perform periodic maintenance of access road and well-site as needed during the productive life of the permitted well
    - Monitor access road and well site for excessive erosion or runoff issues, check culverts and ditches for debris and perform sediment removal as needed
    - Company personnel (well tenders) shall routinely check for sediment accumulation near check dams or silt fences after significant rainfall, floods or landslides
    - If rills or gullies develop, fill and reseed/mulch as soon as practical
    - Remove accumulated sediment along silt fences when it reaches 1/3 of fence height and insure no gaps have formed along fence base
    - Insure no turbidity is being generated in adjacent streams from well site

5. **Well Site Closure**-The Division of Oil & Gas shall consider a well site closed for any well permitted after June 24, 2015 only after the following site remediation measures have been completed by the operator:
    a) The well has been plugged and abandoned under the direction of the inspector.
    b) All surface production facilities have been removed.

c) Written notice to the Division has been provided by the well operator that final reclamation has occurred in accordance with the Operations and Reclamation Plan.
d) A final reclamation inspection has been performed by the Division inspector to verify all areas have been reclaimed in accordance with the Plan and to ensure:

- Permanent vegetation has been established.
- Permanent culverts and side ditches are installed and functioning properly.
  - Round or shape all disturbed areas to conform the site to adjacent terrain.
  - Establish permanent vegetation.
  - Assess all permanent erosion control measures.
  - Confer with landowner for future land use.

The well operator must notify the Division of Oil & Gas Bond release

- 1 year after final reclamation and inspection of disturbed areas.
- Transfers
  - ✓ Requires purchasing party to submit letter with Well Transfer form (ED-13) assuming well site reclamation responsibilities.

Mediation on Severed Mineral Tracts

In the event there has been a complete severance of the ownership of the oil and gas from the surface, the well operator must identify the surface owner and obtain his notarized signature his on Form ED-10. If the surface owner is unwilling or for some other reason refuses to sign the form, the well operator shall provide a copy of the certified mail receipt verifying Form ED-10 was received by the surface owner and file a written petition for mediation with the General Counsel of the Office of Legal Services, Department for Natural Resources. If the General Counsel receives a request from the surface owner to participate in the mediation, an Order Scheduling Mediation shall be issued and the surface owner and well operator will be notified of the time and place of the mediation. Both parties must pay a $100.00 mediation fee to participate in mediation. If the surface owner refuses mediation, the mediator will recommend the well operator's operation and reclamation plan be approved and the permit will be issued. If the surface owner cannot be located, the operator shall publish a notice of intended activity in a local newspaper over two publishing periods and once in a statewide newspaper.

Any agreement related to construction of the access road and well site reached during the mediation process shall be a permit condition. If the surface owner is financially unable to pay the mediation fee; the surface owner shall prepare an affidavit of income and submit to the mediator to determine if the mediation fee should be waived. The fee shall be waived if the surface owner's income is at or below 100% of the Federal Poverty Guideline.

Regulation-805 KAR 1:170
Statute-KRS 353.5901
Form-OPERATIONS AND RECLAMATION PLAN (Form ED-10, See Appendix B)
Fee-$100.00 Mediation Fee (If Required) Assessed to Surface Owner and Operator.

Shallow Well Definition and Spacing Requirements

Division of Oil and Gas

Oil and gas wells in Kentucky are classified as “shallow” or “deep” based on the total depth. Shallow wells are wells drilled to depths less than 6,000’ ft. or above the base of the lowest member of the Devonian Brown Shale, whichever is deeper. Deep wells are wells drilled deeper than 6,000 ft. or below the lowest member of the Devonian Shale, whichever is deeper.
Minimum spacing for shallow oil and gas wells is described as follows:

- **Oil wells in non-coal areas drilled to a depth from the surface to 2,000’ shall be spaced 200’ from the property line and 400’ from an offset well producing from the same zone**

- **Oil wells in non-coal areas drilled to a depth between 2,000’ and the deep well depth shall be spaced a minimum of 330’ from the property line and 660’ from an offset well producing from the same zone**

- **Oil wells in coal areas drilled from the surface to the deep well depth must be spaced 330’ from the property line and 660’ from an offset well producing from the same zone**

- **Gas wells drilled to a depth from the surface to the deep well depth must be spaced 500’ from the property line and 1,000’ from an offset well producing from the same zone**

Statutes-KRS 353.510 and 353.610

Deep Well Definition and Spacing Requirements

Division of Oil and Gas

A deep well is any well drilled to a depth that exceeds 6,000 ft. or below the lowest member of the Devonian Brown Shale. Permitting fees for deep wells are addressed in the WELL PERMIT section and is based on the true vertical depth of the proposed deep well. Unit sizes for deep well development are established by the Kentucky Oil and Gas Conservation Commission after a "wildcat" well has discovered a productive formation or multiple formations. A "wildcat" well is defined as a well in which there are no other deep wells of the same target formation within 10,000 ft. of the permitted location. In the case of a horizontal wildcat well, the 10,000 ft. interval shall be measured from any point along the lateral portion of the wellbore located in the productive formation. Following a wildcat well discovery and the Commission has ordered the unit development size, other deep wells within 10,000 ft. which target the same formation must be on approved units which are also established by the Commission. If an operator wishes to permit a well that is within 10,000 ft. of wells on established spacing, and the proposed location is not on an approved unit, then the spacing shall be as follows:

- **Deep Vertical Gas Well drilled to a depth of less than 7,000' must be located in the center of a 281 acre square unit with sides of 3,500'**

- **Deep Vertical Gas Well drilled to a depth greater than 7,000' must be located in the center of a 574 acre square unit with sides of 5,000'**

- **Deep Vertical Oil Well drilled to a depth of less than 7,000' must be located in the center of a 70 acre square unit with sides of 1,750'**

- **Deep Vertical Oil Well drilled to a depth greater than 7,000' must be located in the center of a 143 acre square unit with sides of 2,500'**

The Division of Oil and Gas requires an operator to file a CASING AND CEMENTING PLAN when a deep well is permitted. This includes a schematic of the wellbore with type, weight, grade and approximate depths of casing strings and cement type, additives and quantity used on each casing string. A Blow-Out Preventer (BOP) shall also be installed with the type and brand included on the casing plan (See section on BOP for more information).

Regulations-805 KAR 1:100 Section 1-13 and 805 KAR 1:130
Form-CASING AND CEMENTING PLAN (Form ED-7, See Appendix B)
Kentucky Carter Coordinate System used to establish North-South baseline of deep well units

Variance from Well Spacing

Division of Oil and Gas

If a proposed well is closer to an existing well or property line than the minimum distances allowed, the operator may be granted a spacing variance if the permit application includes written consent from all owners of oil and gas interests affected by the proposed well. The

Director may also grant a variance after a hearing is granted to justify the spacing conditions presented by the operator.

Statute-KRS 353.620

Pooling of Oil and Gas Interests

Division of Oil and Gas

If an oil and gas lease is located in such a position which prohibits drilling of a well due to size or other conditions, the Division may order a hearing to establish pooling of contiguous tracts. A pooling order establishes the authority for drilling and producing oil or gas wells in a manner in which all owners of oil and gas interests may elect to participate in drilling, production and share in revenues based on operating interest's proportional to individual owner's net oil and gas interest. A pooling order includes options available to non-voluntary interest owners for participation in the pooled unit. These options include:

- **Participation at full cost**
- **Participation on a carried basis**
- **Surrender for a determined value**
- **Execute a lease to the well operator**

Statute-KRS 353.630

Gathering Line License

Division of Oil and Gas

Oil and gas wells operators are required to obtain a Gathering Line Operator's License under 805 KAR 1:190. Well operators must complete the application for Gathering Line License (Form ED-2). The annual fee for the license is $100.00 for commercial well operators and $25.00 for a person or entity operating one (1) domestic gas well for the purpose of heating a domestic residential dwelling.

Regulation: 805 KAR 1:190
Form: GATHERING LINE OPERATOR'S LICENSE (ED-2)

Gathering Line Permit

Division of Oil and Gas

Producing oil and gas wells will be connected to flowlines or gathering lines, pursuant to 805 KAR 1:190. Well operators must submit a NOTIFICATION/APPLICATION FOR A GATHERING LINE PERMIT to the Division of Oil and Gas. In addition to the permit, the applicant is required to submit the appropriate permit fee in accordance to the type of flowline or gathering line. The fee schedule is shown below:

Type of Flowline/Gathering Line	Amount
Crude Oil or Water Flow Line	$100.00
Natural Gas Flowline	$200.00
Oil/Gas or Water Gathering Line	$500.00

Included with the Gathering Line Permit, the operator must include a topographic map drawn on an approximate scale of 1”=400’ and must show the well location, permit number, the well operator’s name, the route of the flowline and/or gathering line, and the connecting gas transmission lines or tank batteries. All gathering line maps will be digitized into the Division’s ArcMap database. The database will be updated and migrated to the Kentucky Geological Survey’s (KGS) Create a Gathering Line Map web page.

Forms are available and downloadable from the Division of Oil and Gas website at: http://oilandgas.ky.gov/Pages/FormsLibrary.aspx

Maps of Existing Gathering Lines

Pursuant to 805 KAR 1:190, oil and gas well operators must file a map which outlines the approximate locations of all existing gathering lines with the Division of Oil and Gas before September, 2005. The gathering lines may be noted on an enlarged section of a United States Geological Survey (USGS) 1:24,000 (7.5’) topographic map. The map may be enlarged to approximately 1"=400' and be submitted on an 8 1/2 in. x 14 in. sheet. If necessary, additional maps may be provided to fully document the total length of all existing gathering lines. The requirement for the filing of maps may also be satisfied by electronic submission subject to the Division being able to import and view the map files.

Maps for New Flow and Gathering Lines

The following information is required on the map submission:

- The approximate locations of property lines; dwellings; road and stream crossings; and environmentally sensitive features along the path of the gathering line

- The names of the owners of surface tracts upon which the gathering line is to be installed, as identified as the party assessed for the purposes of property taxation in the records of the property valuation administrator of the county in which the land is located, unless listed in the legend

- The approximate acreage to be disturbed along the path of the proposed gathering line

- The above information shall be noted clearly and legibly on an enlarged section of a United States Geological Survey (USGS) 1:24,000 (7.5') topographic map, which may be enlarged to approximately 1"=400' and be submitted on an 8 1/2 in. x 14 in. sheet. The requirement for the filing of maps may also be satisfied by electronic submission subject to the Division being able to import and view the map files

Gathering lines that cross agricultural lands or that interfere with the use of a pre-existing private roadway must be buried to a minimum depth of twenty-four (24) inches. Gathering lines constructed of plastic shall be buried with a tracer wire for detection; the line shall also be protected from shear and tensile stresses. Plastic gathering lines may be temporarily installed on the surface for a period of up to two (2) years and protected from exposure to ultraviolet light and high/low temperatures.

Pipeline markers are also required above any active buried, gathering line. Each marker must contain the word "Warning" or "Danger" and also include the gathering line operator name, contact information, and twenty-four (24) hour emergency response phone number. Emergency response plans to address gathering line leaks and discharges and periodic inspection of gathering lines are also required.

The one-time fees are:
$100.00 for an oil flow line.
$100.00 for a water flow line.
$200.00 for a gas flow line.
$500.00 for gathering lines, where production from two or more wells are co-mingled.
Regulation: 805 KAR 1:190
Form: GATHERING LINE OPERATOR'S LICENSE (ED-11)

Well Permit Underlain by Coal Seams

Division of Oil and Gas

If the proposed well is underlain by coal seams and is leased to, or currently being mined by an individual or company, the well operator shall identify the person or company in Section 12 on the Application for Permit. The well operator shall send a copy of the permit application and well plat, by registered or certified mail, to the company or companies operating those seams. The Division of Oil and Gas shall hold the permit application for fifteen (15) days to allow the coal company to evaluate the well location's impact on future mining plans. If the coal company objects to the location, the Division will schedule a hearing and notify the well operator and coal company. Based on information presented, the well location will be approved or moved to an alternate location as near to the original location as possible. The Division may waive the fifteen (15) day period if the coal company notifies the Division in writing. Information and mine maps are available at the Division of Mine Safety (http://minemaps.ky.gov).

Statute-KRS 353.050

Coal-bed Methane (CBM) Regulations

Division of Oil and Gas

Effective June 2005, administrative regulations 805 KAR 9:010 through 805 KAR 9:100 were promulgated, authorizing the Department for Natural Resources, Division of Oil and Gas to regulate the drilling and production of methane gas from coal seams (CBM) in the eastern and western Kentucky coal fields. Spacing requirements for CBM wells are different for conventional oil and gas wells referenced earlier in this manual. Listed below are CBM spacing requirements:

- **1,500 Ft.**-Spacing distance between CBM wells.
- **750 Ft.**-Distance from property boundary line.

In addition, domestic water wells within **1,250 ft.** of any CBM well require testing of the following constituents:

- TDS (total dissolved solids)
- pH
- Chlorides
- Bromides
- Acidity
- Sulfates

Listed below are the CBM regulations with a brief description for each regulation:

805 KAR 9:010 - Protection of fresh water zones in CBM wells
805 KAR 9:020 - Well location and plat preparation of CBM wells
805 KAR 9:030 - Surety Bonds; Requirements, cancellations
805 KAR 9:040 - Plugging of CBM wells
805 KAR 9:050 - Gas storage reservoirs, (drilling/plugging CBM wells near storage fields)
805 KAR 9:060 - Operating or deepening CBM wells/drill deeper than permit.
805 KAR 9:080 - Operation and Reclamation Proposal (CBM 11-ED-10)
805 KAR 9:090 - Production reporting of CBM production
805 KAR 9:100 - Public liability/self-insurers-$300,000 bodily/property, $500,000 aggregate.

Bonding for CBM wells are $5,000.00 for individual wells and $100,000.00 for blanket bond. The CBM regulations were generated from existing regulations but with minor changes such as groundwater monitoring and changes in casing programs to include surface casing being set thirty (30) ft. below the deepest fresh water zone and cemented to surface. Plugging and abandonment of a CBM will require the placement of a cement slurry plug extending at least forty (40) ft. below the coal seam, additional plugging requirements may be required by the inspector.

Forms: Permit Application - (CBM-2)
Completion Reports - (CBM-3)
Reclamation Plan - (CBM-11)

Regulation: 805 KAR 9:010 – 9:100

Well Permit in Gas Storage Area

Division of Oil and Gas

If a proposed well is located within a gas storage protection zone, the applicant shall identify the storage field operator in Section 13 of the Application for Permit. Applicant shall submit a copy of the permit application and well plat to that operator when the permit application is mailed to the Division of Oil and Gas. The Division of Oil and Gas shall hold the application for five days to allow the storage field operator to evaluate the proposed well's impact on the storage reservoir. If the gas storage operator does not file an objection within that five (5) day period, the permit will be issued. If an objection is filed, the Division shall conduct a hearing and establish the manner in which the well is to be drilled.

Any well penetrating a gas storage reservoir shall be drilled in such a manner to effectively "case off" the storage reservoir and prevent the intrusion of oil, gas or water into the reservoir and protect the reservoir from a blow-out or waste of gas during drilling, completion or plugging. Information on the location of storage fields can be obtained at the Division of Oil and Gas and the Kentucky Geological Survey.

Regulation-805 KAR 1:080

Stream Crossings, Wetlands, Wild Rivers, Discharges to Streams

Division of Water

The installation of pipelines, bridges and/or culverts in a stream introduces obstructions to that stream's flow. The placement of fill, construction of a pond or dam or any other activity that would introduce an obstruction to a stream or impact the floodplain, requires a floodplain permit or a letter stating an exemption has been granted. Before installation, the Kentucky Division of Water, Floodplain Management Section and the local Floodplain Coordinator should be contacted. Stream obstructions may be of a temporary nature and the season of use determines whether a permit is needed rather than a letter of exemption. The guidelines and a diagram for a typical low water crossing are listed in Appendix B.

Floodplain activities involving one acre or more of a wetland or along two hundred (200) linear feet of a blue line stream, as designated on a USGS Topographic Map, will require a permit from the U. S. Army Corps of Engineers and the Division of Water. The Division of Water recommends the applicant hold a pre-application meeting with all concerned agencies and appropriate regional offices which are listed in Appendix A.

Some segments of the Waters of the Commonwealth and their adjoining land areas are designated by the General Assembly as wild river corridors. Wild river corridors are covered under management plans, developed to protect the special features of each river area. A CHANGE OF USE PERMIT or the approval of the Natural Resources and Environmental Protection Cabinet Secretary is required for any activity that has the potential to adversely affect a wild river corridor. The cabinet shall be notified in advance of that activity so that the activity's need for a Change of Use Permit can be determined.

In a wild river corridor, the following would need to be addressed for the activities of oil and/or gas exploration and production:

- **Road construction**

- **Utility right-of-way**

- **Area of disturbance shall not exceed sixty (60) ft. by one hundred (100) ft.**

- **Pits constructed to hold drilling fluids or brine are to be located beyond areas prone to flooding and constructed according to Holding Pit requirements**

- **Written notification to the Division of Water shall be provided for the planned dates of drilling**

- **No produced water shall be discharged into the surface or groundwaters within a Wild River Corridor**

- **Dust control measures shall be taken to prevent dust particles from entering into surface water**

- **Pipelines shall follow access roads and shall not be routed across a wild river**

- **Produced water shall be in a closed tank and have a minimum 30 day storage capacity and fluids shall be removed before they reach two-thirds the tank's capacity**

The Division of Water recommends that a pre-application meeting with all concerned individuals and agencies be scheduled; check Appendix A for the appropriate regional office. Wild river corridors and their dates of designations are listed in Appendix A and the Change of Use Permit Application form in Appendix B. USGS topographic maps are available showing the boundaries of the wild river corridors. Contact the Wild Rivers Program, Division of Water, Department for Environmental Protection, 200 Fair Oaks Lane, Frankfort, Kentucky 40601, or call (502) 564-3410 if you have any questions.

Regulations-401 KAR 4:060, 401 KAR 4:100 through 4:140, 401 KAR 5:029 Section 2, and 401 KAR 5:031
Statutes-KRS 146.250, 146.270, 146.280, 146.290, 146.350, 146.990, 151.125,151.140, 151.250, 224.10-100 and 224.70-110
Federal-Clean Water Act, Section(s) 401 and 404
Form-Permit to Construct Across or Along a Stream, Change of Use Permit (See Appendix B)

Stream, Wetland Crossings and Fill Activities within "Waters of the United States"

United States Army Corps of Engineers

The regulatory authorities and responsibilities of the U.S. Army Corps of Engineers (Corps) are based largely on two Sections of law:

- Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) which prohibits the obstruction or alteration of navigable "waters of the United States" (U.S.) without a Department of the Army (DA) permit from the Corps; and
- Section 404 of the Clean Water Act (33 U.S.C. 1344) which prohibits the discharge of dredged or fill material into "waters of the U.S." without a DA permit from the Corps

In accordance with these two sections of law, activities, regardless of the size, which could require a permit from the Corps include the installation of utility lines, construction of road crossings and ponds, installation of work pads and any other activity that would place fill and/or dredged material into "waters of the U.S." "Waters of the U.S." include rivers, streams, creeks, ponds and wetlands. It should be noted that the majority of "waters of the U.S." are not indicated on USGS Topographic maps.

In addition to the two Sections of law mentioned above, other laws that may also affect the evaluation of applications for Corps permits include the National Environmental Policy Act, the Endangered Species Act, and the National Historic Preservation Act.

The Corps has several ways to evaluate and authorize a potential project depending on its proposed impacts to "waters of the U.S." The Corps will determine the most expeditious manner to review any application. For a large or complex project, it is often helpful to have a "pre-application consultation" or informal meeting with the Corps during the early planning phase of the project. You may receive helpful information at this point which could prevent delays later.

If you are uncertain whether a permit may be required or if you need assistance contact the appropriate U. S. Army Corps of Engineers District Regulatory Office below:

LOUISVILLE DISTRICT	NASHVILLE DISTRICT	HUNTINGTON DISTRICT
Regulatory Branch	Regulatory Branch	Regulatory Branch
P.O. Box 59	3701 Bell Road	502 Eighth Street
Louisville, KY 40201	Nashville, TN 37214	Huntington, WV 25701
(502) 315-6692	(615) 369-7500	(304) 399-5353

Twin Wells
Multi-Well Pads

Division of Oil and Gas

When an operator applies for a well permit which will be "twinned" near an existing well, or drilled on the same well pad with existing or proposed directional and/or vertical wells the well permit numbers and producing formation shall be identified in Section 20 of the Application for Permit along with steps taken to ensure the proposed well does not produce from the same zone as other wells on the pad. In addition, the following information shall be presented on the "twin well" plat:

- **The geologic zones to be produced in each well shall be identified on the well plat and the distances between them indicated**

- **All wells shall be identified by permit number (if available) and well numbers**

A completed well plat containing information on twin wells is included in Appendix B.
Multi-well pads containing several horizontal wells on the same well location must conform to existing spacing requirements and wellbore construction must completed in such a manner to ensure producing zones are properly isolated.

Statute-KRS 353.610 Section 2
Form-WELL PLAT

Directional or Horizontal Wells

Division of Oil and Gas

The well operator shall submit a permit application with a cover letter requesting a permit to drill a horizontal or directional well. In addition to information required on a conventional well plat, the plat shall also include:

- **The proposed target location with respective Carter Coordinates**

- **The proposed drill path or course of the well with distance and bearing**

- **Identification of the Intersection Length (Horizontal distance between point at which well penetrates top of target formation and end point within that formation)**

- **A dashed line shall be drawn around intersection length to avoid conflicts with spacing requirements**

The well operator shall submit to the Division three copies of a cross-section of the proposed wellbore prepared by the contractor responsible for the directional control mechanism. The cross-section shall include:

- **The kick-off point or depth at which deviation is started**

- **Known coal seams to be intersected**

- **Proposed producing formation(s)**

- **Proposed target formation**

A CASING AND CEMENTING PLAN (ED-7) shall be prepared identifying pertinent well information and the proposed well measured depth and true vertical depth along with the proposed completion method (packer assembly or production casing with bridge plugs). Additionally, the operator must include the proposed casing strings size, type, weight/ft., grade and depth to be used along with cement class, weight, additives and quantity used on each casing string. A Blow-Out Preventer (BOP) is to be used in the event high pressure is anticipated during drilling and information relative to the brand and type of BOP is required (See section on BOP for more information). The operator shall also file an OPERATOR CERTIFICATION OF FORMATION OFFSET AND VERTICAL DEPTH which lists tops and bottoms of formations and coal seams penetrated with the lateral offset (in feet) from the well site and the true vertical depth of those zones. Any coal operator or owner adversely affected by directional drilling shall be supplied with copies of the pre-drill well plat and cross-section diagram before drilling and directional surveys and copies of wellbore cross-sections within ten days after drilling.

The well operator shall notify the oil and gas inspector at least forty-eight (48) hours prior to spudding a directional well. When filing well records or providing the inspector with information, the operator should differentiate between true vertical depth and measured depth as measured depth will exceed true vertical depth due to curvature of the wellbore. Within ten (10) days after the well has been drilled the operator shall provide the Division with copies of directional surveys, three copies of cross-sections of the wellbore with drill path of the borehole, coal seams, target formation(s) and kick-off point.

Regulation-805 KAR 1:140
Statute-KRS 353.550
Form-WELL PLAT
CROSS-SECTION OF WELLBORE (Prepared by Directional Survey Contractor).
CASING and CEMENTING PLAN (Form ED-7, See Appendix B)
OPERATOR CERTIFICATION OF FORMATION OFFSET and VERTICAL DEPTH (Form ED-8, See Appendix B)

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II. DRILLING

Spudding-Drilling

Division of Oil and Gas

Before drilling operations begin, the operator shall notify the oil and gas inspector (identified on the permit) at least one day prior to spudding. A copy of the permit shall be kept at the well site during drilling operations. Casing requirements for the protection of fresh water zones and mineable coal seams are detailed later in this manual. When drilling is completed, the operator shall supply the inspector with the total depth, size and amount of casing strings with cement quantities, and completion status of the well.

The operator shall file a WELL LOG AND COMPLETION REPORT (ED-3) within ninety (90) days after total depth is reached. If the well is to be plugged immediately after drilling, the operator shall obtain plugging instructions from the inspector (refer to section on Plugging of Wells in the ABANDONMENT and CLOSURE chapter of this manual).

Statute-KRS 353.660
Form-WELL LOG AND COMPLETION REPORT (Form ED-3, See Appendix B)

Blow-Out Preventer Requirements

Division of Oil and Gas

A blow-out preventer (BOP) with a minimum working pressure of one-thousand five hundred (1,500) psi and test pressure of three-thousand (3,000) psi, may be required to prevent the uncontrolled flow of high-pressure gas or formation fluids from the wellbore to the surface or into lower-pressured subsurface zones. The BOP must be designed and installed to accomplish the following:

- Close the well at the surface
- Control the release of formation fluids
- Permit pumping into the wellbore
- Allow movement of the drill pipe

On “deep” wells, the BOP working pressure shall be at least three-thousand five hundred (3,500) psi and a test pressure of five-thousand (5,000) psi. The BOP shall be installed prior to the depth required for the well to be classified as a deep well, preferably after surface or intermediate casing is cemented. The BOP should be tested before the casing shoe is drilled out and test results kept at the well site for review by the inspector. Information on the type, brand, working and test pressures are to be included on the CASING AND CEMENTING PLAN (ED-7), which is required for deep and directional wells. The Director may waive the use of a BOP if the

operator presents geologic and reservoir data from adjacent wells of the target formation showing pressure measurements do not require the use of a BOP.

Regulations-805 KAR 1:130 Section 3 and 1:140
Statutes-KRS 353.520 and 353.550
Form-CASING AND CEMENTING PLAN (Form ED-7, See Appendix B)

Emergency Situations

Division of Oil and Gas

The inspector and inspector supervisor are to be notified immediately in the event of an accident or situation occurring at a well site which may endanger the environment; public and/or employee safety; or natural resources of the Commonwealth (see Appendix A for Inspector Directory). This includes blowouts; release of H_2S; NORM exposure; well fires; gathering line/flowline leaks; oil spills; and gas leaks. Under direction from the inspector and other regulatory agencies, the well operator must take corrective measures to ensure minimal health and environmental damage.

Well operators are encouraged to use "best management practices" when producing oil and gas to reduce danger and perform periodic risk assessment to evaluate safety practices.

Statute-KRS 353.500

Protection of Fresh Water Zones

Division of Oil and Gas

The well operator is required to circulate cement to surface in the annular space between casing and wellbore to protect fresh water zones from contamination with crude oil, natural gas and brine fluids. When the well is being drilled, surface or intermediate casing strings, whichever are set through the fresh water zone, shall extend at least thirty (30) feet below the deepest known fresh water and cemented to surface. If the well is to be plugged, recoverable casing shall be cemented to the surface or pulled. The approximate deepest fresh water zone is identified on the permit. Any questions should be directed to the inspector.

Regulation-805 KAR 1:020
Statute-KRS 353.520

Drilling Pits

Division of Water

Drilling pits shall be constructed to have the capability and the capacity to contain drilling fluids so contamination of the waters of the Commonwealth does not occur. Spills or releases having the potential of degrading the environment or impacting human health and safety must be reported to the Environmental Response Team at (502) 564-2380 or 1-800-928-2380. For drilling and workover activities, the following need to be addressed:

- **A pit must be constructed which will contain all the cuttings and fluids anticipated for the area and depth to be drilled. Adequate freeboard (distance of fluid level in pit to upper rim) should be maintained and checked regularly during drilling. If necessary, a secondary pit should be constructed in such a manner as to contain or prevent overflow**

- **Containment structures should be placed to contain all spilled fuel, crude oil and drilling fluids**

- **Consideration given to the type of material used in the construction of the pit to prevent groundwater contamination and leakage**

Within thirty (30) days following completion of drilling activities, the pits shall be closed. Waste shall be removed from the pit and disposed of in accordance with Kentucky laws and regulations. All visible contamination must be removed from the pit during closure. The appropriate waste disposal method is dependent upon the waste's components (make-up). The pit area shall be backfilled, graded and revegetated. The vegetative cover shall be capable of preventing soil erosion.

Pits in place longer than thirty (30) days shall be considered as "Holding Pits" and shall meet those requirements (See Holding Pits). However, the Director of the Division of Water may, with good cause, extend the pit's life up to a maximum of ninety (90) days. A written request seeking that extension should be submitted before the day of completion.

Regulation-401 KAR 5:090 Section 10
Statutes-KRS 151.125, 224.10-100 and 224.70-110

Storage of Drilling Fluids

Division of Waste Management

Oil production brine pits and drilling mud pits that are regulated by the Division of Water are also regulated by the Division of Waste Management as permit-by-rule sites. For permit-by-rule sites, the operator does not need to submit any paperwork to the Division of Waste Management, but the operator must avoid any activity that would cause environmental problems, such as surface water or groundwater pollution. If permit-by-rule sites do cause environmental problems, the operator is subject to fines and possible imprisonment, in accordance with applicable statutes.

Regulations-401 KAR Chapter 30, 401 KAR 31:030 and 45:060
Statute-KRS 224.50-760

Handling and Disposal of Trash

Division of Waste Management

Trash, including any discarded paper, soft drink cans, trees, brush, and other waste material, must be hauled off-site for recycling or disposal in an approved landfill. These materials must not be placed in the pit or otherwise disposed of on-site, unless a permit is obtained from the Division of Waste Management. To locate recyclers and the landfills nearest you, contact the appropriate Division of Waste Management field office (See Appendix A). A list of approved landfills is in Appendix A. Some specific waste provisions are as follows:

- **BURNING -** Except for land clearing debris (trees and brush), waste must not be burned. When burning land and clearing debris, the operator must comply with requirements of the Division for Air Quality (502-573-3382) and with any local ordinances (contact your local courthouse to determine whether there are any local ordinances on burning).

- **ROAD OILING -** Road oiling must not occur. Used oil must be burned in a space heater in accordance with hazardous waste regulations, or it must be taken to a collection center to be recycled or burned for energy recovery. To locate a collection center in your area, contact the Kentucky Division of Energy (1-800-282-0868). Refer to "Disposal of Tank Bottom Sediments" on page 41.

- **TIRES -** Waste tires may be temporarily stored on-site, if they are covered with a tarp or are otherwise managed to prevent the entrapment of water. If you accumulate more than 100 waste tires, which would be rare at an oil and gas operation, you must register with the Division of Waste Management and comply with the waste tire control program. As with other solid waste, tires must not be burned, and they must be taken to a permitted landfill or recycler.

- **LEAD ACID BATTERIES -** Used lead acid batteries must be taken to a wholesaler or retailer of new batteries, a battery recycling facility, a secondary lead smelter, or a collection center that delivers to a recycler or smelter. Broken batteries are considered hazardous wastes and spill residue must be restored and contained.

- **SINKHOLES -** Waste must never be put in or next to a sinkhole.

- **STREAMS -** Waste must not be placed in or next to a stream.

Regulations-401 KAR 30:031 and 401 KAR 31:010
Statutes-KRS 224.40-100, 224.40-305, 224.50-410, 224.50-413, 224.50-826, and 224.50-832

Drilling Through Coal Seams

Division of Oil and Gas

Wells penetrating mineable coal seams shall be drilled in such a manner as to protect the seam from oil and natural gas pressure, or water being produced from deeper zones. Surface or intermediate casing strings shall extend at least thirty (30) ft. below the deepest mineable coal with cement circulated to surface. Areas where multiple coal seams are present shall be "cased-off" in a similar manner. Casing set to protect coal seams shall remain in place for the life of the well. If a well penetrates a seam which has been "mined-out," a liner may be set or cement baskets on a casing string may be installed. If a liner is installed, it shall be set twenty (20) ft. below the coal seam and extend to at least twenty (20) ft. above the seam. Casing shall then be installed through the liner and the annular space between the casing and liner cemented. The preferred method would be to install a cement basket at the top of the seam.

Statutes-KRS 353.080 and 353.100

Drill Samples-Generation and Storage

Division of Oil and Gas

The Kentucky Geological Survey's Well Sample Library maintains catalogues of drill cuttings of wells strategically located throughout Kentucky. If the samples are requested by the Survey, the well permit will be stamped accordingly. The operator shall deposit the samples at the nearest collection facility provided by the Survey. See Appendix A for a listing of collection facilities.

Statute-KRS 353.660

Drilling Deeper than Permitted Depth

Division of Oil and Gas

If an operator drills a well deeper than the permitted depth listed on the permit, the following steps are required:

- **The operator shall notify the inspector or inspector supervisor the next working day**
- **The operator shall amend the permit to the current depth of the well within ten (10) days**
- **The operator shall submit additional bonding to reflect the depth within ten (10) days (only for individual well bonds)**
- **The depth shall not cause the well to be in violation of spacing requirements discussed earlier in this manual**

Regulation-805 KAR 1:120
Statute-KRS 353.590 Section 6

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III. COMPLETION-OPERATION

Well Completion-Filing of Well Records

Division of Oil and Gas

Within ninety (90) days after a well has reached total depth, the well shall be completed as a producing well or dry hole and the operator shall file a WELL LOG AND COMPLETION REPORT with the Division of Oil and Gas. The completion form shall be completed in its entirety or it will be returned to the operator.

Copies of electrical or geophysical logs (if run) shall be submitted with the completion report. All directional surveys performed on directional or horizontal wells shall be submitted with the other well records. If the well is plugged, a PLUGGING AFFIDAVIT shall be submitted identifying the depths and quantity of cement plugs, types and depths of other plugs (brush, bridge, etc.), casing pulled and casing left in the well.

All well records are forwarded to the Kentucky Geological Survey and kept on file for public access. At the request of the well operator, the Division of Oil and Gas may hold all information confidential for one (1) year from the date received from the operator.

Statute-KRS 353.660
Form-WELL LOG AND COMPLETION REPORT (Form ED-3, See Appendix B)
PLUGGING AFFIDAVIT (Form ED-38, See Appendix B)

"As-Built" or (As-Drilled) Plat Requirements in Coal Areas
Inclination/Directional Surveys Requirements in Coal Areas

Division of Oil and Gas

As a result of legislative action that became effective in June 2009, an "As-Built" or "As-Drilled" well survey plat using NAD (North American Datum) 83 with Single Zone Projection shall be completed on any oil or gas well drilled in the eastern or western Kentucky coal fields. The plat must be prepared by a registered engineer and land surveyor. Wells drilled in coal fields are granted a surface variance of fifteen (15) feet from the permitted location and a subsurface variance of one hundred-fifty (150) ft. from true vertical at the base of the deepest workable coal seam. If the subsurface variance exceeds 150 ft, at the base of the deepest workable coal seam, action to remediate may be necessary and may include plugging of the well.

Upon receipt of a well permit application, the permit is reviewed by the Mine Mapping section of the Division of Mine Safety to determine if the proposed well will penetrate coal seams designated as a "Workable Coal Bed or Seam" or an "Active Mining Area".
A workable coal bed or seam is defined as:

- A coal bed actually being operated commercially
- A coal bed that the department decides can be operated commercially and the operation of which can reasonably be expected to commence within not more than ten (10) years, or
- Any coal bed that, from outcrop indication or other definite evidence, proves to the satisfaction of the department to be workable and, when operated, will require protection if wells are drilled through it

Wells penetrating a workable coal bed must submit an "as-built" plat to the Division of Oil and Gas within thirty (30) days at the conclusion of drilling operations. In addition, an inclination survey must be run at a depth below the deepest workable coal on the well within ten (10) days of drilling the well and submit the survey to the Division with the "as-built" plat. If the well location is within an active mining area, the well operator must run a directional survey at a depth below the deepest workable coal within ten (10) days of drilling the well and submit the survey to the Division with the "as-built" well plat within thirty (30) days. An "Active Mining Area" means the area within two hundred (200) feet surrounding current mine works under development, inclusive of the area of five (5) year projections, as indicated on the annually filed mine license map filed by coal operators and submitted to the Office of Mine Safety and Licensing.

When a well permit is issued, the depth of the deepest workable coal will be identified on the permit along with the requirement for an "as-built" plat and either an inclination or a directional survey.

For wells outside an active mining area, the coal operator can request the well operator to run a directional survey. This survey shall be done within sixty (60) days of the coal operator's request and ran at the coal operator's expense.

Gathering lines installed across terrain with a slope greater than twenty (20) degrees will be required to mark the location of the line every two hundred fifty (250) ft. with pipeline markers.

NOTE: To access Kentucky Mine Mapping Information System (http://minemaps.ky.gov) use Spot Well Utility link to determine if well penetrates "active" or "workable" seam.

KRS Chapter 353.737-353.745 and 352
Form: "As-Built" Well Plat
Inclination/Directional Survey Required

Hydraulic Fracturing

U.S. Environmental Protection Agency (USEPA)

Use of Diesel Fuel

The use of diesel fuel as an additive in fracturing fluids shall be regulated under the Underground Injection Control (UIC) program pursuant to the Safe Drinking Water Act. Any well owner/operator that contracts with a well service company to use diesel fuel as a fracturing fluid or an additive must first obtain a Class II permit from USEPA-Region VI prior to performing the fracturing treatment. If the Division of Oil and Gas receives primacy of the UIC-Class II program, the well operator must comply with any provision as it relates to stimulation using diesel fuel as directed by USEPA.

Notification of Fracturing Activities

Beginning October 15, 2012, operators must inform the USEPA regional office (Region IV-Atlanta, GA) via email no later than two (2) days prior to well completion that utilizes hydraulic fracturing stimulation techniques. The email shall include the well location latitude and longitude coordinates in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983. The email address for EPA notification is r4wellcompletion@epa.gov. Notification is a requirement of the New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants (see below).

VOC Source Standards for Oil & Gas Production, Transmission and Distribution

Division of Air Quality

Federal requirements pursuant to 40 CFR 60, subpart OOOO established emission standards for volatile organic compounds (VOC). The standards are designed to maximize recovery of natural gas released to the atmosphere during completion flowback and route salable gas to the flowline as soon as possible. These standards apply to any hydraulically-fractured well for the purposes of natural gas production and any well construction or modification after **August, 23, 2011**. Well operators are required to notify EPA Region IV as stipulated in the previous topic (see above). In addition to notifying EPA, the operator must complete Form DEP 5034 and submit to Division of Air Quality.

Standards include utilizing :

- Completion Combustion Devices (CCD) which is an ignition device to combust vented gas emissions from completion activities, CCD is not a “flare. Flares are subject to 40 CFR 60.18
- Reduced Emission Completions include recovered fluids routed into storage vessels or re-injected and recovered gases directed to flowlines; re-injected or used on-site as a fuel source with no direct release to the atmosphere

Hydraulically Fractured	Well Completion Start Date	Control Measure
Natural Gas Wells	Prior to Jan. 1, 2015	Completion Combustion Device
Natural Gas Wells	On or After: Jan. 1, 2015	Reduced Emissions Completions
❖ Wildcat, Delineation or Low-pressure wells	On or After: Jan. 1, 2015	Completion Combustion Device

- ❖ Wildcat (For purposes of VOC standards is a well outside of known fields or the first well drilled in an oil & gas field where no production exists
- ❖ Delineation is an well drilled to establish producing field or reservoir boundary
- ❖ Low-pressure wells defined as a well in which the reservoir pressure and vertical depth such that 0.445 times the reservoir pressure (psia) minus 0.038 times the vertical well depth (feet) minus 67.578 psia is less than the flow line pressure at the sale meter

Tank battery storage vessels emitting VOC's more than six (6) tons annually must reduce emissions by using a closed vent system.
The operator must document storage vessels meet control requirements and conduct performance tests in accordance with 40 CFR 60.5413.
Submission of reports to Kentucky Division of Air Quality can be done electronically at https://dep.gateway.ky.gov/eForms/Default.aspx?FormID=34.
A compliance document for VOC Standards of Performance can be found at the following link:
http://dca.ky.gov/DCA%20Resource%20Document%20Library/NSPS4OGuidance.pdf

Regulation-401 KAR 50-68
40 CFR 60, Subpart OOOO
FORM-DEP 5034

High-Volume Horizontal Hydraulic Fracturing, Frac Fluid Disclosure and Groundwater-Source Testing Requirements

Division of Oil and Gas

As a result of legislative action that became effective June 24, 2015, a high-volume horizontal hydraulic fracture treatment has been defined as a fracturing stimulation operation of a deep horizontal well that injects more than 80,000 gallons of fluid per frac-stage or 320,000 gallons of fluid in total aggregate. Within ninety (90) days of completing the fracturing treatment, the well operator must submit chemical disclosure of fracturing fluids on the Groundwater Protection Council's website at https://fracfocus.org/. Trade secret claims from the well service company performing the treatment must be submitted to the director. The director may release the information to medical personnel if needed for diagnosis or treatment should an emergency spill occur.

Prior to performing a high-volume horizontal hydraulic fracturing treatment; the well operator shall provide notice to any surface property owner within one thousand (1,000) feet of the wellhead at least twenty (20) days prior to commencement of the horizontal fracturing treatment.

Prior to performing a high-volume horizontal fracturing treatment on a deep well, the well operator shall conduct baseline analysis of any groundwater-source within one thousand (1,000) feet of the wellhead. A groundwater source may include:

- Domestic Water Well
- Pond
- Spring or Stream

The initial baseline test shall be done at least twenty (20) days prior to performing the fracturing stimulation treatment; a subsequent analysis shall be performed between three (3) and six (6) months following the fracturing treatment. Water analysis of groundwater shall be tested for the following constituents:

a) pH;
b) Total dissolved solids, dissolved methane, dissolved propane, dissolved ethane, alkalinity, and specific conductance;
c) Chloride, sulfate, arsenic, barium, calcium, chromium, iron, magnesium, selenium, cadmium, lead, manganese, mercury, and silver;
d) Surfactants;
e) Benzene, toluene, ethyl benzene, and xylene; and
f) Gross alpha and beta particles to determine the presence of any naturally occurring radioactive materials.

Constituents and quantities are to be included on Form ED-40 in Appendix B and must be conducted by a certified laboratory and certified by an authorized agent of the laboratory.

Should the land owner prohibit groundwater testing the well operator must certify access to the water source was denied on the referenced form.

Regulation-805 KAR 1:110
Statutes-KRS 353.6601, 353.6602, 353.6603, 353.6604, 353.6605, 353.6606
Form-ANALYSIS OF GROUNDWATER SOURCE WITHIN 1,000 FEET OF DEEP HIGH-VOLUME HORIZONTAL FRACTURING TREATMENT (Form ED-40, See Appendix B)

Disposal of Completion Fluids

Division of Waste Management

Completion fluids fall under the definition of solid non-hazardous waste. Temporary storage of these fluids is regulated as a solid waste permit-by-rule. Permit-by-rule sites do not need to submit any paperwork to the Division of Waste Management, but do need to comply with the environmental performance standards. Disposal of such waste is not covered by a permit-by-rule, and the applicable regulations depend on the disposal method to be employed. In order to dispose of the waste at the site by applying it to the land, a permit shall be obtained. The waste can be hauled off-site and disposed of in a permitted solid waste landfill, as long as it is allowed under the permit for that landfill.

Regulations-401 KAR Chapter 30, 401 KAR 31:030, 401 KAR 47:030 and 401 KAR 47:15

Hazardous Chemical Inventory Tier II (Tank Battery) Reporting

Kentucky Emergency Management

The Superfund Amendments and Reauthorization Act (SARA) was enacted into federal law in 1986, Title III of SARA is known as the Emergency Planning and Community Right to Know Act (EPCRA). EPCRA's primary focus is to ensure communities are better prepared by:

- Protecting and safeguarding the public health and the environment
- Increasing the public's knowledge and access to information on hazardous chemicals
- Encouraging applicable entities to develop working relationships to improve emergency response to chemical incidents

EPCRA established requirements for federal, state and local governments, and industry regarding emergency planning and reporting for hazardous chemicals.

- Every state must have a State Emergency Response Commission, in Kentucky it is called the Kentucky Emergency Response Commission (KERC)
- The KERC designates Local Emergency Planning Districts
- Each District must have a Local Emergency Planning Committee (LEPC)

EPCRA Section 312 requires any tank battery facility must have an Safety Data Sheet (SDS formerly a MSDS) available under the Occupational Safety and Health Act of 1970 shall prepare and submit a hazardous chemical inventory form (Tier2 Report) to the following:

- The appropriate LEPC
- The KERC
- The fire department with jurisdiction over the facility

Tier2 reports must be submitted annually between January 1st and March 1st, and shall contain data with respect to the previous calendar year.

Kentucky Emergency Management (KYEM) annually updates the EPCRA "How to Comply" Packet which includes step-by-step instructions required to be compliant with Kentucky and EPCRA regulations. The packet and other relevant documents can be downloaded at:
http://kyem.ky.gov/programs/Pages/SARATitleIII.aspx
The owner or operator of a facility **(Crude Oil Tank Battery)** that is required, under administrative regulations implementing the Occupational Safety and Health Act of 1970, to prepare or have available a SDS for a hazardous chemical present at the facility must annually submit a tier2 report. SDS requirements are specified in the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, found in Title 29 of the Code of Federal Regulations at 1910.1200.

The owner or operator of a facility must submit a tier2 report when all of the following conditions are met:

1. Facility is subject to the OSHA Hazard Communication Standard; and
2. Facility uses, produces, and/or stores a Hazardous Chemical; and
3. The quantity of one of these Hazardous Chemicals is in excess of the "Threshold Quantity" (TQ).

The manufacturer (or refiner) of a particular chemical substance has the primary responsibility under OSHA for determining whether that chemical is subject to OSHA's SDS requirements. OSHA regulations require manufacturers and importers to provide information on the hazard of their chemicals to persons using or distributing those chemicals. One option for facility owners or operators who are not certain whether they have a hazardous chemical that requires an SDS under OSHA is to contact the manufacturer (or refiner) of the substance for assistance in making this determination.

Tier2 reports are required to be submitted each year between January 1 and March 1. Submissions filed after the March 1st deadline will be classified as late and, per KRS 39E.990, may be assessed a civil penalty and/or fined a minimum of two hundred and fifty ($250) dollars. Each day upon which the violation occurs shall be considered a separate violation and a separate civil penalty may be imposed.

Fee Assessment

Per KRS 39E.050; KERC institutes a fee system to assist in the administration the EPCRA Program in Kentucky at both state and local levels.

a. Any facility required to report under the provisions of this chapter shall annually submit to the commission the required fee of forty dollars ($40) no later than March 1.

Category Facility Designation

Category Two Facility - $40

Any crude oil tank facility that has between 10,000 pounds and 499,999 pounds each, of 10 or fewer hazardous chemicals at any time during the calendar year. The combined total of all hazardous chemicals does not exceed 499,999 pounds. A typical 100 bbl. stock crude oil tank (when full) is approximately 28,000 pounds, a 210 bbl. tank (when full) is approximately 58,800 pounds.

Reporting Multiple Facilities (Crude Oil Tank Battery)

Only one file may be uploaded per tier2 submission. It is imperative facilities ensure that all of the facilities for which they are reporting are included in one .t2s files created in the EPA's Tier2Submit20xx program. Fees are calculated automatically during the Online Submission process. The owner of two or more facilities in a single county subject to paying a fee shall pay a fee not to exceed $250 for all those facilities in that county.

Discount for Reporting Multiple Facilities

Yes, the same owner or owners of two or more facilities **(Crude Oil Tank Battery)** in a single county subject to paying a fee shall pay a fee not to exceed $250 for all those facilities in that county.

Penalties for Filing

Any owner or operator who violates any tier2 reporting requirement shall be subject to penalties as set forth in P.L. 99-499, Title III, Section 325 and KRS Chapter 39E.990 and subsequent administrative regulations.

Submittal of Tier2 Fees
Beginning January 1, 2014, all Kentucky facilities are required to file tier2 reports and pay all associated fees electronically in accordance with KYEM's annually published EPCRA "How to Comply Packet." A processing fee will be charged automatically and will be included with the online payment submission.

Payment Methods To Pay My Tier2 Fees
Fees are calculated automatically during the Online Submission process. Only two forms of payment are currently accepted: credit card and ACH (electronic checking or electronic savings).

Electronic Payment of Tier2 Fees
Beginning January 1, 2014, all Kentucky facilities were required to file tier2 reports and pay all associated fees electronically in accordance with KYEM's annually published EPCRA "How to Comply Packet."

Statutes-KRS 39E.050

Registration of an Oil and Gas Facility

Division of Water

Within sixty (60) days after the facility begins producing oil and/or gas, the facility shall be registered with the Division of Water. A tank battery and its associated wells, pits and other associated structures constitute one facility. Facilities not associated with a tank battery shall be registered individually.

Dry gas wells are exempt from the registration requirements, provided they are permitted with the Division of Oil and Gas. Operators of dry gas wells having produced water are required to dispose of it by utilizing an approved method (See Produced Water Disposal).

Notification of the assigned registration number is sent to the owner/operator by certified mail. The operator is required to post a waterproof sign at each facility. The sign shall be of a size and type, approved by the Director and identify the operator's name, address, phone number and the facility's registration number. The phone number listed shall be a number that can access a company representative throughout any part of a twenty-four (24) hour period.

The registration number is active for the life of the oil and gas facility. It is terminated when the facility and associated structures are removed and the site reclaimed to prevent soil erosion.

Regulation-401 KAR 5:090 Section 4
Statutes-KRS 151.125, 224.10-100 and 224.70-110
Form-OIL AND GAS FACILITY REGISTRATION FORM (See Appendix B)

"DANGER" Signs Posted on Storage Facilities

Division of Oil and Gas

The Division of Oil and Gas requires well operators to post **DANGER** signs in a prominent location on all storage facilities and tank batteries that are active or abandoned. The sign shall be approved by the Division. An approved sign may be obtained from the Kentucky Oil and Gas Association (KOGA) or the operator may make a similar approved sign (See Appendix A).

Regulation-805 KAR 1:160
Statutes-KRS 353.656

Storage and Piping System Compliance

State Fire Marshal's Office
Hazardous Materials Section

The storage and handling of all flammable and combustible liquid at gas or oil wells and related production facilities shall comply with the requirements of NFPA 30 and the Kentucky Fire Prevention Code.

Regulation-815 KAR 10:050
Code-NFPA 30 and the Kentucky Fire Prevention Code
Form-PERMIT FOR CONSTRUCTION OF ABOVE GROUND STORAGE TANKS FOR PETROLEUM OR HAZARDOUS SUBSTANCE (See Appendix B)
Fee-$50.00

Spill Prevention Control and Countermeasure (SPCC) Plan

Division of Water

Spill Prevention Control and Countermeasure (SPCC) Plans are required for any single above ground container with a capacity of more than six hundred sixty (660) gallons and for two or more above ground tanks which exceed one-thousand three hundred two (1,320) gallons collectively. SPCC Plans require the following:

- **A bermed area around the tank(s) having the capacity to contain the fluid volume of the largest tank**

- **A list of containment or diversionary structures (dikes, impervious liner, berms, etc.) for each tank and/or tank battery**

- **For each tank, prediction of quantity of oil that would be spilled and direction of flow should the tank rupture or overflow**

- **An oil spill contingency plan stating steps of action in handling an oil spill; such as, using oil booms, sorbent material and who would be notified**

- **List of manpower, equipment and materials available to carry out the plan**

- **Familiarize operating personnel with the plan**

The dike or berm around the tank battery shall provide a containment area sufficient enough to hold the volume of the largest tank within the tank battery. The dike or berm shall be constructed to prevent contact of storm water runoff from the outlying area with the area it encloses. Spills, leaks or bypasses contained within the spill prevention, control and countermeasure (SPCC) of a facility need to be reported and cleaned up. These events have the potential to impact groundwater and storm water.

Storm water and other fluids shall not be allowed to accumulate within the containment area; in doing so, the SPCC Plan is not sufficient. The Plan does not need to be submitted to the Division of Water for approval but, may be required for certain facilities on a case-by-case basis. The SPCC Plan shall be reviewed and certified by a Registered Professional Engineer.

Regulation-401 KAR 5:090, Section 13
Statutes-KRS 151.125, 224.10-100 and 224.70-110
Code of Federal Regulations-40 CFR Part 110 and Part 112

Underground Storage Tanks

Division of Waste Management

Regulated underground storage tanks (USTs) shall be registered with the Underground Storage Tank Branch. This includes tanks larger than one hundred ten (110) gallons that have ten percent or more of the tank volume including piping beneath the surface of the ground. Specific requirements for leak detection, release reporting, closure, corrective action and financial responsibility for regulated USTs are found in 401 KAR Chapter 42.

For oil and gas facilities, liquid traps or associated gathering lines directly related to oil or gas production and gathering operations are exempt from the UST regulations. Any underground or above ground storage tanks that are exempt from the UST regulations do not have to be registered or be subject to annual fees. Exempt tanks do not have to be closed unless there is a release from the tank.

(See Section III, subsection on Cleanup of Oil, Protected Fluids and Chemical Spills). The Superfund Branch handles closure of exempt tanks and petroleum releases. Forms to register USTs may be obtained from the UST Branch of the Division of Waste Management at (502) 564-6716.

Regulations-401 KAR Chapters 30 to 42
Statute-KRS 224.60-100 to 224.60-160
Forms-DEP-5024 (Registration of tank), other forms necessary for closure
Time-Notification shall be submitted within thirty (30) days of bringing tanks into use.
Fee-$30.00 per year

Disposal of Tank Bottom Sediments (BS)

Division of Waste Management

Tank bottoms are exempt from hazardous waste requirements, provided the bottom is a direct result of drilling fluids, produced water, and other waste associated with the exploration, development, or production of crude oil, natural gas, or geothermal energy.

Tank bottoms shall not be removed from the tank and burned, nor dumped or spread on the ground without a permit from the Division of Waste Management. Tank bottoms shall not be taken to a landfill unless there are no free liquids and the waste meets requirements established by the landfill. Tank bottoms should be recycled as waste oil at an approved recycler or crude oil processor (See Appendix A for a list of approved landfills).

Regulations-401 KAR Chapter 30, 401 KAR 31:030, 47:030 and 401 47:150

Transfer of Well Ownership

Division of Oil and Gas

When a well is acquired by an operator, the well or wells shall be transferred to the successor and bonded. The original well operator is responsible for filing a WELL TRANSFER form identifying the well name; well number; county, permit number, the complete Carter Coordinate location and successor operator information. ***A separate form must be submitted for each lease***. A fee of $25.00 is assessed for each well transferred. Payment may be submitted by a check made payable to *Kentucky State Treasurer*. In addition, the operator acquiring the well shall post a proper bond as described earlier in this manual.

Before the transfer will be completed, the selling and purchasing parties must submit the following:

Selling Party

- Well Log and Completion Report and any Electric Log, if run.
- Annual Report of Monthly Production for all wells listed under the operator's name. This report is required for each year an operator has producing or shut-in wells.
- Gathering Line Operator's License must be current
- As-Built Plat and/or Inclination Survey, if applicable
- Gathering Line and/or Flow Application must be approved, if applicable
- Topographic Map must be submitted and approved

Purchasing Party

- Bond to cover the well(s)
- Annual Report of Monthly Production for all wells listed under the operator's name. This report is required for each year an operator has producing or shut-in wells.
- Gathering Line Operator's License must be current
- No outstanding violations

Both parties must sign the Well Transfer form. If the purchasing party executes the Well Transfer form, the form must be sent via certified mail to the last known address of the selling operator. If the documents are returned to the purchasing party marked "undeliverable", all documents including the envelope is to be forwarded to the division for processing.

Pending well transfers for any well permitted after June 24, 2015, will require the purchasing party to assume all reclamation responsibilities pursuant to the Operations and Reclamation Plan (Form ED-10).

Transfer of a well with the Division of Oil and Gas does not relieve the operator from transferring the oil and gas facility associated with that well with the Division of Water.

Statute-KRS 353.590
Form-WELL TRANSFER (Form ED-13, See Appendix B)
Fee-$25.00 per well

Transfer of Ownership/Operatorship of Oil and Gas Facility

Division of Water

The operator of the facility shall file an updated registration form when the following occurs:

- **Change in ownership/operatorship**

- **Change in the quantity of produced water**

- **Change in the treatment, storing, or disposing of produced water**

When a facility has a change of ownership/operatorship, a TRANSFER OF OWNERSHIP Form is to be submitted to the Division of Water. It is to be accompanied with an updated registration form completed by the new operator. The new operator must post a sign with his name, address, twenty-four (24) hour phone number and facility's registration number.

Transfer of an oil and gas facility with the Division of Water does not relieve the operator from transferring the well associated with the facility with the Division of Oil and Gas.

Regulation-401 KAR 5:090 Section 4
Statutes-KRS 151.125, 224.10-100 and 224.70-110
Form-TRANSFER OF OWNERSHIP (See Appendix B)

Holding Pits

Division of Water

When a pit is to be used for receiving and storing produced water, then a permit is required. The permit shall be obtained before construction begins. The application shall be submitted no less than thirty (30) days before the desired date of starting construction.

Holding pits are used for storing produced water. Holding pits are required to have:

- **An impermeable synthetic liner with a minimum thickness of twenty (20) ml to prevent the contamination of groundwater**

- **A two foot continuous berm to divert surface drainage and prevent any discharge from the pit**

- **A freeboard level of one foot to assure that no discharge will occur**

No discharge from a holding pit is allowed, unless it has coverage under a Kentucky Pollutant Discharge Elimination System (KPDES) Permit.

A holding pit permit is valid for as long as the pit is used for the purpose it was intended. When a holding pit is no longer used for its intended purpose, it shall be backfilled, graded and revegetated. Upon written approval of the director, a holding pit may remain as a permanent structure or be used for other purposes.

Statute- KRS 151.125, 224.10-100 and 224.70-110
Regulation-401 KAR 5:090, Section 9
Form-APPLICATION FOR CONSTRUCTION AND OPERATION OF A PRODUCED WATER HOLDING PIT (See Appendix B)
Fee-$100.00

Improperly Abandoned Wells - Temporary Abandonment Permits

Division of Oil and Gas

Following well completion as a productive well; production shall be established within a reasonable time taking into account market conditions, pipeline access, weather, etc. If a well is not producing it shall be considered Improperly Abandoned. A non-productive well can be classified as Temporarily Abandoned (TA) after the Division of Oil and Gas inspector has evaluated the casing integrity, wellhead and conditions warranting the non-productive status. The operator shall complete a TEMPORARY ABANDONMENT PERMIT and submit to the Division of Oil and Gas with a copy of the WELL LOG AND COMPLETION REPORT which will be forwarded to the inspector for his evaluation. TA permits can be issued for up to a period of two years and can be renewed if the inspector thinks it is justified, but will require the operator to re-file the TA permit. Gas wells subjected to periodic shut-in periods due to market conditions are not considered Improperly Abandoned. Listed below are criteria Division inspectors will use to determine the length of a TA permit up to a maximum of two (2) years.

Reason for Well Being Shut-In	**Length of TA (Up to 2 Yrs)**
Oil Well-Running tubg/rods, replace pump, waiting on installation of flowline, tank battery construction	Maximum 6 months
Gas Well-Awaiting installation of gathering line.	Maximum 6 months.
Class II Injection Well with downhole problems or awaiting testing such as MIT	Maximum 1 Year
Market conditions (extended mandatory gas well shut-ins or dramatic drop in oil prices)	Maximum 1 Year
Shut-in Well is included on a Division-approved abatement schedule	Maximum 2 Years

NOTE: A Temporary Abandonment Permit will not be issued if an operator if; in the opinion of the Division of Oil and Gas is avoiding plugging responsibilities.

Statute-KRS 353.550
Form-TEMPORARY ABANDONMENT PERMIT (Form ED-12, See Appendix B).
Time-T.A. may be issued for up to 2 years.

Well Testing Permits

Division of Oil and Gas

Abandoned wells that are currently in violation of improper abandonment and the bond (if bonded) has been forfeited by the Division of Oil and Gas may be investigated to determine if the well is potentially productive. A listing of abandoned wells in Kentucky can be found on the Kentucky Division of Oil and Gas website (http://oilandgas.ky.gov). To perform the investigation, an operator must file a TESTING PERMIT Application with the Division of Oil and Gas and submit a fee of twenty-five dollars ($25.00). The applicant must also certify he has the authority to enter the property upon which the well is located to conduct well testing. The Testing Permit is valid for a period of sixty (60) days and allows the well operator to enter the well to perform open-flow tests, swab/bailer testing, running geophysical/electric logs for evaluation. The permit does not allow the applicant to perform the following:

- Drill additional footage
- Perforate zones behind pipe
- Sell crude oil retrieved from testing procedure
- Salvage any production equipment (tubing/rods/pump) from abandoned well

Upon completion of the testing procedure, the operator must file a REPORT OF INVESTIGATION and submit to the Division detailing the testing and evaluation procedure. The operator must return the well to the original condition prior to testing or he may elect to operate, and properly bond the well by completing page 2 of the ROI. The applicant is advised to work closely with Division of Oil and Gas inspector and keep the inspector informed of all activities.

Statute-KRS 353.730
Form-WELL TESTING PERMIT (See Appendix B)
Form-REPORT OF INVESTIGATION (See Appendix B)
Time-60 Days
Fee: $25.00 per well

Underground Injection (Class II) Wells

U. S. Environmental Protection Agency
Division of Oil and Gas

The U.S. Environmental Protection Agency (USEPA), Region Four (IV), Groundwater/Underground Injection Control (UIC) Section in Atlanta, Georgia, regulates wells in which fluid is injected under pressure (Class II Wells) for enhanced oil recovery or brine disposal in Kentucky. A permit from the USEPA is required for Class II wells in addition to a permit required by the Division of Oil & Gas. Injection of fluids shall be done through a tubing and packer arrangement with the packer set immediately above the injection zone. A Mechanical Integrity Test (MIT) is required on the annulus between the tubing and production casing. The MIT requires pressure of at least three-hundred (300) lbs. applied on the annular space and monitored by pressure sensitive devices for at least thirty (30) minutes. A pressure variance not to exceed 9 lbs. above or below three-hundred (300) lbs. is acceptable during the 30 minute test period. For questions relating to UIC wells and to obtain regulations and forms, operators should contact the EPA at (404-347-3379).

Well operators shall file a CERTIFICATE OF COMPLETION FOR AN INJECTION WELL with the Division of Oil and Gas which contains information on the casing, tubing, type and depth of packer, injection pressure and reservoir information. This information is required to insure the protection of fresh water zones.

The Division of Oil & Gas has applied for Class II primacy under section 1425 of the Clean Water Act, the primacy package has been approved by Region IV and awaiting review by EPA headquarters in Washington, DC.

Regulation-805 KAR 1:020
Form-CERTIFICATE OF COMPLETION FOR AN INJECTION WEL (Form ED-23, See Appendix B)
Federal Agency-U.S. E.P.A
Regulations-40 CFR 124, 144, 146, and 147.
Form-U.I.C. PERMIT (EPA Form 7520-6, Contact USEPA, Region IV office)

Produced Water Disposal

Division of Water

Owner/operators of a facility having produced water are required to identify their method of disposal on the registration application form. The disposal of produced water shall be accomplished in a manner that will not contaminate the waters of the Commonwealth. The following are approved methods for disposing of produced water:

- **Injection into an approved, permitted or rule-authorized Class II underground injection well**

- **Surface discharge covered under a Kentucky Pollutant Discharge Elimination System (KPDES) Permit**

- **Transporting produced water off-site to a UIC Class II disposal well**

- **Using enhanced evaporation to evaporate produced water**

In using the transport off-site method, the approval of the Division of Water's Director is required before doing so. There is no fee for receiving this approval. Operators seeking to use this method are to submit the APPLICATION TO DISPOSE OF PRODUCED WATER OFF-FACILITY form. This approval remains in effect, as long as the operator who received it continues to operate the facility in the manner they have filed with the Division of Water (DOW) or otherwise conditioned by the DOW.

If the produced water is considered to be hazardous material: For example, it could contain natural occurring radioactive material (N.O.R.M.). Then the carrier and their vehicle would need to be recognized by the Division of Motor Vehicle Enforcement, Department of Vehicle Regulation, Transportation Cabinet.

In using the surface discharge method, a KPDES permit is required for any discharge associated with the facility's operation. The owner/operator of the facility is required to have the KPDES permit in their name. This permit has a fee of $2,100.00 and covers designated points of discharge for 5 years. The operator is required to take samples of the discharges, have a laboratory analyze the samples and submit discharge monitoring report forms to show compliance with the permit's limitations. A KPDES permit shall be obtained before any discharge from the facility's operation can occur. The forms needed to apply for this permit are KPDES Form 1 and Form C. These forms have several pages and were not included in this document, however, they may be obtained from the KPDES branch of the Division of Water at (502) 564-2225, Ext. 593.

A typical KPDES permit covering discharges of produced water would have the following effluent limitations:

Effluent Characteristic	Monthly Avg.*	Daily Max.*
Total Suspended Solids (TSS)	30 mg/1	60 mg/1
Oil and Grease	10 mg/1	15 mg/1
Chlorides	600 mg/1	1200 mg/1

***mg/1**=milligrams per liter
pH shall not be less than 6.0 standard units nor greater than 9.0 standard units.

The enhanced evaporation method involves heating the produced water to the point of evaporation. Facilities with small amounts of produced water may consider this option. With this method, there are no discharges from the facility and the produced water is evaporated on site. No permits or fees are required.

Regulation-401 KAR 5:090 Sections 5,6,8 and 11
Statutes-KRS 151.125, 224.10-100 and 224.70-110
Federal Regulation-49 CFR 100 thru 177
Fee-Dependent Upon Method of Disposal Chosen.
Form-Dependent Upon Method of Disposal APPLICATION TO DISPOSE OF PRODUCED WATER OFF-FACILITY, (See Appendix B)

Use of Vacuum Pumps for Enhanced Recovery

Division of Oil and Gas

The use of vacuum pumps to increase production from low-pressure or depleted reservoirs require the operator to notify, by registered mail, all well operators within one-thousand (1,000) feet of the well in which the vacuum unit is to be installed. The operator shall file an APPLICATION FOR PERMIT FOR USE OF VACUUM (Form ED-9) with the Division of Oil and Gas for each lease.

Regulation-805 KAR 1:040
Statute-KRS 353.560
Form-APPLICATION FOR PERMIT USE OF VACUUM (Form ED-9, See Appendix B)

Hazardous Waste Generation Storage and Disposal

Division of Waste Management

Any well operator who generates waste is required to determine if the waste is hazardous. Waste from oil and gas production may be classified due to ignitability, corrosivity or toxicity for metals or organics. Hazardous waste generated by well operators may include but are not limited to:

- **Used antifreeze**
- **Unused fracturing fluids or acids**
- **Gas plant cooling tower cleaning waste (e.g. spent glycol)**
- **Painting waste**
- **Liquid and solid waste generated by crude oil and tank bottom reclaimers**
- **Used equipment lubricating oils**
- **Waste compressor oil, filters and blowdown**
- **Used hydraulic fluids**
- **Waste solvents (e.g. used to clean equipment and equipment parts)**
- **Waste in transportation pipeline-related pits**
- **Caustic or acid cleaners**
- **Radioactive tracer wastes**
- **Vacuum or compressor discharge lines**

Operators of oil and gas wells are generally considered “conditionally exempt small quantity waste generators” because the amount of hazardous waste generated is less than two-hundred (220) lbs. per month (approximately half of a 55 gallon drum). This level of waste generators are not required to register with the Division of Waste Management but shall determine if waste is hazardous and shall store the waste in tanks or containers. Storage of hazardous waste at a well site may not exceed two-hundred (220) lbs. to maintain status at this level. This level of waste generators may dispose of hazardous waste at a permitted recycling facility or a solid waste landfill approved to accept this waste. If an operator mixes hazardous waste with non-hazardous drilling waste, the mixture is considered as hazardous and the operator shall determine if the mixture will exceed the two-hundred (220) lbs. for this level of waste generators.

Waste quantities ranging from 220 to 2,200 lbs. per month would classify the operator as a "small quantity generator" and operators exceeding 2,200 lbs. per month are considered "large quantity generators." Small and large quantity generators must register with the Division of Waste Management and must comply with additional storage, transportation, disposal and reporting requirements that do not apply to limited quantity generators. To obtain forms to register as a generator, contact the Hazardous Waste Branch of the Division of Waste Management at (502) 564-6716.

To avoid being classified as a small or large quantity waste generator, the well operator should:

- **Substitute whenever possible less toxic materials and initiate best management practice in the site operations**

- **Ensure the waste generated does not exceed 220 lbs. for any calendar month**

- **Keep hazardous and non-hazardous material separate**

Regulations-401 KAR Chapter 30, 401 KAR Chapter 31 and 401 KAR 32:010
Statute-KRS 224.46-510
Forms-DEP-7037 (For Hazardous Waste-Exceeding 220 lbs./month)
Fee-$300 (For Hazardous Waste-Exceeding 220 lbs./month)

Groundwater Protection Plan

Division of Water

Activities with the potential to pollute groundwater are required to have a groundwater protection plan (GPP). Operators have the responsibility to identify those activities which pose a potential threat to groundwater and take steps to prevent the pollution of groundwater from those activities. A groundwater protection plan shall be prepared and implemented at each facility. The groundwater protection plan shall be submitted to the Division of Water, Groundwater Branch for review. If you have questions regarding this matter, contact the Groundwater Branch at (502) 564-3410.

Regulation: 401 KAR 5:037
Statutes: KRS 224.01-010, 224.10-100, 224.70-100 and 224.70-110

Reporting Spills, Bypasses and Leaks of Oil, Produced Fluids and Chemicals

Division of Waste Management
Division of Water

When a spill, leak or bypass occurs from a pipeline, drilling pit or container used for transporting or storing any substance that would result in soil contamination and/or contribute to the pollution of the Waters of the Commonwealth; the persons in charge of the activity shall immediately notify the Division of Water. The situation shall be reported immediately to the Environmental Response Team at (502) 564-2380 or 1-800-928-2380. The following information will be asked:

- **The responsible party**
- **Location and point of discharge**
- **The nature of the material discharged**
- **Estimate the quantity of the material discharged**
- **Estimate of probable environmental impact**

The waters of the Commonwealth means and includes all rivers, streams, creeks, lakes, ponds, impounding reservoirs, springs, wells, marshes and all other bodies of surface or underground water, natural or artificial, situated wholly or partly within or bordering upon the Commonwealth.

For any spill or release of oil that occurs on the soil, the well operator shall report any release or spill of crude oil when the amount exceeds twenty-five (25) gallons during a 24-hour period. Such releases of petroleum based products should be reported immediately to the Environmental Response Team at the number previously listed.

Even if the release is contained on soil; cleanup is required. When a release of oil, produced fluids, or chemicals occurs into the environment; groundwater can be contaminated and the ground can become unsafe for children and wildlife. The responsible party must determine the full extent of the release's effect upon the environment, take steps to correct that effect and prevent any additional effect. Any release or spill which causes or has the potential of causing a sheen on the Waters of the Commonwealth is in violation of the Clean Water Act, Section 311. Spills, leaks or bypasses contained within the spill prevention, control and countermeasure (SPCC) of a facility need to be reported and cleaned up. These events have the potential to impact groundwater and storm water runoff. Spills, releases or bypasses left in the SPCC can permeate (penetrate) into the soil contaminate groundwater and storm water. Requirements of SPCC Plans are discussed in further detail in this manual. All spills, bypasses and/or releases shall be remediated.

Regulations-401 KAR 5:090 Section 13 and 401 KAR 5:015
Statutes-KRS 151.125, 224.10-100 and 224.70-110, 224.01-400(11), 224.01-400 (18 to 21) and 224.01-405

Cleanup of Oil, Produced Fluids and Chemical Spills

Division of Waste Management
Division of Water

Any petroleum or chemicals spilled or otherwise released onto soils or into waters must be immediately cleaned up. Steps in this process include:

- **Determine the extent of the release and its effect on the environment**

- **Correct the effect of the release on the environment**

Characterization will generally include a thorough sampling of soils, surface water and groundwater. Information gathered in these steps are then used to select one of the following options available for corrective action:

- **Demonstrate that no action is necessary to protect human health, safety, and the environment**

- **Manage the release in a manner that controls and minimizes the harmful effects of the release and protects human health, safety, and the environment**

- **Restore the environment through the removal of the hazardous substance**

- **Any of the above combinations**

This can be accomplished in accordance with the following options: digging up contaminated soils and hauling such soils to an approved landfill, treating contaminated soils in a manner approved by the Division of Waste Management, closing the site in accordance with risk-based procedures, closing the site as a residual landfill, or by implementing other options permissive under the appropriate statute. If the release exceeds a reportable quantity (see previous section), the cleanup must be conducted under the supervision of the Division of Water or the Division of Waste Management. If the release is below a reportable quantity, the contamination must still be removed or otherwise cleaned up, but these activities usually will not need to be supervised by either division. Failure to clean up a release, even if the release was less than a reportable quantity, can subject the operator to fines and possible imprisonment. Contact the appropriate Division of Water or Division of Waste Management field office for additional information on cleanups.

Statutes-KRS 224.01-400 and 224.01-405

N.O.R.M.

Cabinet for Health and Family Services-Radiation Health Branch

Naturally Occurring Radioactive Material (N.O.R.M.) is radioactive elements such as radium, thorium, potassium, uranium and their radioactive decay products found in sedimentary rock formations. Reservoir production fluids (oil and water) combine with secondary recovery fluid, downhole temperature and pressure to dissolve radioactive radium or radon within the producing formation. The radioactive material attaches to production equipment (tubing, casing, inside separators and storage tanks) in the form of scale. In addition, human activity may concentrate NORM resulting in TENORM (technically enhanced NORM) through well completion activities. It is suggested that at the time of plugging a well, the equipment be scanned for NORM with an appropriate radiation-detecting scanning device, TENORM scanning shall be done on drilling/completion pits. For more information regarding scanning, monitoring or disposal, contact the Radiation Branch at (502) 564-3700. The Division of Oil and Gas inspection staff are assigned Micro-R meters (measures µR/hr) and routinely scan production tubing and sucker rods when plugging wells under the "state-bid" plugging program for NORM elevated radiation levels and pits for TENORM (elevated levels are considered double the background radiation).

Filing of Annual Oil and Gas Production

Division of Oil and Gas

Oil and natural gas annual production information shall be supplied to the Division of Oil and Gas on or before April 15th for the previous year's production.

For gas or combination oil and gas wells, the following well information is required:

- **Permit Number**
- **Purchaser Number (assigned by purchasing company)**
- **Lease Name**
- **Producing Formation (if more than one, list as "Commingled" and list all producing zones)**
- **Produced Gas (gas measured at wellhead or pro-rated based on pick-ups or open flow tests)**
- **Net Gas Sales (actual gas sold, may be different from produced gas due to line loss or compressor usage)**
- **Gas Well Status (producing or shut-In)**

Crude oil production can be reported by individual well or lease basis. When reporting oil production by lease, the purchaser lease number used by the oil purchaser shall be included. A listing of permit numbers for wells on each lease shall be attached to the form making reference to the purchaser lease number.

Regulation 805 KAR 1:180 (New Regulation)
Statute-KRS 353.205 and 355.550
Form-ANNUAL REPORT OF MONTHLY PRODUCTION (Form ED-17, See Appendix B)

Underground Mining Activity Near an Oil/Gas Well

Division of Mine Safety

Underground mining activity within three-hundred (300) feet of a producing or plugged well requires the mining company to identify the well location, permit number and operator on an APPLICATION TO MINE WITHIN 300 FEET OF AN OIL OR GAS WELL (Form OG-500) and submit to the Division of Mine Safety. The mining company also sends a copy of Form OG-500 to the well operator via certified mail. Upon receipt, the well operator may file an objection with the Division of Mine Safety within fifteen (15) days if, in the well operator's opinion, mining activity will adversely affect wellbore integrity.

Statute-KRS 352.510
Form-APPLICATION TO MINE WITHIN 300 FEET OF AN OIL OR GAS WELL (Form OG-500, See Appendix B)

Farm Tap Service

Public Service Commission

The operator of a gas pipeline company is required to provide service (farm tap) to a person who owns property on which the company's gas well or gas gathering pipeline is located, or to a person whose property and point of desired service is located within one-half (1/2) air mile of the gas pipeline company's gas well or gas gathering pipeline. The company is responsible for providing the meter and service tap, including saddle and first shutoff valve. The prospective customer (applicant) must provide all other equipment and material required for service.

In Appendix A, the type of information the company must provide the applicant, specifies the installation methods and materials required. Prior to the company initiating service, the Public Service Commission shall cause the tap and applicant's service line to be inspected. If the company charges a rate for gas service, it shall have a tariff on file with the Public Service Commission.

In providing farm tap service, the P.S.C. does not require the gas producer or gas pipeline company to maintain a fixed or specific gas pressure; nor is the gas pipeline company restricted from abandoning any gas well or gas gathering pipeline.

Regulation-807 KAR 5:026
Statute-KRS 278.485

Gas Production or Gas Distribution Pipelines

Public Service Commission

The Public Service Commission does not assert jurisdiction over gas production or gas gathering pipelines. However, if a gathering pipeline is located in a Class 3 location (area with 46 or more buildings or area where building is within one-hundred (100) yards of pipeline - See Glossary for more complete definition), it is subjected to the Public Service Commission's safety regulations. A gathering pipeline is defined as a pipeline that transports gas from a current production facility to a transmission line or main, gathering lines are regulated by the Division of Oil & Gas.

Regulations-807 KAR 5:022 Sec. 1(3) and Sec. 1(1)(f)
Statute-KRS 278.010(3) (b) and (c)

Quality of Gas

Public Service Commission

The Public Service Commission requires that all gas supplied to customers contain no more than:

- **A trace of hydrogen sulfide**
- **Thirty grams of total sulphur per 100 cubic feet; or**
- **Five grams of ammonia per 100 cubic feet.**

Each utility must also establish and maintain a standard heating value (BTU content) for its gas, which shall be included in the utilities tariff on file with the Public Service Commission. Utilities should consult Regulation 807 KAR 5:022, Section 15 and 16 for additional requirements regarding the purity and BTU content of its gas. Utilities and gas pipeline companies serving customers under Statute 278.485 are exempt from these requirements.

Regulation 807 KAR 5:022 Sec. 1(2)(a); 15; and 16

Gas Storage

Public Service Commission

The Public Service Commission regulates the aboveground facilities of a gas storage operation which are used to inject or withdraw gas. Such facilities include, but are not limited to: meters, regulators and related facilities for measuring the amount of gas and regulating its pressure; and the design, construction and operation of pipelines used to deliver gas to and from storage. Depending upon their location and use, gathering pipelines connected to a gas storage operation may be exempt from the Public Service Commission's authority.

A person who wishes to operate a gas storage operation must receive prior approval from the Public Service Commission before constructing and operating aboveground facilities, including pipelines, for a gas storage operation. The operator should include in the filing with the Public Service Commission the relevant information pertaining to the storage field itself required by the Division of Oil & Gas.

Regulation-807 KAR 5:022, Sec. 1(1)(a) (1)(5)
Statute-KRS 278.010 (3)(b) and (c), 278.504

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IV. ABANDONMENT AND CLOSURE

Plugging of Wells

Division of Oil and Gas

The Division of Oil and Gas regulates plugging of all wells in Kentucky. Before plugging operations begin, the well operator shall contact the Division of Oil and Gas inspector to obtain plugging instructions and establish a time and date for plugging. The well operator shall provide the inspector with a record of the formations (driller's log), depths of all casing, depths of coal seams and fresh/saline water zones. If the well penetrates a mineable coal seam, the operator shall notify, by registered mail, operators of the coal seam of intention to plug and abandon at least five (5) days prior to plugging. The operator shall use a dump bailer or pump through tubing for placing cement in the well. Important intervals which shall be isolated with minimum cement plugs are listed below:

- **Coal Seams: Cement plug to extend from 40 ft. below deepest workable seam to the surface**

- **Fresh Water Zones: Cement plug to extend at least fifteen (15) ft. below zone to surface**

- **Producing Formation(s): Cement plug at least fifteen (15) ft. in length placed above each producing zone or perforated interval**

- **"Shot" Intervals: Cement plug shall be set in a stable portion of wellbore at least twenty (20) ft. above top of shot zone**

The wellhead shall be cut off below ground level for cultivation unless conditions are such that there is a need for a permanent monument or vent pipe which should be subject to the approval of the Division. Within thirty (30) days after plugging, the well operator shall file a PLUGGING AFFIDAVIT (Form ED-38) with the Division documenting the plugging procedure. If the well is to be used as domestic water well by the landowner, the well will be plugged up to a point below the fresh water zone. The landowner shall file a letter with the Division requesting the use of the well for domestic water supply. The landowner shall also file with the Division of Water a completion report filled out by a certified water well driller. The Division of Oil and Gas shall not release the bond until the Division of Water has accepted the certified completion report.

Regulations-805 KAR 1:060 Wells Not Drilled through Coal Seams.
805 KAR 1:070 Wells Drilled through Coal Seams.
Statute-KRS 353.560, 353.120
Form-PLUGGING AFFIDAVIT (Form ED-38, See Appendix B)

Oil and Gas Facility Site Closure

Division of Waste Management
Division of Water

Abandonment of a facility is not an acceptable closure method. A facility is defined to be any well, tank, pit, structure, equipment or improvement used in the exploration, drilling, or production of oil or gas and used for treating, storing, or disposing of produced water. A tank battery and its associated wells, pits and other associated structures represent one facility. The owner/operator shall close the facility by doing the following:

- **Plug the well(s) in accordance with the Division of Oil and Gas and reclaim well site for well permitted after June 24, 2015**

- **Dispose of produced fluids in a manner approved by the Division of Water. (See the section entitled Produced Water Disposal)**

- **Dispose of tank bottom sediments by solidifying and hauling to a permitted landfill or by taking to a recycler. For regulated underground storage tanks (UST), closure must be done in accordance with UST regulations**

- **Remove above and underground tanks**

- **Remove or purge all gathering lines/flowlines associated with the facility in accordance with the Division of Oil and Gas regulation 805 KAR 1:190**

- **Remove all wastes and contaminated soils in a manner approved by the Division of Waste Management (See section on Clean-up of Oil, Produced Water and Chemical Spills)**

- **Backfill the pits with clean material**

- **Reclaim the area to prevent soil erosion**

Facilities registered with the Division of Water will be considered active until the following additional items are completed:

- **Submission of copies of well plugging affidavits to the Division of Water**

- **Site inspection for closure by Division of Water**

Regulation-401 KAR 5:090, Section 4, 401 KAR Chapter 30-48
Statutes-KRS 151.125, 224.01-400, 224.01-405, 224.10-100, 224.40-100, 224.40-305, 224.60-135 and 224.70-110

Well Site Final Reclamation and Closure

Division of Oil and Gas

Well site closure and final reclamation is required on all wells permitted after June 24, 2015 in accordance with the OPERATIONS AND RECLAMATION PLAN (Form ED-10). In addition, any well drilled on a severed mineral tract requires reclamation in accordance with the plan submitted at the time of permit application. (Refer to the section on Pre-drilling, entitled Well Site Reclamation Plan for details in requirements of a reclamation plan). The Division of Oil & Gas shall consider a well-site closed after:

a) The well has been plugged and abandoned under the direction of the inspector
b) All surface production facilities have been removed
c) Written notice to the Division has been provided by the well operator final site reclamation has been completed in accordance with the Operations and Reclamation Plan
    - Permanent vegetation has been established
    - Permanent culverts and side ditches are installed and functioning properly
    - Round or shape all disturbed areas to conform the site to adjacent terrain
    - Permanent vegetation has been established

The Division of Oil and Gas inspector will make an on-site inspection of the reclaimed location approximately one (1) year after the area is restored to allow ample time for vegetation to be established. If no problems are observed, the operator's bond for the well will be released (if individually bonded) after the inspector files his report with the Division verifying completion of all reclamation requirements.

Regulation-805 KAR 1:170
Statutes-KRS 353.5901 and 353.590 Section 5
Form-OPERATIONS AND RECLAMATION PLAN (Form ED-10, See Appendix B).

Bond Release

Division of Oil and Gas

Bonds can only be released upon receipt of a written request from the operator or from the insurance company. A bond shall be released after the well has been properly plugged, site reclamation (for wells permitted after June 24, 2015) has been completed and approved by the Division of Oil and Gas or the well has been transferred and bonded by a successor operator.

If the well has been plugged, the operator will be required to submit a Plugging Affidavit, Well Log and Completion Report, electric/geophysical logs, and directional/inclination surveys, if run, to the Division of Oil and Gas. In addition, the following items must be on file:

- Annual Report of Monthly Production for all wells listed under the operator's name (Required for each year for producing or shut-in wells)
- Gathering Line Operator's License must be current
- As-Built Plat and/or Inclination Survey, if applicable
- Directional Survey (for horizontal/directional wells)
- Gathering Line and/or Flow Application must be approved, if applicable
- Topographic Map must be submitted and approved

Regulation-805 KAR 1:050
Statute-KRS 353.590(5)

Bond Forfeitures

Division of Oil and Gas

A bond may be forfeited by the Division of Oil and Gas for any violation of oil and gas statutes or regulations.

The Division of Oil and Gas will send a Notice of Violation via certified mail to the operator of record. If the operator does not correct the violation within the allotted timeframe, bond forfeiture proceedings may begin. Written requests for extensions to correct violations may be considered if they are received before the allotted timeframe period expires.

When the Division of Oil and Gas determines a bond must be forfeited, an Order of Forfeiture will be mailed to the operator and the surety company, if applicable. Should the operator or the surety company disagree with the order of forfeiture, both parties have the right to bring an action for review and/or appeal in the local circuit court or the Franklin County Circuit Court within thirty (30) days from the date the Order of Forfeiture was issued. Failure to file a request for review shall result in the Order of Forfeiture becoming final and non-appealable. Once the thirty (30) days have lapsed, the Division of Oil and Gas will take the necessary steps to obtain the bond money from the appropriate bond surety company, bank or other financial institution.

Statute-KRS 353.590(7)

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V. INSPECTION AND ENFORCEMENT

Division of Oil and Gas Inspection-Enforcement Authority

Division of Oil and Gas

The Division of Oil and Gas inspectors have the authority to inspect any well or well site and associated gathering lines/flowlines at any time. If a violation is observed, the operator will be notified by certified mail of the type of violation and corresponding statute. The operator will then have forty-five (45) days to contact the inspector and correct the violation. If the operator fails to correct the violation, the Division may forfeit the operator's bond. Operators should maintain a current address with the Division at all times. Failure to maintain a current address will not allow for an extension of time to correct a violation.

Civil penalties, which include imprisonment and fines assessed by the Circuit Court of the county in which the violation occurs, may also be assessed against anyone who violates provisions of statutes relating to drilling, operation, site reclamation and plugging of oil and gas wells. A list of commonly cited violations can be found in Appendix A.

Statute-KRS 353.200, 353.990, 353.991 and 353.992

Division of Water and Division of Waste Management Inspection-Enforcement Authority

Division of Water & Division of Waste Management

The agencies of the Department of Environmental Protection may inspect any oil and gas facility and shall provide written notification of any violation to the operator. Following the findings of any violation, the Cabinet may start enforcement action to bring the condition or activity into compliance, and any other applicable remedy including civil penalties. Civil penalties include fines up to $25,000.00 per day per violation and imprisonment for up to five (5) years.

Regulations-401 KAR 5:090 Section 12 and 401 KAR Chapter 40
Statutes-KRS 224.10-100, 224.10-410 and 224.99-010

Kentucky Public Service Commission

Enforcement Authority

The Public Service Commission is provided with the authority to assess penalties on a utility, or any officer, agent or employee of a utility, when any provision of applicable statutes or regulation established pursuant to KRS Chapter 278 are willfully violated. Penalties against an individual shall not exceed $2500 for each offense, or criminal penalty of imprisonment for no more than 6 months, or both. A utility is subject to penalties no less than $25.00 or more than $2500.00 for each offense.

Authority is granted to assess a penalty not to exceed $10,000 on any person for each violation of the Commission's regulations governing the safety of pipeline facilities or the transportation of gas, as these terms are defined in the Natural Gas Pipeline Safety Act of 1968.

Statutes-KRS 278.990 and KRS 278.992

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APPENDIX A

GLOSSARY OF TERMS

Abandoned well: A well or hole which has never been used, or which in the opinion of the Division of Oil and Gas, will no longer be used for the production of oil or gas or for the injection or disposal of fluid.

Barrel: Forty-two (42) U.S. gallons.

Best Management Practices: Demonstrated practices intended to control site run-off and pollution of surface water and groundwater to prevent or reduce the pollution of waters of the Commonwealth.

Class II Wells: Wells which inject fluids: (A) Which are brought to the surface in connection with conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection. (B) For enhanced recovery of oil or natural gas. (C) For storage of hydrocarbons which are liquid at standard temperature and pressure.

Correlative Rights: The reasonable opportunity of each person entitled thereto to recover and receive without waste the oil and gas in and under his tract or tracts, or the equivalent thereof.

Deep Well: Any well drilled and completed below the depth of six thousand (6,000) feet or below the base of the lowest member of the Devonian Brown Shale, whichever is deeper.

Directional and Horizontal Drilling: The science of directing a well bore along a predetermined course to a target located a given distance from vertical.

Drilling Pit: An earthen excavation for the collection of fluids associated with the drilling, construction, completion, acidizing, or fracturing of an oil or gas well.

Dry Gas: A gas well producing one (1) barrel or less of produced water at maximum production conditions during a given twenty-four (24) hour period.

Farm Tap Service: Natural gas consumption by a property owner located within one-half mile of a well or gas gathering pipeline.

Final reclamation: Well operator has completed drilling operations at the well site, has plugged the well, and has performed all obligations described in the operations and reclamation plan.

Gas: All natural gas, including casing head gas, and all other hydrocarbons not defined as "oil."

Gathering line: Means any pipeline that is installed or used for the purpose of transporting crude oil or natural gas from a well or production facility to the point of interconnection with another gathering line, an existing storage facility or a transmission or main line, including all lines between interconnections, except those lines or portions thereof subject to the exclusive jurisdiction of the United States Department of Transportation under 49 C.F.R. Parts 191, 192, 194 and 195.

High-Volume Horizontal Hydraulic Fracturing: A stimulation treatment of a horizontal well injecting more than 80,000 gallons of fluid per stage or 320,000 gallons of fluid in total aggregate.

Facility: Any well, tank, pit, structure, appurtenance or improvement used in the exploration, drilling, or production of oil or gas or used in the exploration, drilling, or production of oil or gas or used for treating, storing or disposing of produced water.

Field: The general area which is underlaid or appears to be underlaid by at least one (1) pool; and "field" includes the underground reservoir containing oil or gas or both. "Field" and "pool" mean the same thing when only one (1) underground reservoir is involved; however, "field," unlike "pool," may relate to two (2) or more pools

Measured Depth: The total depth measured in the well from the surface.

Management Plan: The individual plan adopted by the Natural Resources and Environmental Protection Cabinet as the official document guiding the management, public use, and protection of an area designated under the Wild Rivers System.

Hazardous Waste: A waste designated as hazardous under 401 KAR Chapter 31.

Holding Pit: An earthen excavated depression designed to receive and store produced water at a facility.

Kentucky Pollutant: **Discharge Elimination System (KPDES)**: The Kentucky program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits to discharge and imposing and enforcing pretreatment requirements. The KPDES regulations are 401 KAR 5:050 to 5:080.

Oil: Natural crude oil or petroleum and other hydrocarbons, regardless of gravity, which are produced at the well in liquid form by ordinary production methods and which are not the result of condensation of gas after it leaves the underground reservoir.

Oil production flow line: Is defined as a gathering line running from a well or wells to a tank battery for production treatment and storage; or in the case of an injection well, the line from the tank battery to the well.

Operator: Any owner of the right to develop, operate and produce oil and gas from a pool and to appropriate the oil and gas produced therefrom, either for himself or for himself and others; in the event that there is no oil and gas lease in existence with respect to the tract in question, the owner of the oil and gas rights therein shall be considered as "operator" to the extent of seven-eighths (7/8) of the oil and gas in that position of the pool underlying the tract owned by such owner, and as "royalty owner" as to one-eighth (1/8) interest in such oil and gas; and in the event the oil is owned separately from the gas, the owner of the right to develop, operate, and produce the substance being produced or sought to be produced from the pool shall be considered as "operator" as to such pool. Operator also refers to any person who operates an oil & gas facility.

Person: An individual, trust, firm, joint stock company, corporation (including a government corporation), partnership, association, federal agency, state agency, city, commission, political subdivision of the Commonwealth, or any interstate body.

Produced Water: Any water and pollutants and any combination thereof resulting, obtained, or produced from the exploration, drilling, or production of oil or gas.

Pollutant: Dredged spoil, solid waste, incinerator residue, sewage sludge, garbage, chemical, biological or radioactive materials, heat, wrecked or discarded equipment, rock, sand, soil, industrial, municipal or agricultural waste, and any substance resulting from the development, processing, or recovery of any natural resource which may be discharged into water.

Pool: An underground reservoir containing a common accumulation of oil or gas or both. Each productive zone of a general structure is completely separated from any other zone in the structure.

Register: To file forms with the appropriate agency, in some cases agencies, which contains information such as: to oil and gas well geographic location, name of lease on which well(s) are located, production, produced water production, methods used for treating, storing, or disposing of produced water, and any other information deemed necessary by that agency.

Shallow well: Any well drilled and completed at a depth of less than six thousand (6,000) feet or above the base of the lowest member of the Devonian Brown Shale, whichever is the deeper in depth.

Solid Waste: A waste that is not a hazardous waste or a special waste.

Special Waste: A waste designated as special under KRS 224.50-760, including gas and oil drilling muds and oil production brines.

Stripper Well: Any well producing ten (10) barrels or less per day of oil.

Tank Battery: An installation where oil is collected from wellheads and separated from produced water.

True Vertical Depth: The depth of the well from any point in the well being measured to the surface of the ground above the point being measured.

Underground Injection: The subsurface emplacement of fluids by well injection but does not include the underground injection of natural gas for storage purposes.

Utility: A gas utility is any person except a city, who owns, controls or operates any facility for the production, manufacture, storage, distribution, sale, or furnishing of natural or manufactured gas, to or for the public for compensation; or the transporting or conveying of gas, crude oil or other fluid substance by pipeline to or for the public for compensation.

Water or Waters of the Commonwealth: Includes any and all rivers, streams, creeks, lakes, ponds, impounding reservoirs, springs, wells, marshes, and all other bodies of surface or underground water, natural or artificial, situated wholly or partly within or bordering upon the Commonwealth or within its jurisdiction.

Well: A borehole drilled, or proposed to be drilled, for the purpose of producing natural gas or petroleum, or one through which natural gas or petroleum is being produced, or a borehole drilled or proposed to be drilled for the purpose of injecting any water, gas, or other fluid therein or one into which any water, gas, or other fluid is being produced.

Workable or Mineable Coal Seam: A coal bed being operated commercially, a coal bed that the Department of Mines & Minerals decides can be operated commercially and the operation of which can reasonably be expected to commence within not more than ten (10) years, or a coal bed which, from outcrop indications or other definite evidence, proves to the satisfaction of the Commissioner of the Department of Mines & Minerals to be workable, and which, when operated, will require protection if wells are drilled through it.

KENTUCKY REGULATORY OFFICES

DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
1025 Capital Center Drive
P. 0. Box 2244
Frankfort, KY 40601
(502) 573-0147

PUBLIC SERVICE COMMISSION
730 Schenkel Lane
P. 0. Box 615
Frankfort, KY 40601
(502) 564-3940

DEPT OF HOUSING, BUILDINGS & CONST.
DIVISION OF HOUSING PROTECTION
STATE FIRE MARSHAL'S OFFICE
1047 US 127 South, Suite 1
Frankfort, KY 40601
(502) 564-3626

DEPARTMENT FOR HEALTH SERVICES
RADIATION BRANCH
275 East Main
Frankfort, KY 40601
(502) 564-3970

KENTUCKY GEOLOGICAL SURVEY
UNIVERSITY OF KENTUCKY
228 Mining and Minerals Resources Building
Lexington, KY 40506-0107
(606) 257-5500

DEPT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
14 Reilly Road
Frankfort, KY 40601
(502) 564-3410
Emergency Response (800) 928-2380

DEPT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
14 Reilly Road
Frankfort, KY 40601
(502) 564-6716

DEPT FOR ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
830 Schenkel Lane
Frankfort, KY 40601
(502) 573-3382

DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF FORESTRY
627 Comanche Trail
Frankfort, KY 40601
(502) 564-4496

DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF ENERGY
663 Teton Trail
Frankfort, KY 40601
(502) 564-7192

DISASTER AND EMERGENCY SERVICES
State EOC Bldg., Boone Center
Frankfort, KY 40601
(502) 654-8682

FEDERAL REGULATORY OFFICES

ENVIRONMENTAL PROTECTION AGENCY - REGION IV OFFICE
Water Management Division Groundwater/Drinking Water Branch
Groundwater & UIC Section
61 Forsyth Street
Atlanta, GA 30303-3104
(404) 562-9461

U.S. DEPARTMENT OF ENERGY
1000 Independence Avenue, S.W.
Washington, D.C. 20585
(202) 586-5600

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Jackson District Office
411 Briarwood Drive
Suite 404
Jackson, MS 39206
(601) 977-5402

U. S. ARMY CORPS OF ENGINEERS-DISTRICT OFFICES

MEMPHIS DISTRICT
B-202 Clifford Davis Federal Building
167 N. Main
Memphis, TN 38103-1894
(901) 544-3471

NASHVILLE DISTRICT
3701 Bell Road
Nashville, TN 37214
(615) 369-7500
Fax (615) 736-7145

HUNTINGTON DISTRICT
502 8th Street
P. O. Box 212
Huntington, WV 25701-2070
(304) 399-5353

LOUISVILLE DISTRICT
Regulatory Branch
P.O. Box 59
Louisville, KY 40201
(502) 315-6692

KENTUCKY DIVISION OF OIL AND GAS CONSERVATION
INSPECTOR INFORMATION/COUNTY ASSIGNMENTS

PIKEVILLE DISTRICT
Richard McCown-Supervisor
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Matthew Adkins
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COUNTIES: McCreary, Wayne, Casey, Russell, Pulaski, Lincoln

FRANKFORT DISTRICT
Marvin Combs -Assistant Director (Pikeville Acting Supervisor)
P.O. Box 2244 Frankfort, KY. 40602 (Office-502-573-0147) (Cell-606-454-6046)
COUNTIES: Bath, Boone, Kenton, Campbell, Bracken, Pendleton, Grant, Owen, Henry, Gallatin, Carroll, Trimble, Oldham, Jefferson, Bullitt, Spencer, Shelby, Anderson, Franklin, Nelson, Scott, Woodford, Jessamine, Fayette, Bourbon, Nicholas, Harrison, Clark, Montgomery, Rowan, Fleming, Lewis, Mason, Robertson, Washington, Mercer, Marion, Boyle, Madison

KENTUCKY DIVISION OF OIL AND GAS CONSERVATION
INSPECTOR INFORMATION/COUNTY ASSIGNMENTS

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Cell: 270-670-6774
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Fax: 270-651-5983
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Beaver Dam, KY 42141
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Butler, Grayson

Seth Parrish
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Albany, KY 42602
Home: 606-387-0377
Cell: 606-688-2115
COUNTIES: Clinton, Cumberland
Monroe

Justin Watt
998 Little Knob Rd.
Smiths Grove, KY 42171
Home: 606-312-7129
COUNTIES: Warren, Simpson, Allen
Edmonson, Logan, Todd

Brian Yager
186 Winding Ridge Rd.
Greensburg, KY 42743
Home: 606-312-7131
COUNTIES: Adair, Green, Taylor, Larue
Hart, Hardin

MADISONVILLE DISTRICT

Cy Britt-Supervisor
625 Hospital Drive
Madisonville, KY 42431

Cell: 270-871-8465 (952-1219)
Office: 270-824-7523
Fax: 270-824-7526
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Livingston, Marshall, Calloway,
Graves, McCracken, Ballard, Carlisle
Hickman, Fulton, Crittenden, Hopkins,
Christian, Muhlenberg

Bert Combs
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Cell: 270-871-4316
COUNTIES: Webster, Union, Henderson
McLean

Stephen Sloan
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Owensboro, KY 42301
Cell: 270-302-4888
COUNTIES: Daviess, Hancock

Chris Ashby
2744 Mt. Hebron Church Road
Dawson Springs, KY 42408
Cell: 270-836-6176
COUNTIES: Caldwell, Christian, Muhlenberg
Logan, Todd, Trigg

KENTUCKY DIVISION OF WATER REGIONAL OFFICES

Bowling Green Regional Office **#002**
2642 Russellville Rd.
Bowling Green, Kentucky 42101
(270) 746-7475 Fax (270) 746-7865
Attn: Bill Baker

Allen	Grayson	Simpson
Barren	Hart	Warren
Butler	Logan	
Edmonson	Ohio	

Columbia Regional Office **#003**
2751 Campbellsville Rd.
Columbia, Kentucky 42728
(270) 384-4734 Fax (270) 384-5199
Attn: Brian Crump

Adair	LaRue	Pulaski
Boyle	Lincoln	Russell
Casey	Marion	Taylor
Clinton	Metcalfe	Washington
Cumberland	Monroe	Wayne
Green	Nelson	

Florence Regional Office **#005**
8020 Veterans Memorial Drive, Suite 110
Florence, Kentucky 41042
(859) 525-4923 Fax (859) 525-4157
Attn: Todd Giles

Boone	Gallatin	Owen
Bracken	Grant	Pendleton
Campbell	Henry	Trimble
Carroll	Kenton	

Frankfort Regional Office
200 Fair Oaks Lane, 3rd Floor
Frankfort, Kentucky 40601
(502) 564-3358 Fax (502) 564-5043
Attn: Robert Daniell

Anderson	Franklin	Mercer
Bourbon	Garrard	Nicholas
Clark	Harrison	Powell
Estill	Jessamine	Scott
Fayette	Madison	Woodford

Hazard Regional Office **#006**
233 Birch Street, Suite 1
Hazard, Kentucky 41701
(606) 435-6022 Fax (606) 435-6025
Attn: Damon White

Breathitt	Knott	Magoffin	Pike
Floyd	Lee	Martin	Wolfe
Johnson	Letcher	Perry	

London Regional Office **#007**
875 South Main Street
London, Kentucky 40741
(606) 330-2080 Fax (606)330-2097
Attn: Robert Miller

Bell	Knox	Owsley
Clay	Laurel	Rockcastle
Harlan	Leslie	Whitley
Jackson	McCreary	

Louisville Regional Office **#009**
9116 Leesgate Road
Louisville, Kentucky 40222-5084
(502) 429-7122 Fax (502) 429-7125
Attn: Charlie Roth

Breckinridge	Meade	
Bullitt	Oldham	
Hardin	Shelby	
Jefferson	Spencer	

Madisonville Regional Office **#011**
Madisonville State Office Building
625 Hospital Drive
Madisonville, Kentucky 42431-1683
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Caldwell	Hancock	Muhlenberg
Christian	Henderson	Todd
Crittenden	Hopkins	Union
Daviess	McLean	Webster

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Morehead, Kentucky 40351
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Attn: Danny Fraley

Bath	Fleming	Mason
Boyd	Greenup	Menifee
Carter	Lawrence	Morgan
Elliott	Lewis	Rowan
Montgomery	Robertson	

Paducah Regional Office **#015**
130 Eagle Nest Dr.
Paducah, Kentucky 42003
(270) 898-8468 Fax (270) 898-8640
Attn: Shannon McLeary, Supervisor

Ballard	Fulton	Livingston	McCracken
Calloway	Graves	Lyon	Trigg
Carlisle	Hickman	Marshall	

KENTUCKY DIVISION OF WASTE MANAGEMENT REGIONAL OFFICES

Bowling Green Regional Office
Attn: Kerry McDaniel - Supervisor
1508 Weston Avenue
Bowling Green, KY 42104
502-746-7475

Counties:

Allen	Grayson	Simpson
Barren	Hart	Warren
Butler	Logan	
Edmonson	Ohio	

Columbia Regional Office
Attn: Cathi Blair - Supervisor
102 Burkesville Street
Columbia, KY 42728
502-384-4735

Counties:

Adair	Larue	Pulaski
Boyle	Lincoln	Russell
Casey	Marion	Taylor
Clinton	Metcalfe	Washington
Cumberland	Monroe	Wayne
Green	Nelson	

Florence Regional Office
Attn: Debby Angel - Supervisor
7964 Kentucky Drive, Suite #8
Florence, KY 41042
606-292-6411

Counties:

Boone	Gallatin	Owen
Bracken	Grant	Pendleton
Campbell	Henry	Trimble
Carroll	Kenton	

Frankfort Regional Office
Attn: Sam Lofton - Supervisor
643 Teton Trail, Suite B
Frankfort, KY 40601
502-564-3358

Counties:

Anderson	Fayette	Jessamine	Powell
Bourbon	Franklin	Madison	Robertson
Clark	Garrard	Mercer	Scott
Estill	Harrison	Nicholas	Woodford

Hazard Regional Office
Attn: Rebecca Noble - Supervisor
233 Birch Street
Hazard, KY 41701
606-435-6022

Counties:

Breathitt	Lee	Martin	Wolfe
Floyd	Leslie	Owsley	
Johnson	Letcher	Perry	
Knott	Magoffin	Pike	

London Regional Office
Attn: Cathi Blair - Supervisor
85 State Police Road
State Regional Office Bldg.
London, KY 40741-9008
606-878-0157

Counties:

Bell	Knox	Whitley
Clay	Laurel	
Harlan	McCreary	
Jackson	Rockcastle	

Louisville Regional Office
Attn: Lesley Henney - Supervisor
312 Whittington Parkway, Ste 201
Louisville, KY 40222-4295
502-595-4254

Counties:

Breckenridge	Meade
Bullitt	Oldham
Hardin	Shelby
Jefferson	Spencer

Madisonville Regional Office
Attn: Bill Bowen - Supervisor
Madisonville State Office Building
625 Hospital Drive
Madisonville, KY 42431-1683
502-824-7529

Counties:

Caldwell	Hancock	Muhlenberg
Christian	Henderson	Todd
Crittenden	Hopkins	Union
Daviess	McLean	Webster

Morehead Regional Office
Attn: Karen Glancy - Supervisor
Mabry Bldg, KY 32 South
Morehead, KY 40351
502-784-6634

Counties:

Bath	Fleming	Mason
Boyd	Greenup	Menifee
Carter	Lawrence	Montgomery
Elliott	Lewis	Morgan
		Rowan

Paducah Regional Office
Attn: Margie Williams - Supervisor
4500 Clarks River Road
Paducah, KY 42003
502-898-8468

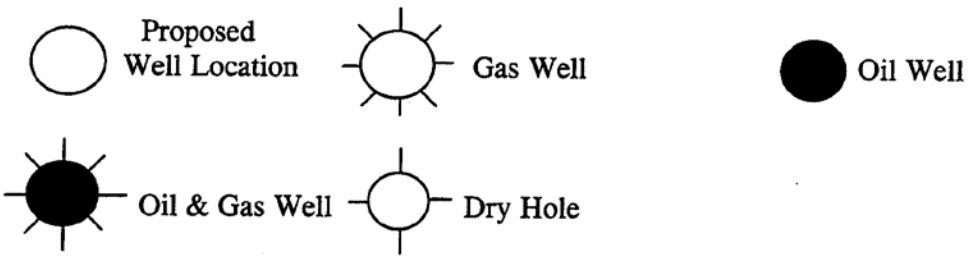
Counties:

Ballard	Graves	McCracken
Calloway	Hickman	Marshall
Carlisle	Livingston	Trigg
Fulton	Lyon	

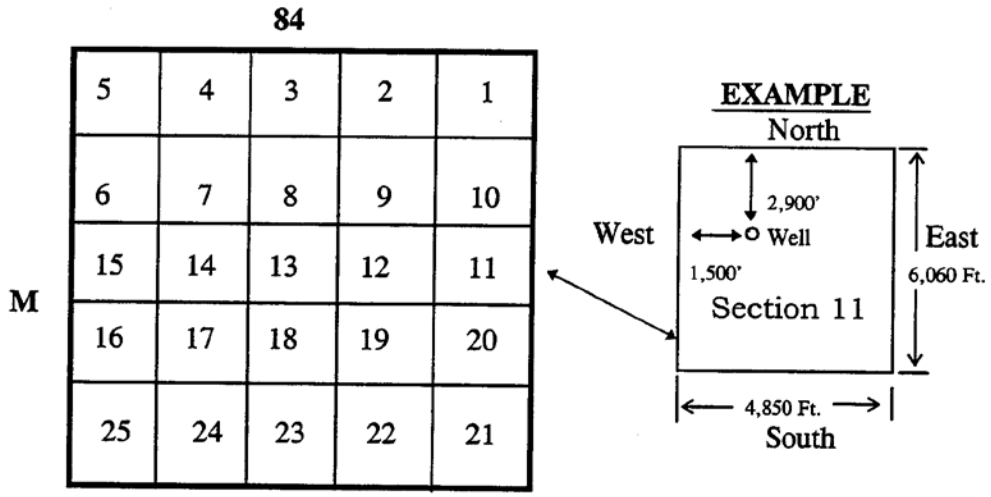
KENTUCKY WILD RIVERS

River and Date Designated	County	Length (miles)	Corridor Acreage	Endpoints (Landmarks and River Miles)	Drainage Basin
Bad Branch 1986	Letcher	4.0	1,325	Headwaters to KY 932	Cumberland
Big South Fork Cumberland River 1972	McCreary	10.2	2,450	TN State Line to Blue Heron (Mile 55.2 to Mile 45.0)	Cumberland
Cumberland River 1972	McCreary Whitley	16.1	3,300	Summer Shoals to Lake Cumberland (Mile 574.6 to Mile 558.5)	Cumberland
Green River 1972	Edmonson Hart	26.0	6,500	East Boundary of Mammoth Cave National Park to Lock and Dam No. 6 at Brownsville (Mile 207.7 to Mile 181.7)	Green
Little South Fork Cumberland River 1974	McCreary Wayne	10.4	1,400	KY 92 to Lake Cumberland (Mile 14.5 to Mile 4.1)	Cumberland
Martins Fork 1974	Harlan	3.9	680	Boundary of Cumberland Gap National Historic Park to KY 987 (Mile 31.3 to Mile 27.4)	Cumberland
Red River 1972	Wolfe Menifee	9.1	1,025	KY 746 to Swift Camp Creek (Mile 68.6 to Mile 59.5)	Kentucky
Rock Creek 1974	McCreary	18.0	6,150	TN State Line to White Oak Cr. (Mile 21.9 to Mile 3.9)	Cumberland
Rockcastle River 1972	Rockcastle Laurel Pulaski	15.9	3,350	KY 1956 at Billows to Lake Cumberland	Cumberland
TOTALS		**114.O**	**26,380**		

WELL SYMBOLS



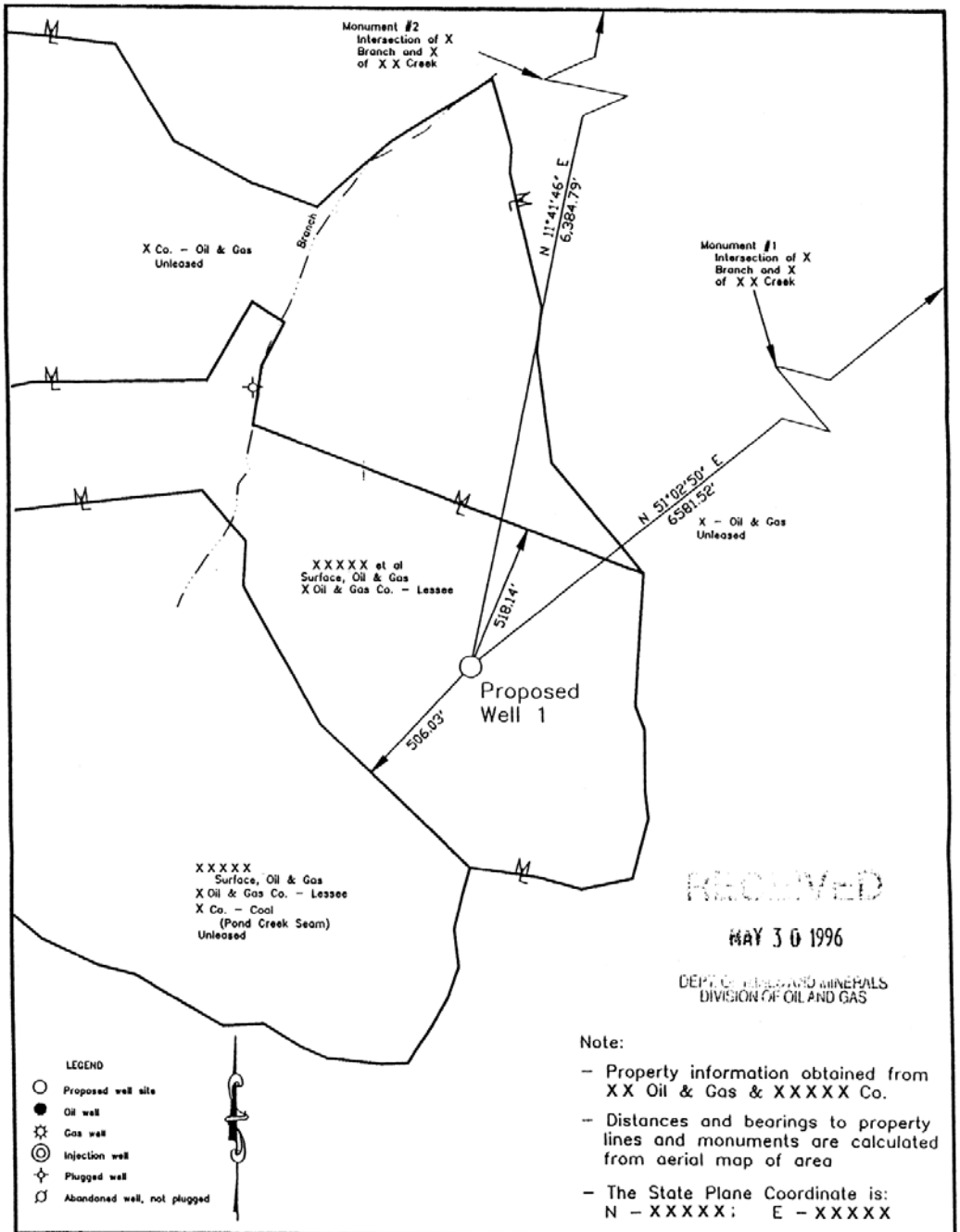
CARTER COORDINATE MAPPING SYSTEM



DEFINITION:

7.5' Topographic maps have 1 minute (1') marks along the boundary. Wells in Kentucky are located by the Carter Coordinate system which is measured (in feet) from the 1 minute (1') section boundaries. The coordinate system traverses Kentucky in a grid pattern with 5 minute (5') sections comprised of 25 smaller 1 minute sections. The south-to-north 5 minute boundary ranges from the letters "A through Z and AA though GG". The west-to-east 5 minute boundary ranges from "0 to 91". Dimensions of the smaller 1 minute sections are 6,060 feet (north-south) by 4,850 feet (west-east). Wells are measured from the section boundary.

Above referenced example has well located in **Section 11-M-84 2,900' FNL (From North Line) X 1,500' FWL (From West Line).**



COMPANY XXXXX ADDRESS XXXXX

FARM XXXXX WELL NO. 1 ELEV.(MSL) 1330.11'

COUNTY Pike DISTRICT _____ QUADRANGLE XXXXX

LATITUDE X· X· X· LONGITUDE X· X· X·

CARTER COOR. F.N.L. X F.S.L. _____ F.E.L. X F.W.L. _____ SEC. X LETTER N NO. X

NEW LOCATION [XXX] DRILL DEEPER [ ] ABANDONMENT [ ]

I HEREBY CERTIFY THAT THE ABOVE PLAT IS ACCURATE AND CORRECT AND SATISFIES THE REQUIREMENTS OF 805 KAR .1:030 TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SIGNATURE REGISTRATION NO.

NAME DATE

WELL LOCATION MAP

FILE NO. _____

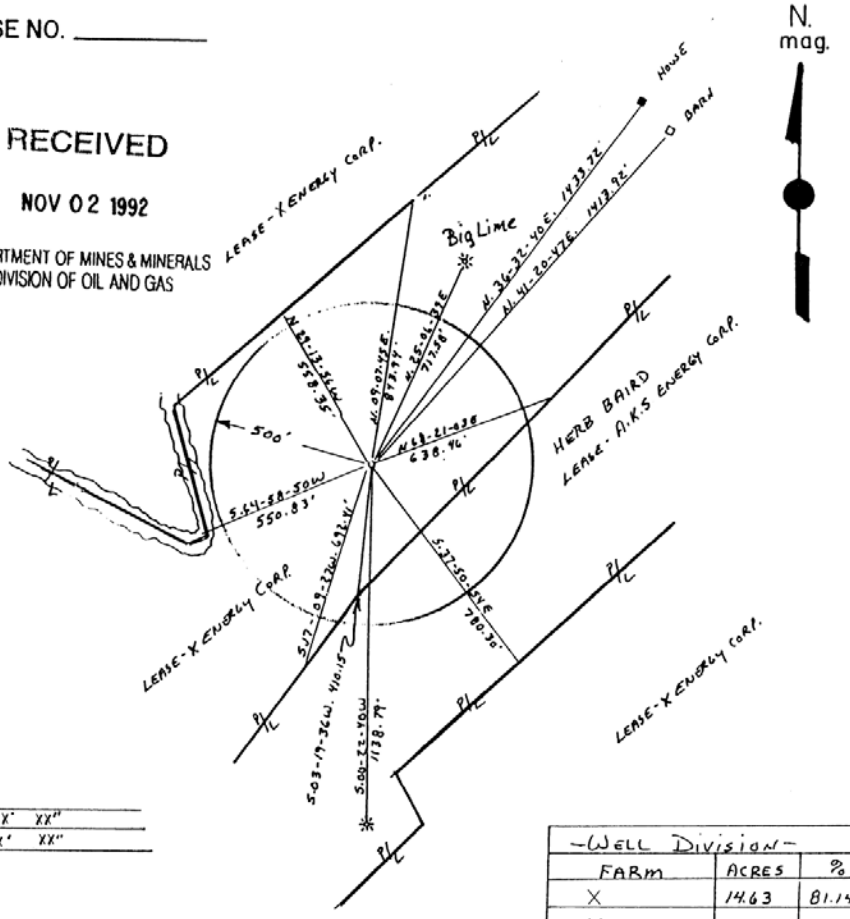
FILE NO. _____ DRW. NO. _____ DATE _____ SCALE 1" = 400'

LEASE NO. _____

RECEIVED

NOV 02 1992

DEPARTMENT OF MINES & MINERALS
DIVISION OF OIL AND GAS



LAT. = XX° XX' XX"
LONG. = XX° XX' XX"

-WELL DIVISION-		
FARM	ACRES	%
X	14.63	81.14
X	3.40	18.86
TOTAL	18.03	100 %

OPERATOR X
FARM X
COUNTY X
WELL NO. X
ELEVATION 980.0 by inst.
QUADRANGLE XX
SCALE 1" = 400'

CARTER COORD.
X sec. = X letter = X no.
F.N.L. X
F.S.L. —
F.E.L. —
F.W.L. X

I HEREBY CERTIFY THAT THE ABOVE PLAT IS ACCURATE AND CORRECT AND SATISFIES THE REQUIREMENTS OF 805 KAR 1:030 TO THE BEST OF MY KNOWLEDGE AND BELIEF.

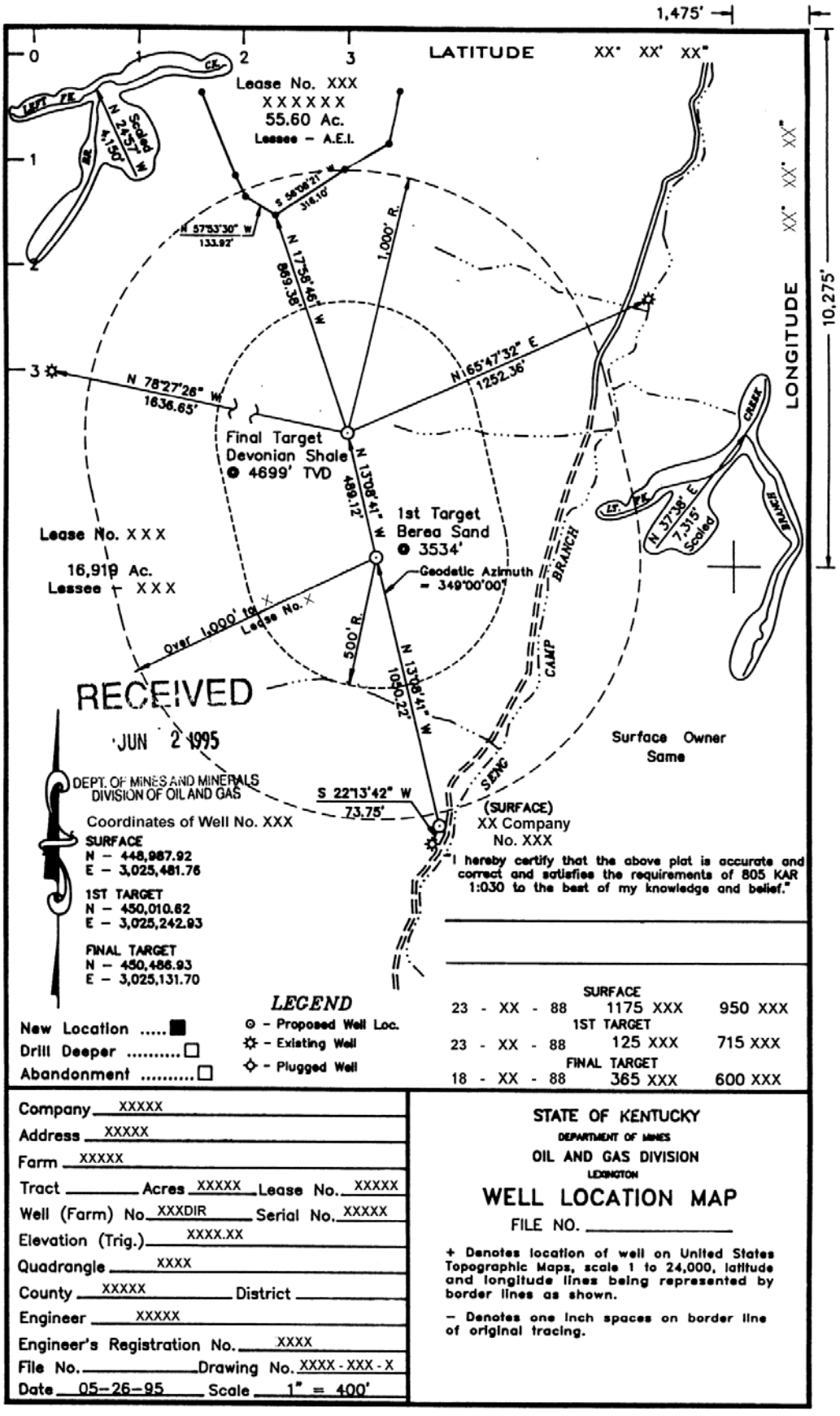
_____ DATE _____

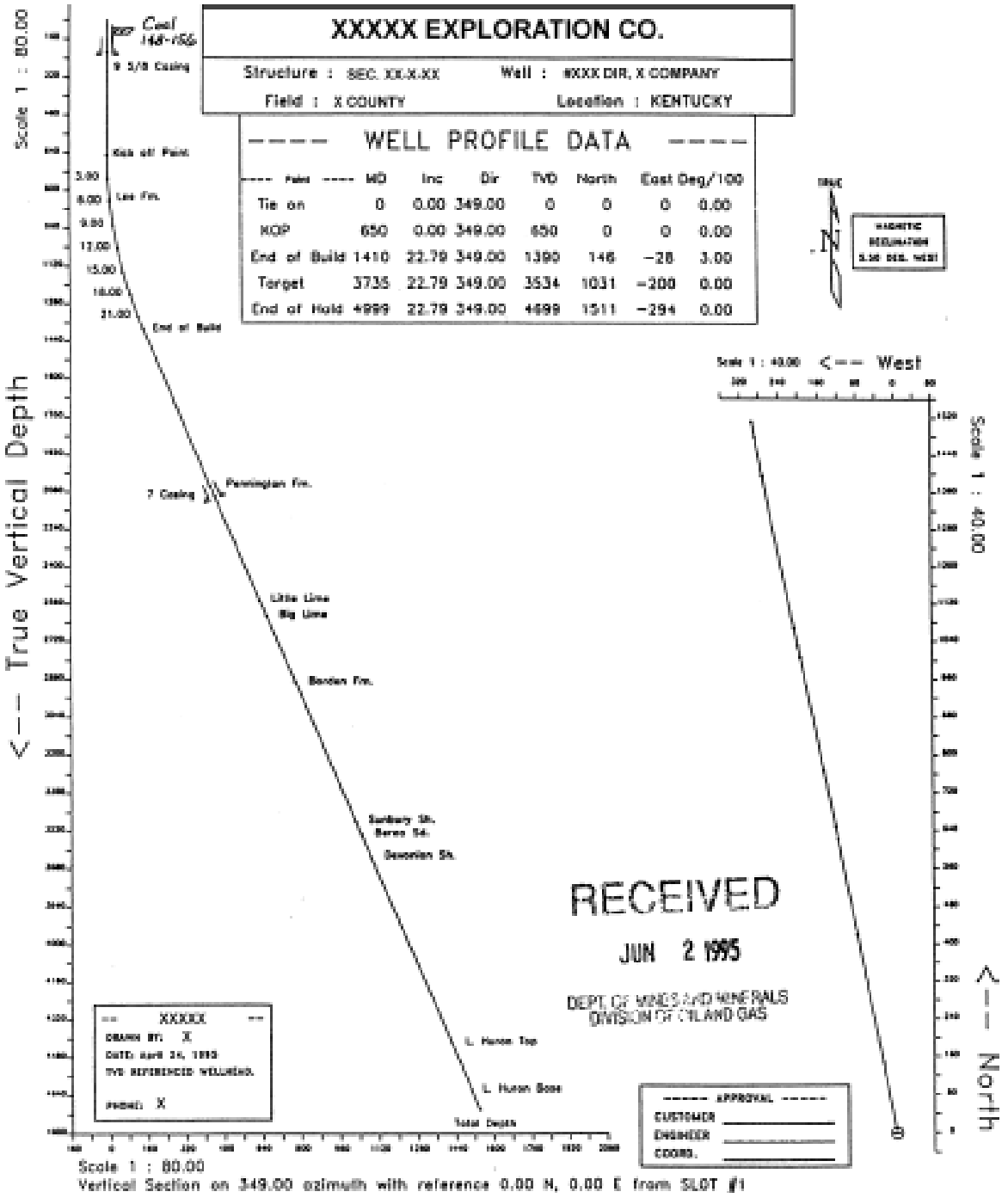
LEGEND
- o — PROPOSED WELL SITE
- ● — OIL WELL
- ◎ — INJECTION WELL
- ☼ — GAS WELL
- ◇ — PLUGGED WELL
- ♀ — ABANDONED WELL, NOT PLUGGED
- □ — BARN
- ▮ — HOUSE
- ▮ — CHURCH
- ≈≈≈ — CREEK, BRANCH, OR WATERWAY
- ····· — ROADWAY

REGISTERED LAND SURVEYOR

STATE OF KENTUCKY REGISTERED PROFESSIONAL ENGINEER

PREPARED BY


1,475'
10,275'
LATITUDE XX° XX' XX"
LONGITUDE XX° XX' XX"
Lease No. XXX
XXXXXX
55.60 Ac.
Lessee – A.E.I.
Scaled 2,457' 4,150'
S 56°06'21" W 316.10'
N 57°53'30" W 133.92'
N 17°56'46" W 869.38'
1,000' R.
N 78°27'26" W 1636.65'
N 65°47'32" E 1252.36'
Final Target
Devonian Shale
4699' TVD
N 13°08'41" W 489.12'
1st Target
Berea Sand
3534'
Geodetic Azimuth
= 349°00'00"
Lease No. XXX
16,919 Ac.
Lessee – XXX
Over 1,000' to Lease No. X
500' R.
N 13°08'41" W 1050.22'
S 22°13'42" W 73.75'
(SURFACE)
XX Company
No. XXX
Surface Owner
Same
CAMP BRANCH
SENG
CREEK
BRANCH
N 37°38' E 7,315' Scaled
RECEIVED
JUN 2 1995
DEPT. OF MINES AND MINERALS
DIVISION OF OIL AND GAS
Coordinates of Well No. XXX
SURFACE
N – 448,987.92
E – 3,025,481.76
1ST TARGET
N – 450,010.62
E – 3,025,242.93
FINAL TARGET
N – 450,486.93
E – 3,025,131.70
LEGEND
⊙ – Proposed Well Loc.
☼ – Existing Well
✧ – Plugged Well
New Location .....■
Drill Deeper .....□
Abandonment .....□
"I hereby certify that the above plat is accurate and correct and satisfies the requirements of 805 KAR 1:030 to the best of my knowledge and belief."
SURFACE
23 - XX - 88 1175 XXX 950 XXX
1ST TARGET
23 - XX - 88 125 XXX 715 XXX
FINAL TARGET
18 - XX - 88 365 XXX 600 XXX
Company XXXXX
Address XXXXX
Farm XXXXX
Tract _____ Acres XXXXX Lease No. XXXXX
Well (Farm) No. XXXDIR Serial No. XXXXX
Elevation (Trig.) XXXX.XX
Quadrangle XXXX
County XXXXX District _____
Engineer XXXXX
Engineer's Registration No. XXXX
File No. _____ Drawing No. XXXX - XXX - X
Date 05-26-95 Scale 1" = 400'
STATE OF KENTUCKY
DEPARTMENT OF MINES
OIL AND GAS DIVISION
LEXINGTON
WELL LOCATION MAP
FILE NO. _____
+ Denotes location of well on United States Topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.
– Denotes one inch spaces on border line of original tracing.


XXXXX EXPLORATION CO.
Structure : SEC. XX.X.XX
Well : 8XXX DIR, X COMPANY
Field : X COUNTY
Location : KENTUCKY
WELL PROFILE DATA
Point MD Inc Dir TVD North East Deg/100
Tie on 0 0.00 349.00 0 0 0 0.00
KOP 650 0.00 349.00 650 0 0 0.00
End of Build 1410 22.79 349.00 1390 146 -28 3.00
Target 3735 22.79 349.00 3534 1031 -200 0.00
End of Hold 4999 22.79 349.00 4699 1511 -294 0.00
Coal 148'-156'
9 5/8 Casing
Kick off Point
Lee Fm.
End of Build
7 Casing
Pennington Fm.
Little Lime
Big Lime
Borden Fm.
Sunbury Sh.
Berea Ss.
Devonian Sh.
L. Huron Top
L. Huron Base
Total Depth
Scale 1 : 80.00
<-- True Vertical Depth
Scale 1 : 40.00 <-- West
Scale 1 : 40.00
<-- North
RECEIVED
JUN 2 1995
DEPT. OF MINES AND MINERALS
DIVISION OF OIL AND GAS
XXXXX
DRAWN BY: X
DATE: April 24, 1995
TVD REFERENCED: WELLHEAD
PHONE: X
APPROVAL
CUSTOMER
ENGINEER
COORD.
Scale 1 : 80.00
Vertical Section on 349.00 azimuth with reference 0.00 N, 0.00 E from SLOT #1

BEST MANAGEMENT PRACTICES

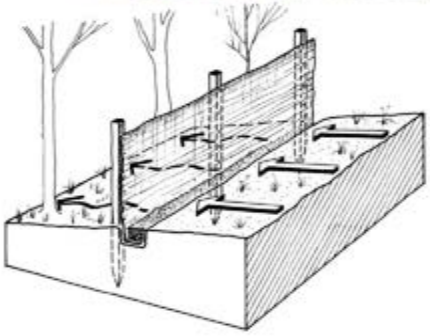
Well Access Road BMP's

Access road with erosion control matting, silt fence and logs riprap

Well Site BMP's

BEST MANAGEMENT PRACTICES (continued)

Silt Fence – Silt fence is an erosion and sediment-trapping feature utilizing a geo-textile fabric, incorporating topography and sometimes vegetation to cause sediment deposition.



Composite filter sock

Scarification is accomplished driving a dozer or other tracked vehicle perpendicular to the slope. Roughening also produces a soil surface more suitable for the growth of vegetation because it will hold the seed and retain moisture.

BEST MANAGEMENT PRACTICES (continued)

Culverts are installed for surface water runoff management from ditches and under roads at natural drainage or stream crossings.

Stream-crossing culvert

Well access road culverts

BEST MANAGEMENT PRACTICES (continued)

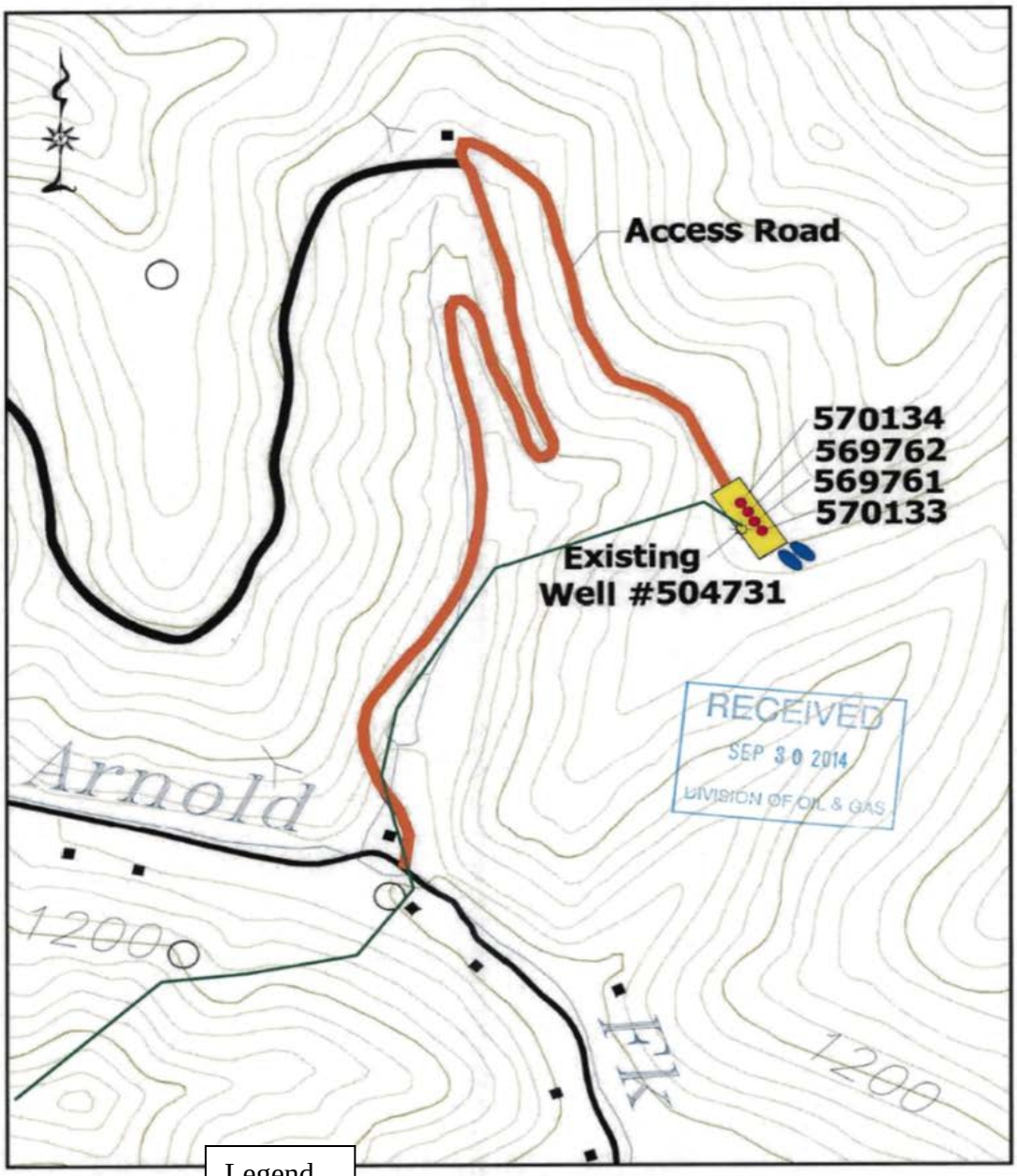
Composite filter sock to prevent sedimentation on cemetery downslope of wellsite

Rock check dams with hay bales in drainage diversion ditch along access road

RECOMMENDED HERBACEOUS MIXTURES FOR REVEGETATION	
Note: A species enclosed in parentheses may be substituted for the species to the left. Its seeding rate is enclosed in parentheses.	
Species Mixture	Seeding Rate (Pounds/acre PLS)
Spring - February 15 to May 15	
1. Orchardgrass	10
White or Ladino clover	2
Red clover	6
2. Orchardgrass	10
White or Ladino clover	1
Red clover	4
Kobe lespedeza	10
3. Orchardgrass	10
Birdsfoot trefoil (Alfalfa)	8 (15)
Red clover	6
4. 31 Tall fescue	20
5. Wheat (Spring oats)	25 (32)
Switchgrass	10
Indiangrass	10
Big bluestem	5
Little bluestem	5
Birdsfoot trefoil	6
Except for mixture 5, add one (1) of the following quick cover species to the selected permanent spring seeding mixture:	
Wheat (before April 15)	30
Spring oats (before April 15)	32
Balbo rye (before April 15)	30

RECOMMENDED HERBACEOUS MIXTURES FOR REVEGETATION (Continued)	
Perennial ryegrass	10
Annual ryegrass	5
Weeping lovegrass (after April 1)	2
Summer - May 15 to August 1	
Orchardgrass	10
Kobe lespedeza	15
Red clover	4
White clover (Birdsfoot trefoil)	1 (6)
Alfalfa	12
Add one (1) of the following quick cover species to the permanent summer seeding mixture:	
Sorghum	20
Foxtail (German) millet	12
Japanese millet	15
Soybeans	40
Cowpeas	40
Pearl millet	10
31 Tall fescue	20
Fall - August 1 to October 1	
1. Orchardgrass	10
White or Ladino clover	2
Red clover	6
2. Orchardgrass	10
Alfalfa (Birdsfoot trefoil)	15 (8)
Red clover	6
3. 31 Tall fescue	20
4. Deertongue	12
Birdsfoot trefoil	8
Red clover	6
Add one (1) of the following quick cover species to the selected permanent fall seeding mixture:	
Winter wheat	30
Balbo rye or Winter rye	30
Winter oats	32
Perennial ryegrass	10
Annual ryegrass	5
Mixtures for Wet or Poorly Drained Areas and Pond Borders	
Spring - February 15 to May 15	
Japanese millet	10
Redtop (Reed canarygrass)	3 (15)
Alsike clover	4
31 Tall fescue	20
Common annual lespedeza (quick cover species)	10
Fall - August 1 to October 1	
Redtop	3
Reed canarygrass	15
Alsike clover	6
31 Tall fescue	20
Common annual lespedeza (quick cover species)	10
Mixture for Areas to be Stocked With Woody Plants	
Spring or Fall Seeding	
Redtop	3
Perennial ryegrass	5
Birdsfoot trefoil (Appalow lespedeza)	10 (20)
Foxtail millet (quick cover species)	5
If both Appalow lespedeza and birdsfoot trefoil are used, cut their seeding rates in half.	

Operations and Reclamation Plan Map
Attached to ED-10



Legend

Stream:	Existing Pipeline
Road:	Proposed Pipeline
Existing Fence:	Spring:
Planned Fences:	Drain Pipe: 12
Open Ditch:	Waterway:
Rock:	Cross Drain:
North:	Artificial Filter Strip:
Buildings:	Pit–Cut Walls:
Water Wells: W	Pit–Compacted Fill Walls:
Tank: T	Area for Land Application of
Drill Site:	Pit Waste:
Surface Line	Storage Facilities: S

STATE OF KENTUCKY
DEPARTMENT OF MINES
OIL AND GAS DIVISION
Frankfort
WELL SITE RECLAMATION PLAN

[redacted]

WELL NO. 570134

QUADRANGLE Dorton County Pike

DATE 7/11/2014 SCALE 1" = 400'

LISTING OF APPROVED LANDFILLS IN KENTUCKY

Barren County
City of Glasgow
126 East Public Square
P O Box 278
Glasgow, KY 42124-2078
(502) 651-3338 (Office)
(502) 678-4302 (Landfill)

Boone County
Bavarian Trucking Company
4837 Madison Pike
Independence, KY 41051
(606) 485-4416 (Off & Landfill)

Boyd County
Cooksey Brothers Disposal Co, Inc
15400 Ellington Run
Ashland, KY 41102
(606) 928-9633 (Off & Landfill)

Daviess County
212 Saint Ann Street
Room 202
Owensboro, KY 42303
(502) 685-8424 (Office)
(502) 229-4484 (Landfill)

Estill County
Waste Management of KY, LLC
7501 Grade Lane
Louisville, KY 40219-3440
(502) 969-2355 (Office)
(502) 723-5552 (Landfill)

Franklin County
Browning Ferris Ind. Of KY, Inc
2157 Highway 151
Frankfort, KY 40601
(502) 227-7336 (Office)
(502) 227-7257 (Landfill)

Grant County
Epperson Waste Disposal
P O Box 117
Williamstown, KY 41097
(606) 969-2355 (Office)
(606) 223-3824 (Landfill)
(606) 928-0239 (Landfill)

Graves County
Jones Sanitation, Inc
P O Box 26
Hickman, KY 42050
(502) 247-9023 (Office)

Greenup County
Green Valley Environmental Group
2343 Alexandria Drive, Suite 400
Lexington, KY 40504
(606) 223-3824 (Office)

Jefferson County
Waste Management of KY, LLC
7501 Grade Lane
Louisville, KY 42019-3440
(502) 969-2355 (Office)
(502) 966-0272 (Landfill)

Laurel County
Laurel Ridge Landfill, Inc
P O Box 1364
Corbin, KY 40702
(606) 864-4391 (Off & Landfill)

Lincoln County
Tri K Landfill, Inc
P O Box 435
1905 Highway 3249
Stanford, KY 40484
(606) 365-7806 (Off & Landfill)

Logan County
Southern Sanitation Co.
P O Box 537
Russellville, KY 42276-0537
(502) 726-9016 (Off & Landfill)

Marshall County
LWD Sanitary Landfill
P O Box 327
Calvert City, KY 42029-0327
(502) 395-8313 (Off & Landfill)

Montgomery County
Rumpke of Kentucky, Inc
10795 Hughes Road
Cincinnati, OH 45251
(513) 851-0122 (Office)
(606) 498-6798 (Landfill)

Nelson County
Nelson County Fiscal Court
1025 Airport Road
Bardstown, KY 40004
(502) 348-1800 (Office)
(502) 348-1877 (Landfill)

Ohio County
Ohio County Fiscal Court
Courthouse
P O Box 146
Hartford, KY 42347-0146
(502) 298-4400 (Office)
(502) 298-7501 (Landfill)

Pendleton County
Rumpke of Kentucky, Inc
10795 Hughes Road
Cincinnati, OH 45251
(513) 851-0122 (Office)
(606) 472-7011 (Landfill)

Pike County
Pike County Fiscal Court
P O Box 1229
Pikeville, KY 41501
(606) 353-7304 (Office)

Rowan County
Local Sanitation Services, Inc
P O Box 484
Morehead, KY 40351-0484
(606) 784-6544 (Off. & Landfill)

Spencer County
Williams Landfill, Inc
Route 3, Box 229 Kings Church
Taylorsville, KY 40071
(502) 239-6038 (Office)
(502) 239-2117 (Landfill)

Trimble County
Laidlaw Waste Systems, Inc
9001 Airport Freeway
Suite 500
N Richland Hills, TX 76180
(817) 485-9629 (Office)
(502) 743-5436 (Landfill)

Union County
Addington Environmental, Inc
771 Corporate Drive
Suite 1000
Lexington KY 40503
(606) 223-3284 (Office)
(502) 822-4289 (Landfill)

Whitley County
Tri-County Sanitary Landfill, Inc
Route 8
P O Box 245-A
Corbin, KY 40701
(502) 528-8608 (Landfill)

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Department for Natural Resources
Division of Oil and Gas
KRS 353.660 (2)

Upon request by the department, any person to whom a permit is issued shall save for the Kentucky Geological Survey samples of all cuttings from the well drilled or deepened pursuant to the permit for a period of ninety (90) days after completion thereof.

GUIDELINES FOR OIL AND GAS OPERATORS SUBMITTING WELL SAMPLES TO KGS

Rev. 11/01/12

To ensure that credit is received for submitting requested well samples, please follow these instructions carefully.

1. For greater efficiency the Kentucky Geological Survey only requires the following information to be filled out on each tag of each sample bag:

   a. **In the space designated COMPANY: _____Write the PERMIT NO. _____**

   b. **Fill out the DEPTH: FROM _____ TO _____**

SAMPLE BAG TAGS

INSTRUCTIONS	***EXAMPLE***
COMPANY: (Write *Permit No. Here*)	COMPANY: *#109636*
LEASE NAME: (*Leave Blank*)	LEASE NAME:
WELL NO: (*Leave Blank*)	WELL NO:
SEC *(Leave Blank)* TWP *(Leave Blank)* RGE *(Leave Blank)*	SEC _____ TWP _____ RGE _____
DEPTH: FROM *(Fill Out)* TO *(Fill Out)*	DEPTH: FROM *2520* TO *2530*

2. All written information must be legible, and in permanent ink or ballpoint pen. Information written with felt-tip pen or pencil is easily washed off, making it impossible to identify samples.

3. As an extra precaution, place a copy of the drilling permit in the container with the sample set. If samples are not properly identified, no credit can be given to your company.

4. Samples should be complete for each well requested, with continuous samples from surface to total depth in 10 foot intervals.

5. Place the samples in feed sacks, burlap bags, plastic buckets or a strong cardboard box.

6. Do not put sample sets in plastic trash bags; these causes the sample bags to rot and split open, making the samples useless.

7. Do not overfill the sample containers with sample bags. This makes them difficult to handle and poses a risk of injury.

8. Individual sample bags should be completely filled and tied into manageable bundles of 10 bags each.

9. Please do not tie knots in the strings of the individual sample bags.

10. Samples may be mailed to or dropped off at the Kentucky Geological Survey's Well Sample and Core Library in Lexington or dropped off at any of the designated collection stations located throughout the state.

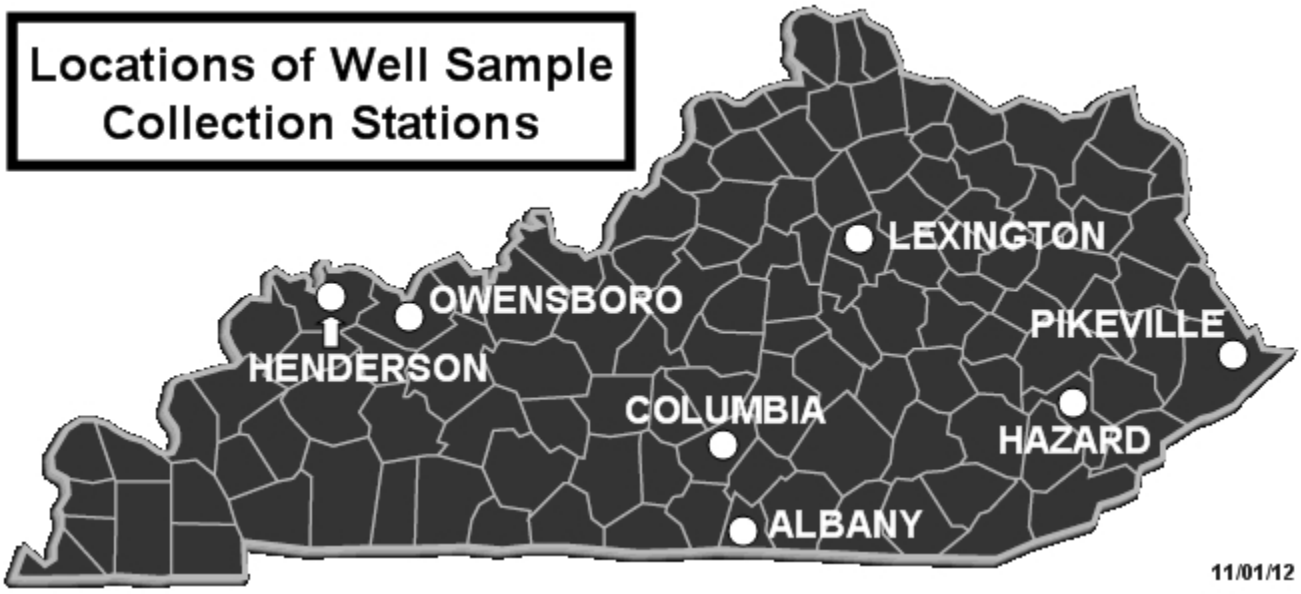
If you have any questions concerning these instructions or about the locations of sample collection stations, please contact the

KENTUCKY GEOLOGICAL SURVEY
Well Sample and Core Library
Phone (859) 389-8810 Fax (859) 389-8716

Drill Samples - Generation and Storage

The Kentucky Geological Survey's Well Sample Library maintains catalogues of drill cuttings of wells strategically located throughout Kentucky. If the samples are requested by the Survey, the well permit will be stamped accordingly. The operator shall deposit the samples at the nearest collection facility provided by the Survey.

Statute-KRS 353.660



Listing of Well Sample Collection Stations

LEXINGTON
Kentucky Geological Survey
Well Sample & Core Library
2500 Research Park Drive
(859) 389-8810

PIKEVILLE
Office of Mine Safety & Licensing
284 Weddington Branch Rd.
Pikeville, KY 41501
(Impoundment Area)
606-433-7742

HAZARD
Office of Mine Safety & Licensing
556 Village Lane
Hazard, KY 41701
(Impoundment Area)
(606) 435-6079

HENDERSON
Ken's Pump & Supply Co.
1531 South Green Street
(270) 827-1872

OWENSBORO
Owensboro Supply Co.
731 East 18th Street
(270) 683-8318

ALBANY
BWI Pipe and Supply
616 South Columbia St.
(606) 387-6411

COLUMBIA
Petty's Supply
5824 Burkesville Road
(502) 378-6175

Example Of A Danger Sign Required in 805 KAR1:160

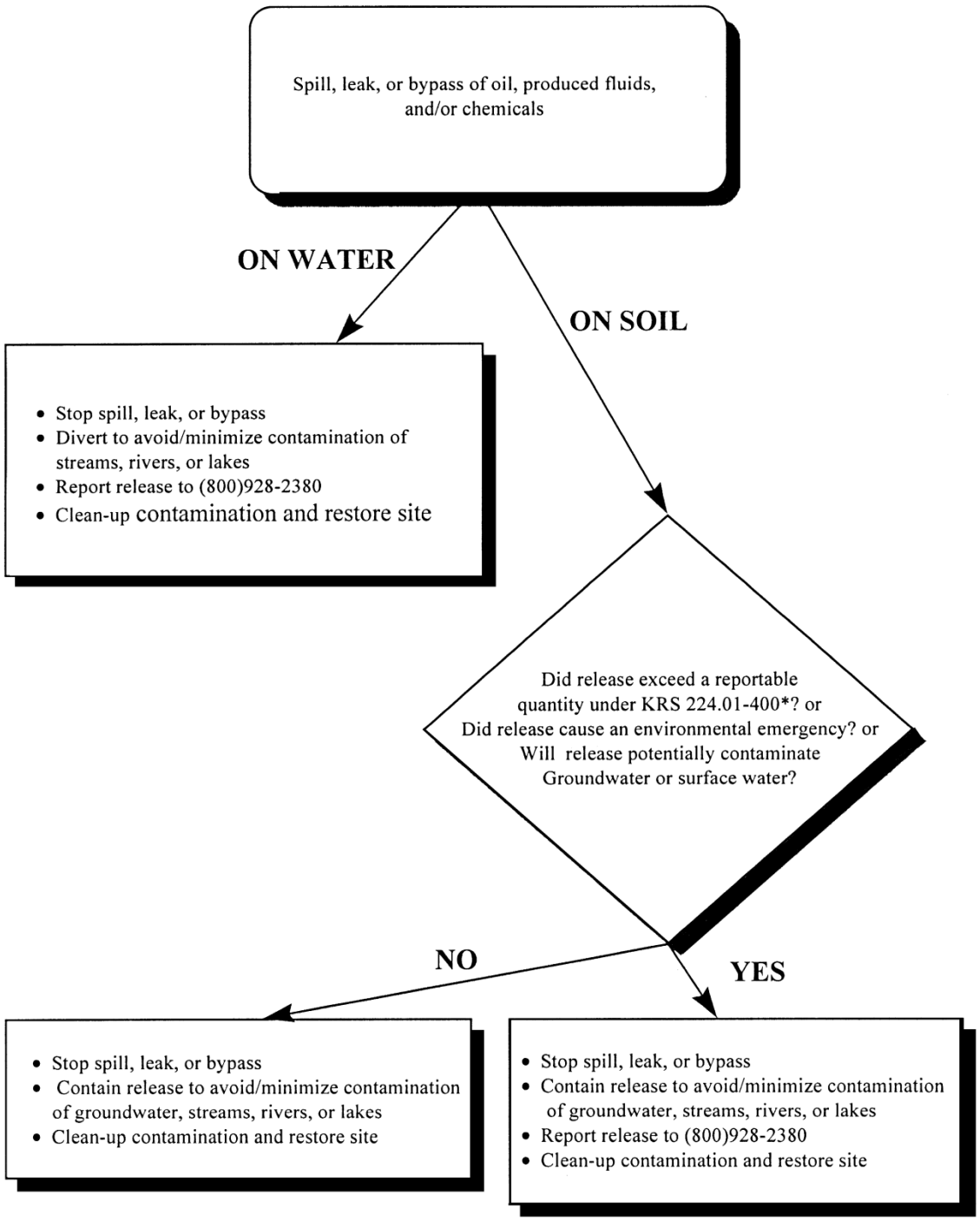
An operator shall prepare or have a safety sign printed similar to the one shown below and with the following dimensions.

1. The sign shall be approximately 17"x 28" inches.
2. The word **DANGER** shall have letters approximately 3 to 4 inches in height.
3. The NFPA numbers shall have a height of approximately ½ to 1 inch.
4. The words "PETROLEUM CRUDE OIL", "EXTREMELY FLAMMABLE LIQUID AND VAPOR", "MAY CAUSE FLASH FIRES" and "NO TRESPASSING" shall have letters approximately ½ to 1 inch in height.
5. The words "NO SMOKING AND OPEN FLAME" shall have letters approximately 1 to 1 ½ inches in height. A no smoking symbol with a cigarette in a circle with a cross through shall be on each side of the words "NO SMOKING AND OPEN FLAME".

The following coloration shall be required:

1. The NFPA number one (1) shall be colored black and be in a blue square and the number three (3) shall be colored black and be in a red square and the number zero (0) shall be colored black and be in a yellow square.
2. The NFPA number instead of being in a colored square may be the color of the square in the same respective position as it's square.
3. The background color of white works well with NFPA colors and numbers.
4. The background color shall contrast with all the foreground letters and numbers to enable them to be clearly seen.

The following is an example of the sign:



* The reportable quantity for oil (including lubricants and other petroleum products) is 25 gallons, except for diesel fuel the reportable quantity is 75 gallons

DIVISION OF OIL AND GAS
Common Cited Violations

KRS 353.150-Failure of operator to not close well within a reasonable time not exceeding three (3) months after well completion to prevent escape of oil, gas or salt water from wellhead.

KRS 353.160-Failure to prevent escape of gas when it is apparent waste could have been prevented, operator usually cited due to negligence. In the case of gas being vented or flared to produce oil, the operator shall make a "good faith" effort to conserve as much gas as reasonably possible.

KRS 353.180-Pull Pipe without Plugging Well. Operator shall plug well if casing is removed from an oil or gas well.

KRS 353.205-Failure to Report Oil and/or Gas Production. Operator shall supply Division of Oil and Gas with annual production by April 15, for previous year's production.

KRS 353.500-Failure to Conduct Operations Safely. Operator shall produce wells in a safe manner to prevent damage to property, employees and general public.

KRS 353.520 Section 2-D and 805 KAR 1:020-Failure to protect freshwater zones and/or mineable coal seams by not properly cementing casing to surface.

KRS 353.550-Improperly Abandoned. Wells shall be in production or are considered Improperly Abandoned. Gas wells shut-in due to market conditions are not included.

KRS 353.560 (3)-Operating a Vacuum without a Permit. Operator shall file permit to use vacuum on reservoir to enhance oil production.

KRS 353.570-Drilling Without a Permit. Wells drilled, deepened or re-opened for the production of natural gas, crude oil or for water injection into a formation to enhance production requires operator to obtain a well permit.

KRS 353.590-Operating without Proper Bonding. Operator shall post blanket or individual bond on well before drilling or acquiring well from another operator.

KRS 353.590 (6)-Failure to Transfer Well to Successor Operator. Bonded operator shall file Well Transfer forms with Division of Oil and Gas to transfer well to another operator.

KRS 353.5901-Failure to Reclaim Well Site. Well access roads and wellsites shall be reclaimed in accordance with "Operations and Reclamation Plan."

KRS 353.610-Improper Spacing of Well. Proposed wells shall adhere to spacing from existing wells and property lines. See "Shallow and Deep Well" spacing requirements in manual.

KRS 353.651-Drilling Deeper than 6,000 Ft.-Below 6,000 ft. is considered "Deep" well, with exception to area where Devonian Shale productive interval exceeds 6,000 ft. Deep wells shall conform to deep well spacing.

KRS 353.656-Failure to Post "DANGER" Signs. Operator shall post Danger signs on prominent location on all oil storage tank batteries and facilities.

KRS 353.660-Failure to File Well Records-Operator shall file "Well Log and Completion Report" and electric logs with the Division of Oil and Gas within 90 days after drilling. If well is plugged, a "Plugging Affidavit" is also required.

DIVISION OF WATER
Common Cited Violations

401 KAR 5:015-Failure to report a spill/bypass, such as an unreported oil spill, spill of produced water, and spill from a drilling pit.

KRS 224.01-400-Failure to report and cleanup any spill that creates an environmental emergency. Improper or inadequate cleanup of a spill would result in remedial action taken to restore the environment.

401 KAR 5:031-An event where the waters of the Commonwealth have incurred degradation. For example, the spill or release of crude oil, brine (produced water) or drilling fluids to a stream.

401 KAR 5:055-Failure to obtain a Kentucky Discharge Elimination System (KPDES) permit before discharging produced water or drilling fluids.

401 KAR 5:065-Failure to comply with the KPDES permit or program requirements and standards. Example: analysis of the discharge shows non-compliance with the KPDES permit's conditions or failing to submit Discharge Monitoring Report (DMR) forms. Also, in cases where a discharge violates water quality standards.

401 KAR 5:090, Section 4-Failure to register an oil/gas facility within sixty (60) days after production begins. Failure to post a sign identifying the facility's registration number, operator's name, address, phone number and if applicable, the KPDES permit number. Failure to notify the Division of Water of a change in owner/operatorship of the facility and/or changes in the method of storing and disposing of the produced water.

401 KAR 5:090, Section 13-Failure to implement and/or maintain an adequate Spill Prevention and Countermeasure (SPCC) plan. For example, a tank battery without a dike or berm around it and it not having the capability to retain volume of the largest tank within that battery.

401 KAR 5:090, Section 10-Unauthorized use of a pit. For example, a drilling pit being used as a holding pit without obtaining a construction and operational permit for this use.

401 KAR 5:090 Section 6-Failure to obtain approval from the Director of the Division of Water to transport produced water off site prior to doing so.

401 KAR 5:090 Section 5-Failure to dispose of produced water under an approved method, so that water quality standards are not violated.

KRS 151.250 and 401 KAR 4:060-Activities cited are: placement of fill material in the 100-year floodplain, the construction of a bridge, installation of a culvert, or a stream alteration without a permit.

DIVISION OF WASTE MANAGEMENT
Common Cited Violations

401 KAR 30:031- Violation of environmental performance standards.

401 KAR 32:010 - Failure to determine if a waste the operation generates is a hazard waste.

KRS 224.01-400(1) THROUGH (11)- Failure to report releases above a reportable quantity.

KRS 224.01-400(18)- Failure to remediate all releases, even those that are below a reportable quantity.

KRS 224.01-405- Failure to perform appropriate corrective action in response to a petroleum release.

KRS 224.40-100(1)- Failure to transport to or dispose of waste at any site or facility other than one for which a permit for waste disposal has been issued by the Division of Waste Management.

KRS 224.40-100(2)- Using or creating an open dump.

KRS 224.40-305- Establishing, constructing, operating, maintaining, or permitting the use of a waste site or facility without a permit.

Kentucky Energy & Environment Cabinet
Department for Natural Resources

Office of the Commissioner
Allen Luttrell, Commissioner
2 Hudson Hollow
Frankfort, KY 40601
502-564-6940 Phone
502-564-5698 Fax

Division of Oil & Gas
Kimberly Collings, Director
Marvin Combs, Assistant Director
1025 Capital Center Drive
Frankfort, KY 40601
502-573-0147 Phone
502-573-1099 Fax

Division of Mine Reclamation & Enforcement
Wes Jones, Director
2 Hudson Hollow
Frankfort, KY 40601
502-564-2340 Phone
502-564-5848 Fax

Division of Conservation
Kim Richardson, Director
375 Versailles Road
Frankfort, KY 40601
502-573-3080 Phone
502-573-1692 Fax

Division of Mine Permits
John Mark Clements, Director
2 Hudson Hollow
Frankfort, KY 40601
502-564-2320 Phone
502-564-6764 Fax

Division of Forestry
Steve Kull, Asst. Director
627 Comanche Trail
Frankfort, KY 40601
502-564-4496 Phone
502-564-6553 Fax

Division of Abandoned Mine Lands
Bob Scott, Director
2521 Lawrenceburg Road
Frankfort, KY 40601
502-564-2141 Phone
502-564-6544 Fax

Division of Mine Safety
Frank Reed, Director
1025 Capital Center Drive
Frankfort, KY 40601
502-573-0140 Phone
502-573-0152 Fax

LIST OF MATERIALS FOR PLASTIC SERVICE LINE

REQUIRED BY APPLICANT FOR GAS SERVICE UNDER KRS 278.485

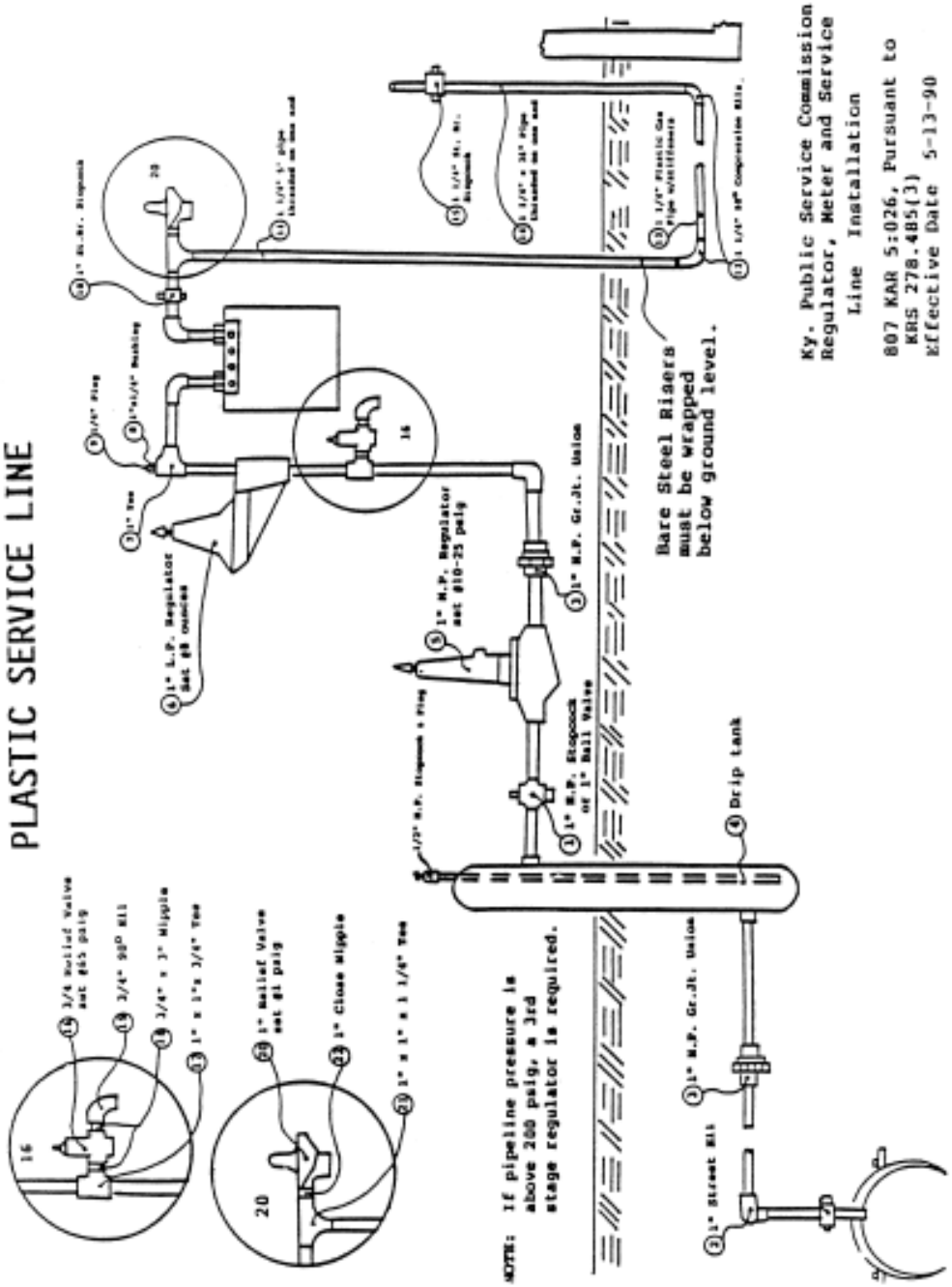
Item	Description
1.	1 – 1" heavy brass stopcock, or 1" ball valve
2.	1 – 1" street ell, heavy black steel
3.	2 – 1" ground joint union, heavy black steel
4.	Drip tank, minimum test pressure 600 psig, includes ½" stopcock and plug
5.	1" medium pressure regulator, spring type, 200 psig inlet to 10-25 psig outlet, minimum working pressure 600 psig, internal relief capabilities optional
6.	1 " low pressure regulator, spring type, 10-25 psig inlet to 8 oz. outlet, minimum working pressure 100 psig, must be equipped with automatic cutoff and manual reset, internal relief capabilities optional
7.	1 – 1" tee, black steel
8.	1 – 1" x ¼" bushing, black steel
9.	1 – ¼" plug, black steel
10.	1 – 1" standard brass stopcock
11.	1 – 1¼" x 5' pipe threaded on one end, new black steel
12.	2 – 1¼" 90° compression ells
13.	1¼" approved plastic gas pipe with tracer wire
14.	1¼" x 36" steel pipe, threaded on both ends
15	1 – 1¼" standard brass stopcock

Other parts needed for assembly

6 – 1" x 3" nipples, heavy black steel
5 – 1" x 6" nipples, heavy black steel
2 – 1" x 12" nipples, heavy black steel
2 – 1" x 2" nipples, heavy black steel
4 – 1" 90° ells, heavy black steel

Relief Valve Assembly List if Regulators
Are Not Equipped With Internal Relief Capabilities

16.	¾" pressure relief valve, spring loaded, set to relieve at 65 psig
17.	1 – 1" x ¾" tee, heavy black steel
18.	2 – ¾" x 3" nipple, heavy black steel
19.	1 – ¾" 90° ell, heavy black steel with bug screen
20.	1" pressure relief valve, spring loaded with screened vent, set to relieve at 1 psig
21.	1 – 1" x 1" x 1¼" tee, black steel
22.	1 – 1" close nipple, heavy black steel


PLASTIC SERVICE LINE
Ky. Public Service Commission
Regulator, Meter and Service
Line Installation
807 KAR 5:026, Pursuant to
KRS 278.485(3)
Effective Date 5-13-90
Bare Steel Risers
must be wrapped
below ground level.
Drip tank
NOTE: If pipeline pressure is
above 200 psig, a 3rd
stage regulator is required.

LIST OF MATERIALS FOR COATED STEEL SERVICE LINE

REQUIRED BY APPLICANT FOR GAS SERVICE UNDER KRS 278.485

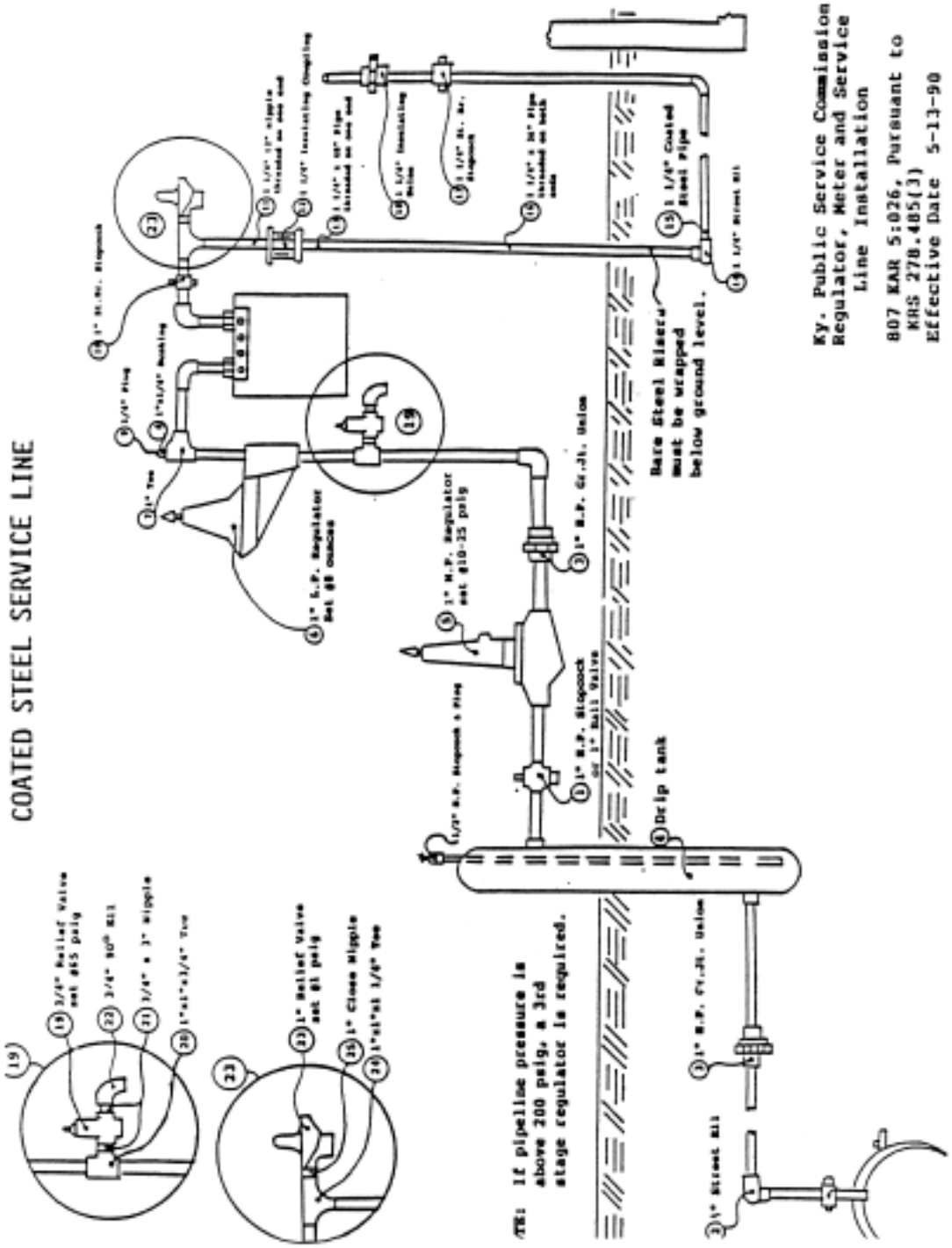
Item	Description
1.	1 – 1" heavy brass stopcock, or 1" ball valve
2.	1 – 1" street ell, heavy black steel
3.	2 – 1" ground joint union, heavy black steel
4.	Drip tank, minimum test pressure 600 psig, includes 1/2" stopcock and plug
5.	1" medium pressure regulator, spring type, 200 psig inlet to 10-25 psig outlet, minimum working pressure 600 psig, internal relief capabilities optional
6.	1" low pressure regulator, spring type, 10-25 psig inlet to 8 oz. Outlet, minimum working pressure 100 psig, must be equipped with automatic cutoff and manual reset, internal relief capabilities optional
7.	1 – 1" tee, black steel
8.	1 – 1" x ¼" bushing, black steel
9.	1 – ¼" plug, black steel
10.	1 – 1" standard brass stopcock
11.	1 – 1¼" x 12"nipple, threaded on one end, new black steel
12.	1 – 1¼" insulating coupling
13.	1 – 1¼" x 40" pipe, threaded on one end, new black steel
14.	1 – 1¼" street ell, black steel
15.	1¼" coated steel pipe
16.	1¼" x 36" steel pipe, threaded on both ends
17.	1 – 1¼" standard brass stopcock
18.	1 – 1¼" standard ground joint insulating union, black steel

Other parts needed for assembly

6 – 1" x 3" nipples, heavy black steel
5 – 1" x 6" nipples, heavy black steel
2 – 1" x 12" nipples, heavy black steel
2 – 1" x 2" nipples, heavy black steel
4 – 1" 90° ells, heavy black steel
2 – 1¼" 90° ell, black steel

Relief Valve Assembly List if Regulators
Are Not Equipped With Internal Relief Capabilities

19.	¼" pressure relief valve, spring loaded, set to relieve at 65 psig
20.	1 – 1" x 1" x ¾" tee, heavy black steel
21.	2 – ¾" x 3" nipple, heavy black steel
22.	1 – ¾" 90° ell, heavy black steel with bug screen
23.	1" pressure relief valve, spring loaded with screened vent, set to relieve at 1 psig
24.	1 – 1" x 1" x 1¼" tee, black steel
25.	1 – 1" close nipple, heavy black steel


COATED STEEL SERVICE LINE
Ky. Public Service Commission
Regulator, Meter and Service
Line Installation
807 KAR 5:026, Pursuant to
KRS 278.485(3)
Effective Date 5-13-90
Bare Steel Risers must be wrapped below ground level.
Drip tank
If pipeline pressure is above 200 psig, a 3rd stage regulator is required.

APPENDIX B

Division of Oil & Gas Forms

Division of Water Forms

Fire Marshal's Office Forms

Office of Mine Safety & Licensing Form

COMMONWEALTH OF KENTUCKY

DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40602
PHONE: (502) 573-0147

FOR OFFICE USE ONLY
RECORD NO: _____
FEE: _____
BOND: _____
PLAT: _____
FWD: _____
SAMPLES: _____
PERMIT NO: _____
RESTRICTED AREA: _____

APPLICATION FOR PERMIT

TYPE OR PRINT

1. TO DRILL ☐ , DEEPEN ☐ , _____ (PREVIOUS PERMIT NO.) , REOPEN ☐ _____ (PREVIOUS PERMIT NO.) , A WELL

2. WELL OPERATOR (APPLICANT) _____ (MUST BE IDENTICAL TO NAME ON BOND)

3. PERMANENT ADDRESS _____ (STREET) _____ (CITY)
_____ (STATE) _____ (ZIP) E-MAIL _____ PHONE _____

4. ADDRESS FOR MAILING PERMIT _____

5. MINERAL OWNER (LESSOR) _____
(ATTACH ADDITIONAL SHEETS AS NEEDED - ELECTRONIC VERSION, SEE PAGE 3)
ADDRESS _____
ZIP _____ PHONE _____ E-MAIL ADDRESS _____
COUNTY _____ WELL NUMBER _____ LEASE EXPIRATION DATE _____

6. CARTER COORDINATES _____ ☐ FNL _____ ☐ FEL _____ ☐ FSL _____ ☐ FWL SEC _____ LETTER _____ NUMBER _____

7. ELEVATION BEFORE GRADING _____ ELEVATION AFTER GRADING IF DIFFERENT _____
ELEVATION CHANGES MUST BE FILED WITH THIS OFFICE PRIOR TO PLUGGING THE WELL.

8. NAME OF DEEPEST GEOLOGIC FORMATION TO BE TESTED _____ max depth to permit _____

9. THIS PROPOSED WELL IS TO BE DRILLED FOR THE FOLLOWING PURPOSE

A. OIL - PRIMARY ☐	D. WATER SUPPLY ☐	G. SALT WATER DISPOSAL ☐
B. GAS - PRIMARY ☐	E. ENHANCED RECOVERY INJECTION ☐	H. STRATIGRAPHIC TEST ☐
C. GAS STORAGE ☐	F. ENHANCED RECOVERY PRODUCTION ☐	I. OBSERVATION ☐

10. A. IS THIS WELL TO BE COMPLETED IN A RESERVOIR WHICH HAD INJECTION WELLS IN EXISTENCE PRIOR TO THE EFFECTIVE DATE OF 805 KAR 1:110. YES ☐ NO ☐

B. THE OPERATOR OF A PROPOSED INJECTION WELL MUST OBTAIN A PERMIT TO DRILL (THIS APPLICATION) AND A SEPARATE PERMIT TO INJECT. THE PERMIT TO INJECT SHALL SATISFY THE REQUIREMENTS OF 805 KAR 1:110.

11. WILL THIS WELL PENETRATE COAL BEARING STRATA? YES ☐ NO ☐ IF YES, COMPLETE BOX BELOW.

12. IS THE COAL OWNED, OPERATED OR LEASED BY ANY PERSON OTHER THAN THE OIL OR GAS LESSEE OR LESSOR?
YES ☐ NO ☐
COAL OWNER AND ADDRESS: _____
THE UNDERSIGNED APPLICANT HAS SENT A COPY OF THIS APPLICATION AND THE WELL LOCATION PLAT BY REGISTERED OR CERTIFIED MAIL TO ALL COAL OWNERS AND OPERATORS NAMED HEREIN ON THE SAME DATE THAT THIS APPLICATION WAS MAILED TO THE DEPARTMENT.

13. WILL THIS WELL BE DRILLED WITHIN THE AREA OF A GAS STORAGE FIELD AS DEFINED BY THE DIVISION OF GAS AND OIL REGULATION 805 KAR 1:080? YES ☐ NO ☐
GAS STORAGE FIELD OWNER AND ADDRESS: _____
THE UNDERSIGNED APPLICANT HAS SENT A COPY OF THIS APPLICATION AND THE WELL LOCATION PLAT BY REGISTERED OR CERTIFIED MAIL TO ALL COAL OWNERS AND OPERATORS NAMED HEREIN ON THE SAME DATE THAT THIS APPLICATION WAS MAILED TO THE DEPARTMENT.

14. SURFACE OWNER _____
(IF DIFFERENT FROM MINERAL OWNER) (ATTACH ADDITIONAL SHEETS AS NEEDED - ELECTRONIC VERSION, SEE PAGE 4.)
ADDRESS _____
E-MAIL ADDRESS _____

15. SURFACE OWNERS NOTIFICATION OF INTENT TO DRILL.
METHOD OF NOTIFICATION: ☐ CERTIFIED MAIL (COPY OF LETTER AND RETURN RECEIPT ATTACHED)
☐ PERSONAL DELIVERY (DATE _____) (COPY OF NOTIFICATION ATTACHED)

16. DRILLING CONTRACTOR _____
ADDRESS _____
PHONE NUMBER _____ E-MAIL ADDRESS _____

17. U.S.G.S. QUADRANGLE _____ (NAME) _____ (MAP YEAR)

FORM ED-1 (REV. 6/04)

Continued on Page 2

18. IS THIS PROPOSED WELL LOCATED ON, OR WILL IT BE NECESSARY TO CROSS LAND WHICH IS CURRENTLY UNDER PERMIT OR BOND BY A COALOPERATOR AS REQUIRED BY KRS CHAPTER 350? _____ YES ☐ NO ☐

IS YES, LIST THE NAME AND ADDRESS OF CURRENT BONDED OPERATOR

HAS THE APPLICANT MET AND CONFERRED WITH, OR OFFERED TO MEET AND CONFER WITH THE BONDED OPERATOR? _____ YES ☐ NO ☐

19. IS THE PROPOSED WELL A POOLED OR UNITIZED WELL? _____ YES ☐ NO ☐

IF YES, BY WHAT AUTHORITY DOES THE APPLICANT HAVE TO POOL OR UNITIZED THIS PROPOSED WELL?

20. IS THE PROPOSED WELL A TWIN WELL TO AN EXISTING WELL OR WELLS? _____ YES ☐ NO ☐

IF YES, WHAT IS THE PERMIT NUMBER(S) FOR THE EXISTING WELL(S)? _____

WHAT IS THE PRODUCING FORMATION AND INTERVAL OF THE EXISTING WELL(S)?

DESCRIBE THE MEASURES TO BE TAKEN TO ENSURE THAT THE TWIN WELLS WILL NOT PRODUCE FROM THE SAME RESERVOIR.

21. IS THIS PROPOSED WELL A HORIZONTAL OR DEVIATED WELL? _____ YES ☐ NO ☐

IF YES, INDICATE THE LOCATION OF THE ENDPOINT OF THE WELLBORE BELOW.

CARTER COORDINATES _____ ☐ FNL _____ ☐ FEL _____ ☐ FSL _____ ☐ FWL SEC _____ LETTER _____ NUMBER _____

WHAT IS THE ESTIMATED TOTAL LENGTH OF THE WELLBORE? _____

22. IF A CORPORATION, INDICATE STATE OF INCORPORATION _____

IS CORPORATION REGISTERED WITH KENTUCKY SECRETARY OF STATE? _____ YES ☐ NO ☐

23. **THE UNDERSIGNED HEREBY SWEARS OR AFFIRMS THAT THE FOREGOING FACTS GIVEN IN THIS APPLICATION ARE TRUE AS THEREIN SET FORTH.**

DATED THIS _____ DAY OF _____ A.D. 20 ____

24. **THE APPLICANT ACKNOWLEDGES THAT OTHER LOCAL, STATE AND FEDERAL LAWS MAY APPLY TO A WELL DRILLED AT THIS LOCATION.**

25 **IF A CORPORATION, SIGNATORY MUST BE AN OFFICER OF THE COMPANY OR PROVIDE POWER OF ATTORNEY TO EXECUTE DOCUMENTS.**

IF A PRIVATE INDIVIDUAL, SIGNATORY MUST BE SAME OR PROVIDE POWER OF ATTORNEY TO EXECUTE DOCUMENTS.

_____
SIGNATURE OF APPLICANT TITLE

_____
PRINT OR TYPE NAME OF APPLICANT

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____ DAY OF _____ , 20_____

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

26. **ALL APPLICATIONS MUST BE NOTARIZED. FILE THIS APPLICATION ALONG WITH A PERMIT FEE OF $350.00 AND ONE (1) ORIGINAL AND TWO (2) COPIES OF THE WELL LOCATION PLAT. ALL BANKS MUST BE COMPLETED. INCOMPLETE APPLICATIONS WILL BE REJECTED.**

ALL PREVIOUS EDITIONS ARE OBSOLETE FORM ED-1 (REV. 2-99)

DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS

APPLICATION FOR PERMIT
(Attachment Page for Question #5)

5a. MINERAL OWNER (LESSOR)_____

ADDRESS_____ ZIP_____ PHONE_____

E-MAIL ADDRESS _____ LEASE EXPIRATION DATE _____

5b. MINERAL OWNER (LESSOR)_____

ADDRESS_____ ZIP_____ PHONE_____

E-MAIL ADDRESS _____ LEASE EXPIRATION DATE _____

5c. MINERAL OWNER (LESSOR)_____

ADDRESS_____ ZIP_____ PHONE_____

E-MAIL ADDRESS _____ LEASE EXPIRATION DATE _____

5d. MINERAL OWNER (LESSOR)_____

ADDRESS_____ ZIP_____ PHONE_____

E-MAIL ADDRESS _____ LEASE EXPIRATION DATE _____

5e. MINERAL OWNER (LESSOR)_____

ADDRESS_____ ZIP_____ PHONE_____

E-MAIL ADDRESS _____ LEASE EXPIRATION DATE _____

5f. MINERAL OWNER (LESSOR)_____

ADDRESS_____ ZIP_____ PHONE_____

E-MAIL ADDRESS _____ LEASE EXPIRATION DATE _____

5g. MINERAL OWNER (LESSOR)_____

ADDRESS_____ ZIP_____ PHONE_____

E-MAIL ADDRESS _____ LEASE EXPIRATION DATE _____

5h. MINERAL OWNER (LESSOR)_____

ADDRESS_____ ZIP_____ PHONE_____

E-MAIL ADDRESS _____ LEASE EXPIRATION DATE _____

5i. MINERAL OWNER (LESSOR)_____

ADDRESS_____ ZIP_____ PHONE_____

E-MAIL ADDRESS _____ LEASE EXPIRATION DATE _____

ED-1 Attachment Page

DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS

APPLICATION FOR PERMIT
(Attachment Page for Question #14)

14a. SURFACE OWNER_____
(IF DIFFERENT FROM MINERAL OWNER)
ADDRESS_____
E-MAIL ADDRESS_____

14b. SURFACE OWNER_____
(IF DIFFERENT FROM MINERAL OWNER)
ADDRESS_____
E-MAIL ADDRESS_____

14c. SURFACE OWNER_____
(IF DIFFERENT FROM MINERAL OWNER)
ADDRESS_____
E-MAIL ADDRESS_____

14d. SURFACE OWNER_____
(IF DIFFERENT FROM MINERAL OWNER)
ADDRESS_____
E-MAIL ADDRESS_____

14e. SURFACE OWNER_____
(IF DIFFERENT FROM MINERAL OWNER)
ADDRESS_____
E-MAIL ADDRESS_____

14f. SURFACE OWNER_____
(IF DIFFERENT FROM MINERAL OWNER)
ADDRESS_____
E-MAIL ADDRESS_____

14g. SURFACE OWNER_____
(IF DIFFERENT FROM MINERAL OWNER)
ADDRESS_____
E-MAIL ADDRESS_____

14h. SURFACE OWNER_____
(IF DIFFERENT FROM MINERAL OWNER)
ADDRESS_____
E-MAIL ADDRESS_____

14i. SURFACE OWNER_____
(IF DIFFERENT FROM MINERAL OWNER)
ADDRESS_____
E-MAIL ADDRESS_____

FORM ED-17 (Org. 11/12/97) (Rev. 2/99)

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40602 PHONE: (502) 573-0147

ANNUAL REPORT OF MONTHLY PRODUCTION FOR NATURAL GAS AND/OR CRUDE OIL

YEAR:

(NOTE: OPERATOR'S SIGNATURE IS REQUIRED ON THE BACKSIDE OF THIS FORM (ELECTRONIC COPY PAGE 2).)

OPERATOR NAME: ______________________________

ADDRESS: ______________________________

E-MAIL ADDRESS: ______________________________

REPORT GAS WELLS BY WELL; OIL WELLS BY WELL OR BY LEASE. IF REPORTING OIL PRODUTION BY LEASE, ATTACH A LIST CONTAINING THE PURCHASER NUMBER AND ALL PERTINENT NUMBERS. THE PURCHASER NUMBER IS ASSIGNED TO THE LEASE BY THE PURCHASER FOR PRODUCTION PAYMENT. THE REPORTING OF PRODUCED GAS IS OPTIONAL.

PERMIT #: __________ PURCHASER #: __________ IF BY LEASE, NUMBER OF WELLS: ______

FARM NAME: ______________________________ COUNTY: __________

PRODUCTION FORMATION(S): ______________________________

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN				☐	☐
FEB				☐	☐
MAR				☐	☐
APR				☐	☐
MAY				☐	☐
JUN				☐	☐
JUL				☐	☐
AUG				☐	☐
SEP				☐	☐
OCT				☐	☐
NOV				☐	☐
DEC				☐	☐
TOTAL					

PERMIT #: __________ PURCHASER #: __________ IF BY LEASE, NUMBER OF WELLS: ______

FARM NAME: ______________________________ COUNTY: __________

PRODUCTION FORMATION(S): ______________________________

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN				☐	☐
FEB				☐	☐
MAR				☐	☐
APR				☐	☐
MAY				☐	☐
JUN				☐	☐
JUL				☐	☐
AUG				☐	☐
SEP				☐	☐
OCT				☐	☐
NOV				☐	☐
DEC				☐	☐
TOTAL					

PERMIT #: __________ PURCHASER #: __________ IF BY LEASE, NUMBER OF WELLS: ______

FARM NAME: ______________________________ COUNTY: __________

PRODUCTION FORMATION(S): ______________________________

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN				☐	☐
FEB				☐	☐
MAR				☐	☐
APR				☐	☐
MAY				☐	☐
JUN				☐	☐
JUL				☐	☐
AUG				☐	☐
SEP				☐	☐
OCT				☐	☐
NOV				☐	☐
DEC				☐	☐
TOTAL					

PERMIT #: ______ PURCHASER #: ______ IF BY LEASE, NUMBER OF WELLS: ______

FARM NAME: ______ COUNTY: ______

PRODUCTION FORMATION(S): ______

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN				☐	☐
FEB				☐	☐
MAR				☐	☐
APR				☐	☐
MAY				☐	☐
JUN				☐	☐
JUL				☐	☐
AUG				☐	☐
SEP				☐	☐
OCT				☐	☐
NOV				☐	☐
DEC				☐	☐
TOTAL					

PERMIT #: ______ PURCHASER #: ______ IF BY LEASE, NUMBER OF WELLS: ______

FARM NAME: ______ COUNTY: ______

PRODUCTION FORMATION(S): ______

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN				☐	☐
FEB				☐	☐
MAR				☐	☐
APR				☐	☐
MAY				☐	☐
JUN				☐	☐
JUL				☐	☐
AUG				☐	☐
SEP				☐	☐
OCT				☐	☐
NOV				☐	☐
DEC				☐	☐
TOTAL					

PERMIT #: ______ PURCHASER #: ______ IF BY LEASE, NUMBER OF WELLS: ______

FARM NAME: ______ COUNTY: ______

PRODUCTION FORMATION(S): ______

	PRODUCED GAS (MCF)	NET SALES GAS (MCF)	NET SALES OIL (BBLS)	STATUS PR	STATUS SI
JAN				☐	☐
FEB				☐	☐
MAR				☐	☐
APR				☐	☐
MAY				☐	☐
JUN				☐	☐
JUL				☐	☐
AUG				☐	☐
SEP				☐	☐
OCT				☐	☐
NOV				☐	☐
DEC				☐	☐
TOTAL					

THE UNDERSIGNED HEREBY SWEARS OR AFFIRMS THAT THE FOREGOING INFORMATION GIVEN ON THIS REPORT IS TRUE AS HEREIN SET FORTH.

DATED THIS ______ DAY OF ______ , 20______ .

SIGNATURE OF OPERATOR ______ TITLE ______

PRINT OR TYPE SIGNATURE ______

FORM ED-17 9REV. 2-99)

INSTRUCTIONS FOR COMPLETING "THE ANNUAL REPORT OF MONTHLY PRODUCTION"

OPERATORS MUST **DATE** AND **SIGN** THE BACK OF THE PRODUCTION FORM WHEN COMPLETED. PRODUCTION DATA FOR THE PREVIOUS YEAR IS TO BE FILED IN THE LEXINGTON OFFICE OF THE DIVISION OF OIL AND GAS BY APRIL 15.

NATURAL GAS:

NATURAL GAS PRODUCTION SHALL BE REPORTED ON A PER WELL BASIS.

PERMIT NUMBER:	COMPLETE WITH THE PERMIT NUMBER ISSUED BY THE DIVISION OF OIL AND GAS.
PURCHASER NUMBER:	NUMBER ASSIGNED BY THE PURCHASING COMPANY.
FARM NAME:	COMPLETE WITH INDIVIDUAL WELL NAME AND WELL NUMBER.
PRODUCING FORMATION:	IF COMMINGLED AND NOT METERED SEPARATELY, THEN LIST AS "COMMINGLED" AND LIST THE PERTINENT FORMATIONS.
PRODUCED GAS:	ACTUAL GAS PRODUCED. INDICATE THE AMOUNT OF GAS METERED OR PRO-RATED AT THE WELL HEAD ON A MONTHLY BASIS.
NET GAS SALES:	ACTUAL GAS SOLD. INDICATE THE AMOUNT OF GAS SOLD INTO THE LINE OF FIRST PURCHASE. COULD BE DIFFERENT FROM PRODUCED GAS DUE TO LINE LOSS AND COMPRESSOR USAGE.
STATUS:	CHECK EITHER "PRODUCING" OR "SHUT-IN" FOR THE MONTH REPORTED.

COMBINATION GAS/OIL WELL:

SAME AS NATURAL GAS REPORTING BUT INCLUDE THE OIL SALES ON A MONTHLY BASIS.

CRUDE OIL:

CRUDE OIL PRODUCTION MAY BE REPORTED BY INDIVIDUAL WELL OR BY LEASE. WHEN REPORTING BY LEASE, IDENTIFY THE PURCHASER (LEASE) NUMBER USED BY THE CRUDE OIL PURCHASER. PERMIT NUMBERS WHICH CORRESPOND TO THE PURCHASER (LEASE) NUMBER SHALL BE LISTED ON A SEPARATE SHEET OF PAPER AND ATTACHED TO THE PRODUCTION FORM.

EXAMPLE
PURCHASER(LEASE) NUMBER: 12345 PERMIT NUMBERS: 85000, 85001, 85002.

Casing and Cementing Plan as Required for Permit per 805 KAR 1:130 and 805 KAR 1:140

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
http://oilandgas.ky.gov
P. O. Box 2244
Frankfort, KY 40601
Phone: (502) 573-0147 Fax: (502) 573-1099

WELL OPERATOR (APPLICANT)_____
(MUST BE INDENTICAL TO NAME ON BOND)
MINERAL OWNER (LESSOR)_____
Street City
COUNTY_____ WELL NUMBER_____ ELEVATION_____
Farm Name:_____ Well Number:_____ County:
Well Surface Location Carter Coordinates:_____ ☐ FNL ☐ FSL _____ ☐ FEL ☐ FWL SEC_____ LTR_____ NO._____

HORIZONTAL/DIRECTIONAL WELLS

PROPOSED MEASURED DEPTH	PROPOSED TRUE VERTICAL DEPTH
PROPOSED LATERAL LENGTH	
COMPLETION METHOD: ☐ PACKER SYSTEM ☐ PRODUCTION CASING W/PLUGS No. of Stages: _____	

CASING INFORMATION

TYPE	OD SIZE	WT/FT GRADE NEW OR USED	DEPTH

CEMENT INFORMATION

CASING	HOLE SIZE	SACKS	CLASS	WEIGHT	ADDITIVES

BLOW-OUT PREVENTER INFORMATION
Blow-Out Preventer shall conform to technical requirements of 805 KAR 1:030 (4)

BRAND	TYPE	WORKING PRESSURE	TEST PRESSURE

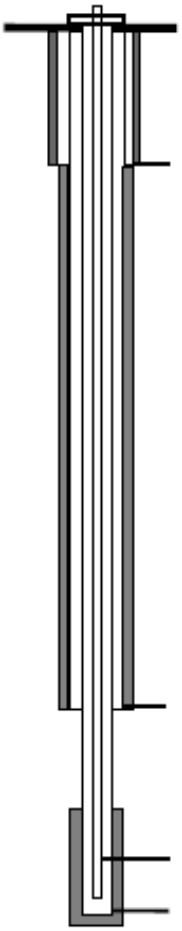
SCHEMATIC SHOWING HOLE SIZE & DEPTH OF EACH CASING STRING
(For Horizontal or Directional Well attach Wellbore-Casing Schematic Diagram)

I CERTIFY THAT THE ABOVE INFORMATION IS TRUE, ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.
OPERATOR:_____ DATE SIGNED_____
The Director of the Division of Oil and Gas, Department for Natural Resources, hereby approves of this Casing and Cementing Plan for the above-referenced location.

DIRECTOR:_____ DATE SIGNED:_____
FORM ED-7 (ORG. 8-91) (REV. 10-07) (REV. 3-15)

OIL & GAS WELL CEMENTING

Typical Wellbore (Not to Scale)



Surface Casing String - Set through fresh water zones and coal seams.
9 5/8" Casing (32.3 LB/FT) Length-250 FT.-Hole Size 12 ¼"
Cement to Surface: 250 X .3132 cu.ft./ft.=78.3 cu.ft.
***Convert Cubic Feet to Sacks:** 78.3 cu.ft./1.18 cu.ft./sack=66.367 sacks
Convert Cubic Feet to Barrels: 78.3 X .1781=13.9 Barrels

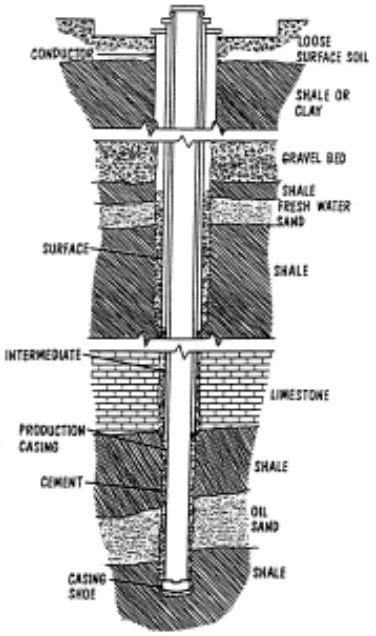
Intermediate Casing String - Set to isolate water and shallow producing zones.
7" Casing (20 LB/FT) Length-1800 FT.-Hole Size 8 ¾"
Cement back to base of 9 5/8": 1800'-250'=1550' 1550 X .1783 cu.ft./ft.=276 cu.ft.
***Convert Cubic Feet to Sacks:** 276 cu.ft./1.18 cu.ft./sack=233.94 sacks
Convert Cubic Feet to Barrels: 276 X .1781=49.16 Barrels

2 3/8" Production Tubing

Production Casing String - Set through producing zone and perforated.
4 ½" Casing (10.5 LB/FT) Length-3750 FT.-Hole Size 6 ¼"
Cement up to 2800': 3750'-2800'=950' 950 X .1026 cu.ft./ft.=97.47 cu.ft.
***Convert Cubic Feet to Sacks:** 97.47 cu.ft./1.18 cu.ft./sack=82.6 sacks
Convert Cubic Feet to Barrels: 97.47 X .1781=17.36 Barrels

* To convert cubic feet to sacks divide cement yield into cubic feet. To calculate sacks the cement blend, weight, yield, and water is required (supplied by cementing service company). Class A Cement w/3% $CaCl_2$ has a yield of 1.18 cu.ft./sack.
NOTE: Data for annular volume between casing and/or open hole is required for cement calculations and is found in oilfield cementing handbook. Contact cementing service company to obtain handbook.

Represents cement in annular space between casing and open hole.



—Types of casing.

OIL & GAS WELL CASING INFORMATION

-Types and functions of casing strings used in wells

Type of Casing	*Sizes*	*Function*
Conductor *Cement-* API Class A-C-G or H with accelerator	Ranges from 16- to 30- inch. driven or set from 40 to 1500 foot depths	1. Stabilized cellar and protects rig foundation 2. Restrains unconsolidated formations 3. Confines circulating fluids 4. Helps prevent water flows and loss of circulation
Surface Same as Conductor	Ranges from 7- to 16-inch, set from few feet to 4500 foot depths	1. Helps prevent contamination of fresh-water zones 2. Connection for blow-out preventer and well head 3. Support for deeper casing and tubing string 4. Confines shallow zones and helps prevent loss of circulation
Intermediate *Cement-* API Class A-C-G or H containing bentonite Lower casing with high strength cement	Ranges from 7- to 11 ¾ inch.	1. Helps prevent hole sloughing or enlargement while drilling deeper 2. Protects production strings from corrosion 3. Confines well if mud weight becomes inadequate to restrain high formation pressure 4. Protects loss of drill string in key seat or "sticky" holes 5. Helps prevent loss of circulation.
Production *Cement-* Designed for weight control (hydrostatic). Lower casing with high strength cement	Ranges from 2 $^{3}/_{8}$ inch to 9 $^{5}/_{8}$ inch and extends through zone of production	1. Protects hole during life of well 2. Isolates and helps prevent fluid migration 3. Helps provide well control should tubing fail 4. Protects downhole equipment 5. Allows selective production of oil or gas.
Liner Same as production casing	5- to 7-inch are most common sizes; extends through productive zones	1. Same as for production casing 2. Limits need for running full string of casing

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40602
PHONE: 502 573-0147

CERTIFICATE OF COMPLETION FOR AN INJECTION WELL

1) Permit No: _____ (A copy of well location plat must be attached)
2) Operator (name and address) _____
3) Lease Name _____ Well No. _____
4) Carter Coordinate _____ ☐ FNL _____ ☐ FSL _____ ☐ FEL ☐ FWL Section _____ Letter_____ Number_____
5) County_____ Elevation_____ Total Depth _____
6) The casing program for the above identified well is as follows:

Casing Size	New or Used	No. Sacks Cement	Cement Column -Top to Bottom

7) Injection shall be accomplished through tubing and packer as described below.

Size of Tubing	Type of Packer	Packer Depth

8) Was cement bond log run? YES ☐ NO ☐ If yes, attach one copy.
9) Maximum anticipated injection pressure at well head_____ psi.
10) Maximum anticipated injection volume _____ (bbls) ☐ (cu.ft.) ☐ per day.
11) The injection zone is known as the (geologial name) _____,and this formation occurs in this well from _____ to _____ .
12) a. The _____size casing has been cemented to a depth of_____ and the perforated interval is from _____ to _____ with _____ number of perforations.
    b. The injection interval is through an open hole and porous strata below the injection interval has not been drilled or is plugged back with a column of cement from _____ to _____ .
13) Describe in detail the monitoring method for the annulus between the injection tubing and the next string of casing. Identify the type of instrument to be used and the time interval between observations by a responsible party. Records of monitoring must be kept on file by the operator and available to the Division of Oil and Gas upon request. (Use additional pages if needed.)

14) I, the operator of the above identified well,certify that the above information is accurate and correct and that I further certify that I have run the following mechanical integrity test(s) of the installation to in sure there are no leaks in the system. (Describe each test fully) (Use additional pages if needed) (Test Pressure must exceed the maximum anti-cipated injection pressure listed on line 9 by at least 100 psi).

Certified by _____ (Operator' s signature only)

Date _____ Name of signee _____

FORM ED-23

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P. O. BOX 2244
Frankfort, Kentucky 40602

CERTIFICATE OF COMPLETION FOR AN INJECTION WELL

Attachment For Question #13

Use this attachment sheet to provide the information for question number 13:

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P. O. BOX 2244
Frankfort, Kentucky 40602

CERTIFICATE OF COMPLETION FOR AN INJECTION WELL

Attachment For Question #14

Use this attachment sheet to provide the information for question number 14:

DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40602
Phone: (502) 573-0147

Operator Certification of Formation Offset and Vertical Depth

Operator Name _____ Permit Number _____

Mineral Owner (Lessor) _____ Well Number _____

Carter Coordinate _____ ☐ FNL _____ ☐ FSL _____ ☐ FEL _____ ☐ FWL Section _____ Letter _____ Number _____

Lateral offset in feet from the wellsite to the top of the formation and the bottom (target) of the formation and the true vertical depth:

FORMATION NAME	LATERAL OFFSET TOP OF FM.	TRUE VERTICAL DEPTH TOP OF FM.	LATERAL OFFSET BOTTOM OF FM. OR TARGET	TRUE VERTICAL DEPTH BOTTOM OF FM OR TARGET

Lateral offset to coal seam(s) and true vertical depth if drilling directionally or horizontally through a coal seam:

LATERAL OFFSET TOP OF COAL SEAM	TRUE VERTICAL DEPTH TOP OF COAL SEAM	LATERAL OFFSET BOTTOM OF COAL SEAM	TRUE VERTICAL DEPTH BOTTOM OF COAL SEAM

I CERTIFY THAT THE INFORMATION ON THIS FORM IS ACCURATE AND TRUE TO THE BEST OF MY KNOWLEDGE.

OPERATOR SIGNATURE _____ TITLE _____

DATE _____

FORM ED-8 (ORIG. 8/91) (REV. 2/99)

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P.O. BOX 2244
FRANKFORT, KY 40602
PHONE (502) 573-0147
FAX (502) 573-1099
http://oilandgas.ky.gov

FOR OFFICE USE ONLY
RECORD NO_____
FEE_____
ATTACHED MAP_____
DATE RECEIVED

NOTIFICATION/APPLICATION FOR A GATHERING LINE PERMIT: INSTALLATION, RECLAMATION AND OPERATION PLAN
(ATTACH TOPOGRAPHIC MAP, IF APPLICABLE)

Application Type:
☐ Notification ☐ Application for New Permit ☐ Permit Modification (No fee required) ☐ Transfer of Gathering Line Permit (No fee required)

Type of Operation:
☐ Oil Production Flow Line (Include $100 permit fee, if new) ☐ Gas Production Flow Line (Include $200 permit fee, if new) ☐ Gathering Line (other than oil or gas production flow line) (Include $500 permit fee, if new)

If an oil or gas production flow line or a permit modification of such, list the associated well permit number_____

If a permit modification or transfer of a gathering line permit, list the gathering line permit number _____

Operator Information
Operator Name _____ Telephone Number_____
Address_____ City_____ State_____ Zip_____
Email Address_____
Registered Agent Information
Agent_____ Telephone Number _____

Surface Owner Information
Name _____ Telephone Number_____
Address_____ City_____ State_____ Zip_____
Attach additional sheet(s) for additional names and addresses, if applicable.

If Transfer:
Successor Name _____ Telephone Number_____
Address_____ City_____ State_____ Zip_____
Email Address_____
Registered Agent Information
Agent_____ Telephone Number_____

Location of Gathering Line:
County(s) _____ Quadrangle(s)_____

Type(s) of Pipeline: ☐ Gas ☐ Oil Gathering Line Material: ☐ Steel ☐ Plastic

Total length of proposed gathering line_____feet. Provide details below.

Pipeline Size _____Inches Length of Proposed Pipeline _____ feet Anticipated operating pressure_____psig
Pipeline Size _____Inches Length of Proposed Pipeline _____ feet Anticipated operating pressure_____psig
Pipeline Size _____Inches Length of Proposed Pipeline _____ feet Anticipated operating pressure_____psig

A narrative description of the location of all areas to be disturbed, including the location of roads, any existing gathering lines, the well site, tanks or other storage facilities:

Describe steps to be taken to prevent erosion and sedimentation from the disturbed area along the gathering line route:

FORM ED-11 (10-2003) As required under 805 KAR 1:190

Proposed revegetation treatment, including fertilizers and soil amendments, seed or trees to be planted, and the types and amounts per acre of seed and trees to be planted:

Narrative of operator's plan for the timely and effective reclamation of all disturbed areas:

Does the operator have the authority (deed, lease, right-of-way) necessary to install and operate the gathering line? **YES☐ NO ☐**

Does the operator maintain general liability insurance coverage which includes its gathering line operations?
(Required by 805 KAR 1:190, with Division of Oil and Gas listed as "certificate holder" on the policy) **YES☐ NO ☐**

Is this proposed gathering line on, or will it be necessary to cross, land which is currently under permit or bond required by KRS Chapter 350? **YES☐ NO ☐**

If yes, list the name and address of current bonded operator:

Has the applicant met and conferred with, or offered to meet and confer with, the bonded operator?
YES ☐ NO☐

THE UNDERSIGNED HEREBY AFFIRMS THAT HE HAS EXECUTED ANY NECESSARY RIGHT-OF-WAY OR LEASE AGREEMENT WITH THE SURFACE OWNER AND AFFIRMS THAT THE FOREGOING FACTS SET OUT IN THIS APPLICATION ARE TRUE.

DATED THIS _____ DAY OF _____ 20____

IF A CORPORATION, SIGNATORY MUST BE AN OFFICER OF THE CORPORATION OR PROVIDE POWER OF ATTORNEY TO EXECUTE DOCUMENTS. IF A PRIVATE INDIVIDUAL, SIGNATORY MUST BE SAME OR PROVIDE POWER OF ATTORNEY TO EXECUTE DOCUMENTS.

_____/_____
SIGNATURE OF APPLICANT TITLE

_____
PRINT OR TYPE NAME OF APPLICANT

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____ DAY OF _____, 20_____

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

If Transfer of Gathering Line Permit, successor signatory:

_____/_____
SIGNATURE OF SUCCESSOR TITLE

_____
PRINT OR TYPE NAME OF SUCCESSOR

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____ DAY OF _____, 20_____

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

FORM ED-11 (10-2003) As required under 805 KAR 1:190

KENTUCKY DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P.O. BOX 2244
FRANKFORT, KY 40602-2244
(502) 573-0147

Application – Gathering Line Operator's License

1. In order to keep your license current, provide the following information and sign. **PLEASE PRINT CLEARLY.**
2. **Your gathering line operator's license shall be renewed every year.** The cost of this renewal is **$100.00 or $25.00** if you are an operator who is operating one gas well used strictly for the purpose of heating a residential dwelling.
3. Enclose a personal check, certified check, cashier's check, or money order payable to the **Kentucky State Treasurer** in the appropriate amount. Please do not send cash.
4. Return this form and your fee to the address shown above.

Operator Name: _____ Home Phone # _____
Address: _____
Street, Route or Box Number

_____
City State Zip Code E-mail Address

If a Partnership or Corporation:

_____
Principal Officer Address

_____
Principal Officer Address

_____
Principal Officer Address

_____
Principal Officer Address

_____
Principal Officer Address

DATED THIS _____ DAY OF _____, 20_____

IF A CORPORATION, SIGNATORY MUST BE AN OFFICER OF THE CORPORATION OR PROVIDE POWER OF ATTORNEY TO EXECUTE DOCUMENTS. IF A PRIVATE INDIVIDUAL, SIGNATORY MUST BE SAME OR PROVIDE POWER OF ATTORNEY TO EXECUTE DOCUMENTS.

_____/_____
Signature of Applicant Title

_____
Print or type name of Applicant

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____DAY OF _____20_____.

_____
Notary Public

MY COMMISSION EXPIRES: _____

FORM ED-2 (10-2003) As required under 805 KA 1:190

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
http://oilandgas.ky.gov
P. O. Box 2244
Frankfort, KY 40602
Phone: (502) 573-0147 Fax: (502) 573-1099

OPERATIONS AND RECLAMATION PLAN

Operator Name _____ County _____ Well No. _____

Surface Owner _____ Address and Phone No. _____

Complete severance of oil & gas ownership from surface ownership? ☐ Yes ☐ No; If Yes see bottom of page 2.

Multi-well pad? ☐ Yes ☐ No If Yes; Identify Permit Numbers: _____

Implementation of Best Management Practices:
Within forty-five (45) days of the initial wellsite boundary disturbance, the following steps will be taken:

1. The well site and access road shall be graded and stabilized to prevent erosion. Culverts will be installed as needed to divert surface water flow and dikes will be constructed if required to control water movement and protect against spills.
2. Pits shall be constructed in stable area (in non-fill areas) of well-site and lined with impermeable liner.
3. After drilling and completion, all drilling supplies and equipment, trash, discarded materials and other refuse not contained shall be removed from well site.
4. Water discharged from all pits shall be properly disposed of in accordance with all state and federal regulations and statutes.
5. Temporary vegetative cover shall be established on all graded areas. As soon as possible, permanent vegetation will be established in accordance with the guidelines established in the Oil & Gas Well Operator's Manual.

Within thirty days (30) after plugging and abandonment of the well, these steps will be taken:

1. All production and storage facilities, supplies and equipment, and any oil, salt water and debris will be removed.
2. Any remaining excavations will be filled, and any remaining disturbed in the wellsite boundary including access roads, will be graded.
3. Pit contents shall be disposed of in accordance all applicable state and federal regulations and statutes, filled and graded.
4. Permanent vegetative cover shall be established on all disturbed areas in accordance with guidelines established in the Oil & Gas Well Operator's Manual.

The operator shall provide written notification to the Division of Oil & Gas of final reclamation.

A narrative description of the location of all areas disturbed, including the location of roads, gathering lines, the well site, tanks and other production facilities: (Must be typed)

Describe steps to be taken to prevent erosion of and sedimentation from the well site and all disturbed areas, including access roads: (Must be typed)

FORM ED-10 (Org. 2-27-97) Rev. 2/99) Rev. 3/15)

Attach: Drawing(s) of the road, well location and proposed area involved, drawn over an enlarged section of the U.S.G.S. 1=24,000 topographic map (enlarged to approximately 1"=400') on an 8x14 sheet of paper using the applicable symbols from the following legend:

LEGEND

Stream	Gathering Lines
Road	Diversion
Existing Fence - - X - - X - - X - - X	Spring
Planned Fence _/_/_/_/_/_/	Drain pipe with size in inches
Open Ditch - - .. - - .. - - .. - - .. - -	Waterway
Rock	Cross Drain
North Arrow N	Artificial Filter Strip
Buildings	Pit: Cut Walls
Water Wells	Pit: Compacted Fill Walls
Tanks	Area for Land Application of Pit Waste
Drill Site	Storage Facilities

The undersigned hereby swears or affirms that the foregoing information and attachments in this plan to prevent erosion of and sedimentation from the well site and all disturbed areas, including roads, are true to the best of my knowledge and belief.

Date this _____ day of _____ , 20___ .

If a corporation, signatory shall be an officier of the company or provide Power of Attorney to execute documents. If a private individual, signatory shall be the same as the applicant or provide Power of Attorney to execute documents.

_____ _____

Signature of Operator Title

_____

Print or Type Name

Sworn to and subscribed before me this _____ day of _____ , 20___ .

_____

Notary Public

My Commission Expires: _____

Surface Owner Agreement

(Surface Owner Signature Below, Shall Be Notarized)

I have reviewed the application and the information submitted with this form, and agree to the well operator's operations and reclamation proposal as set forth herein. I understand that the execution of this document in no way affects compensation for surface damages as described in KRS 353.595(6) or other contractual agreement.

_____ _____

Signature of Severed Mineral Surface Owner Date

_____

Print or Type the Name of Severed Mineral Surface Owner

Sworn to and subscribed before me this _____ day of _____ , 20 _____

_____

Notary Public

My Commission Expires: _____

ED-10 (Org. 2/27/97) (Rev. 2/99)

CONTINUATION FOR ADDITIONAL PROPOSED REVEGETATION TREATMENTS

Operator Name _____ County _____ Well No. _____

Surface Owner _____ Address and Phone No. _____

Fertilizer and Soil Amendments	Seed or Tree Planted (Type and Amount/Acre)
Area 3 _____	_____
_____	_____
_____	_____
_____	_____
Area 4 _____	_____
_____	_____
_____	_____
_____	_____
Area 5 _____	_____
_____	_____
_____	_____
_____	_____
Area 6 _____	_____
_____	_____
_____	_____
_____	_____
Area 7 _____	_____
_____	_____
_____	_____
_____	_____
Area 8 _____	_____
_____	_____
_____	_____
_____	_____

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40602
PHONE: 502-573-0147

APPLICATION FOR PERMIT FOR USE OF VACUUM

OPERATOR: _____

ADDRESS: _____

E-MAIL: _____

LEASE NAME: _____

COUNTY: _____

Well No.	Carter Coordinate Spot Locations	Permit No.

Are there any producing wells on premises within one thousand feet of the above listed wells owned by an operator other than yourself? Yes ☐ No ☐

Offset operators to whom notice has been given:

_____
_____
_____
_____
_____
_____

Type of unit to be installed:

Formation to which vacuum is to be applied: _____

I hereby certify the above information is correct to the best of my knowledge.

_____
Signature of Applicant

INSTRUCTIONS: Use a separate application form for each lease. Only one copy need be filed. If Carter Coordinate locations cannot be furnished, the wells may be shown on a 7-1/2 minute topographic map and attached to this application. The map will be returned upon request.

FORM ED-9 (REV2/99)

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P. O. Box 2244
Frankfort, KY 40602
Phone: (502) 573-0147 Fax: (502) 573-1099
http://oilandgas.ky.gov
(TYPE OR PRINT IN INK)

AFFIDAVIT TO TIME AND MANNER OF PLUGGING AND FILLING WELL
AS REQUIRED BY LAW

NAME AND ADDRESS OF LAST OPERATOR

E-MAIL ADDRESS OF LAST OPERATOR

NAME AND ADDRESS OF ORIGINAL OPERATOR

E-MAIL ADDRESS OF ORIGINAL OPERATOR

NAME AND ADDRESS OF COAL OPERATOR

E-MAIL ADDRESS OF COAL OPERATOR

PERMIT NO._____ ELEVATION_____ COUNTY_____ TOTAL DEPTH_____

CARTER COORDINATES _____ ☐ FNL ☐ FSL _____ ☐ FEL ☐ FWL SEC_____ LETTER_____ NUMBER_____

FARM OWNER (LESSOR)_____ WELL NUMBER_____

AFFIDAVIT TO BE MADE IN TRIPLICATE, ONE COPY TO BE MAILED TO THE DIVISION OF OIL AND GAS, ONE COPY TO BE RETAINED BY THE WELL OPERATOR AND THE THIRD TO BE MAILED BY REGISTERED MAIL TO EACH COAL OPERATOR NAMED AT THEIR RESPECTIVE ADDRESSES.

AFFIDAVIT

STATE OF KENTUCKY,
COUNTY OF _____} SS:

_____, OPERATOR OF THE ABOVE CAPTIONED WELL DOES HEREBY SWEAR THAT THE PLUGGING OF SAID WELL WAS COMPLETED ACCORDING TO INSTRUCTIONS FROM THE OIL AND GAS INSPECTOR AND ACCORDING TO CHAPTER 353 OF THE KENTUCKY REVISED STATUTES ON _____, RECORD OF WHICH IS LISTED BELOW OR SHOWN ON THE BACK OF THIS FORM.

	(PLUGGED DATE) (BOTTOM)	(TOP)	(PLUG DESCRIPTION)
PLUGGED:	FROM_____	TO_____	WITH_____
PLUGGED:	FROM_____	TO_____	WITH_____
PLUGGED:	FROM_____	TO_____	WITH_____
PLUGGED:	FROM_____	TO_____	WITH_____
PLUGGED:	FROM_____	TO_____	WITH_____
PLUGGED:	FROM_____	TO_____	WITH_____
PLUGGED:	FROM_____	TO_____	WITH_____
PLUGGED:	FROM_____	TO_____	WITH_____

INDICATE BELOW THE SIZE AND INTERVAL OF ALL CASING LEFT IN THE WELL AND IF AND WHERE IT WAS SHOT OFF:

CASING SIZE _____, INTERVAL _____, SHOT OFF AT _____ BOTTOM OF CASING AT _____

CASING SIZE _____, INTERVAL _____, SHOT OFF AT _____ BOTTOM OF CASING AT _____

CASING SIZE _____, INTERVAL _____, SHOT OFF AT _____ BOTTOM OF CASING AT _____

IF CASING WAS NOT LEFT IN THE WELL, INDICATE THE BORE HOLE SIZE AND INTERVAL:

CASING SIZE _____ INTERVAL _____

CASING SIZE _____ INTERVAL _____

_____
(OPTIONAL) SIGNATURE OF CONTRACTOR RESPONSIBLE FOR ABOVE PLUGGING TITLE

_____
(REQUIRED) SIGNATURE OF CONTRACTOR RESPONSIBLE FOR ABOVE PLUGGING TITLE

SWORN TO AND SUBSRIBED BEFORE ME THIS DATE _____ DAY OF _____, 20_____

_____
Notary Public

MY COMMISSION EXPIRES:_____
FORM ED-38 (REV. 10/07)

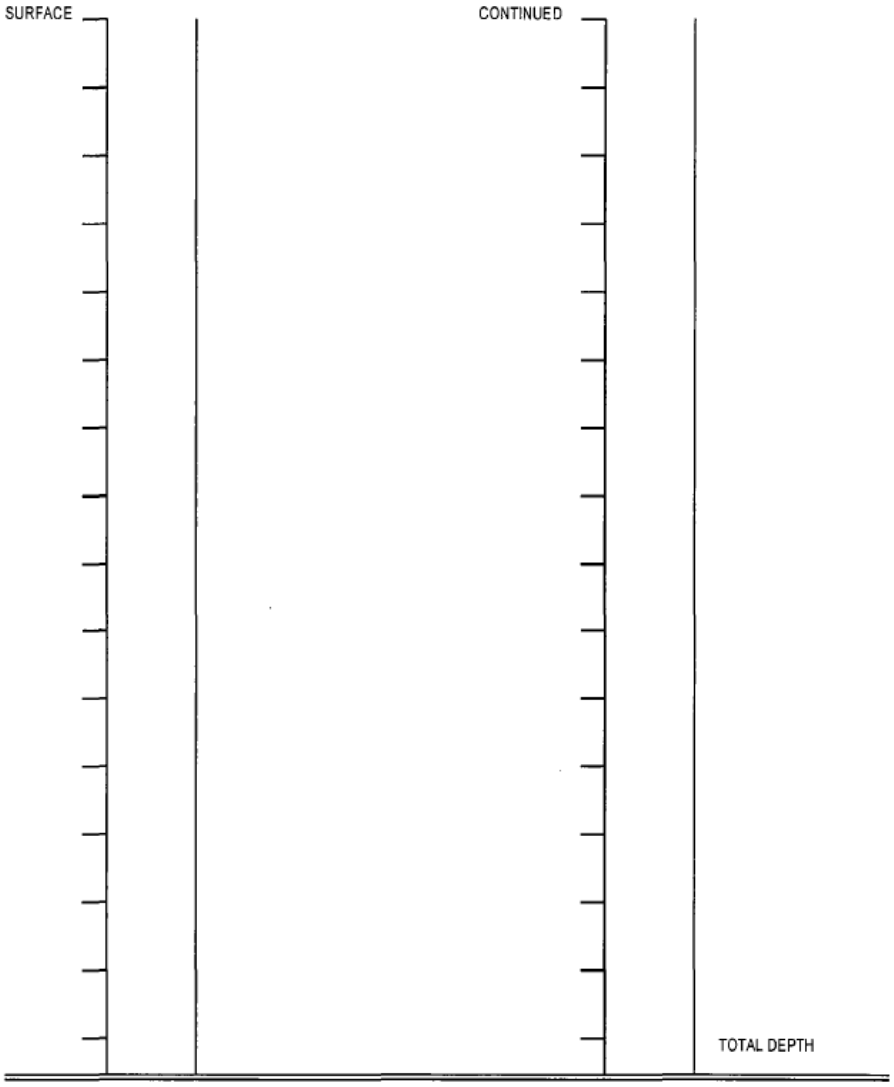
CONTINUED

CEMENT TABLE

HOLE SIZE	2"	3"	4"	5"	6 1/2"	8"	8 1/2"	8 3/4"	10"	12"	16"
NO. FT. FILLED PER SACK OF CEMENT*	45'	20'	11'	7'	4'	2 3/4'	2 1/2'	2 1/3'	2'	1'	1/2'

*1 CUBIC FOOT PER SACK

GRAPHICALLY SHOW BELOW THE LOCATION AND INTERVAL OF ALL PLUGS INSTALLED.



IF THE WELL IS TO BELEFT AS A DOMESTIC WATER WELL, PLUG ACCORDING TO THE INSPECTOR'S INSTRUCTIONS, COMPLETE THIS FORM ON BOTH SIDES AND HAVE THE FOLLOWING AFFIDAVIT SIGNED BY THE REAL ESTATE OWNER.

AFFIDAVIT

I, _____ , THE OWNER OF THE REAL ESTATE ON WHICH THIS WELL WAS DRILLED, DESIRE THAT THE WELL BE LEFT OPEN FROM THE FRESH WATER ZONE TO THE SURFACE FOR USE AS A WATER WELL AND DO HEREBY ACCEPT THE FULL RESPONSIBILITY FOR SAID WATER WELL. THE OIL OPERATOR REMAINS RESPONSIBLE FOR ALL PLUGS BELOW THE FRESH WATER ZONE.

_____ _____

SIGNATURE OF OWNER OR HIS AGENT DATE

DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40602
Phone: (502) 573-0147

TEMPORARY ABANDONMENT PERMIT

PERMIT NO._____

OPERATOR:_____

ADDRESS: _____

E-MAIL:_____

LEASE (FARM): _____ WELL NO._____

LOCATION: _____ ☐ FNL _____ ☐ FSL _____ ☐ FEL _____ ☐ FWL _____SEC. _____LTR. _____NO.

COUNTY: _____ TOTAL DEPTH: _____

CASING SIZE:_____ CASING DEPTH _____

CASING CEMENTED WITH _____BAGS OF CEMENT: FROM _____ TO _____

CASING IS SEALED AT TOP BY:_____

THE REASON FOR A REQUEST FOR TEMPORARY ABANDONMENT IS:

THE LEASE ON THIS PROPERTY EXPIRES:_____

THE AMOUNT OF TIME NEEDED FOR THIS TEMPORARY ABANDONMENT PERMIT:_____

I, THE OPERATOR OF THE ABOVE NAMED LEASE, HEREBY CERTIFY THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE ON THIS DATE, AND REQUEST A TEMPORARY ABANDONMENT PERMIT BE APPROVED.

_____

OPERATOR'S SIGNATURE TITLE
(IF AN INDIVIDUAL) (IF A CORPORATION, THE SIGNEE MUST GIVE A POSITION TITLE.)

THIS TEMPORARY ABANDONMENT PERMIT IS APPROVED AND SHALL EXPIRE:_____

_____

INSPECTOR, DIVISION OF OIL AND GAS

FORM ED-12 (REV. 2-99)

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P. O. Box 2244
Frankfort, KY 40602
Phone: (502) 573-0147
Fax: (502) 573-1099
http://oilandgas.ky.gov

FOR OFFICIAL USE ONLY
Operator No.:

ANALYSIS OF GROUNDWATER SOURCE WITHIN 1,000 FEET OF DEEP HIGH-VOLUME HORIZONTAL FRACTURING TREATMENT

Well Owner/Operator: _____

"Deep" Horizontal Well Name and Number: _____ Permit Number: _____

Water Source

☐ Water Well ☐ Pond ☐ Spring/Stream

Water Source Owner: _____

Permanent Address: _____

City: _____ State: _____ Zip Code: _____ Phone: _____

Horizontal distance water source to wellhead: _____ ☐ Check if access to test water source was denied (See Below)

(Check One) ☐ Initial Baseline Analysis (Prior to Fracturing Treatment) Test Date: _____

☐ Subsequent Analysis (After Fracturing Treatment) Test Date: _____

Water Component Parameters		Percentage (%)	Mg/L or PPM	Water Component Parameters		Percentage (%)	Mg/L or PPM
Chloride				Arsenic			
Iron				Calcium			
Magnesium				Chromium			
Total Dissolved Solids				Mercury			
Dissolved Gases	Methane			Silver			
	Ethane			Selenium			
	Propane			Cadmium			
pH				Lead			
Conductivity				Manganese			
(BTEX) Volatile Organic Compounds	Benzene			Barium			
	Toluene			NORM (Radio-Nuclids)	Alpha		
	Ethylbenzene				Beta		
	Xylene						
Surfactants							
Sulfate							

Laboratory performing water analysis: _____

Address: _____

_____ _____

Signature of Authorized Agent Title

ACCESS TO TESTING DENIED CERTIFICATION

I certify under the penalty of law that I have attempted to obtain permission from landowner identified above to obtain a water sample from the groundwater source but was denied access.

Authorized Agent: _____ **Title:** _____
Print Name

Signature: _____ **Date:** _____

Sworn to and subscribed before me this _____ day of _____, 20_____

_____
Notary Public

FORM ED-40 (REV. 3/15)

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
POST OFFICE BOX 2244
FRANKFORT, KY 40601
PHONE: 502-573-0147
http://oilandgas.ky.gov

FOR OFFICE USE ONLY
RECORD NO. _____
FEE:_____

APPLICATION FOR TESTING PERMIT

APPLICANT NAME: _____

PERMANENT ADDRESS: _____

ADDRESS FOR MAILING PERMIT: _____

IDENTIFICATION OF WELL TO BE TESTED:

PERMIT #:_____ COUNTY: _____ WELL #:_____
MINERAL OWNER: _____

CARTER COORDINATES: _____ FNL FSL _____ FEL FWL, SEC _____ LTR _____ NUMBER _____

IS THERE A COMPLETE SEVERANCE OF THE OWNERSHIP OF THE OIL AND GAS FROM THE OWNERSHIP OF THE SURFACE AREA TO BE DISTURBED BY THE INVESTIGATION? _____ YES _____ NO
(IF YES, THEN THE APPLICANT MUST FULFILL THE REQUIREMENTS OF 805 KAR 1:170.)

BY WHAT RIGHT DO YOU HAVE TO ENTER THE PROPERTY UPON WHICH THIS WELL IS LOCATED?
_____
_____
_____

DESCRIBE THE METHODS FOR INVESTIGATION: _____
_____
_____

THE APPLICANT ACKNOWLEDGES OTHER LOCAL, STATE AND FEDERAL LAWS MAY APPLY TO THE TESTING OF THIS WELL.

THE UNDERSIGNED HEREBY SWEARS OR AFFIRMS THE FOREGOINING FACTS GIVEN IN THIS APPLICATION ARE TRUE AS THEREIN SET FORTH. DATED THIS _____ DAY OF _____, _____.

IF A CORPORATION, SIGNATORY MUST BE AN OFFICER OF THE COMPANY OR PROVIDE POWER OF ATTORNEY TO EXECUTE DOCUMENTS. IF A PRIVATE INDIVIDUAL, SIGNATORY MUST BE SAME OR PROVIDE POWER OF ATTORNEY TO EXECUTE DOCUMENTS.

_____
SIGNATURE OF APPLICANT TITLE

_____
PRINT OR TYPE NAME OF APPLICANT

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____DAY OF _____, _____

MY COMMISSION EXPIRES: _____, _____
NOTARY PUBLIC

THIS PERMIT DOES NOT AUTHORIZE ANY DRILLING.

KentuckyUnbridledSpirit.com

An Equal Opportunity Employer M/F/D

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P O BOX 2244
FRANKFORT, KENTUCKY 40602-2244
http://oilandgas.ky.gov
(type or print in ink)

TESTING PERMIT
REPORT OF INVESTIGATION

WELL IDENTIFICATION

PERMIT NUMBER _____
OPERATOR _____
FARM NAME _____
WELL NO. _____
COUNTY _____
SEC _____ LTR _____ NO _____
_____ FNL _____ FEL
_____ FSL _____ FWL

WATER ENCOUNTERED
(FRESH, SALT)

TYPE	FROM	TO

GEOPHYSICAL LOGS RUN (AS REQUIRED BY KRS 353.550(2))
(GAMMA RAY, NEUTRON, DENSITY, INDUCTION, TEMP.)

TYPE	FROM	TO

TOTAL DEPTH _____

CASING DATA

CASING SIZE	HOLE SIZE	DEPTH	SACKS

CEMENT YIELD IN CUBIC FEET/SACK _____

COMPLETION SERVICES

PERFORATIONS OR OPEN HOLE (PLEASE INDICATE BY CIRCLING)
FORMATION _____ INTERVAL _____
FORMATION _____ INTERVAL _____

WELL TREATMENT

TYPE TREATMENT _____
ACID (BBLS) _____
TOTAL
FLUID (BBLS) _____ TOTAL
SAND (LBS) _____
NITROGEN _____ SCF

ADDITIONAL CEMENTING

SQUEEZE CEMENT SACKS _____ INTERVAL _____
PLUG BACK SACKS _____ INTERVAL _____

TEST VOLUMES

GAS _____ MCF DATE _____
AGAINST BACKPRESSURE OF _____ PSI
OIL _____ BOPD DATE _____
AGAINST BACKPRESSURE OF _____ PSI

LIST SPECIALIZED TESTS (DST'S, FILL-UP TESTS)

FORMATION NAME	INTERVAL

SIGNATURE OF OPERATOR _____
TITLE DATE
SWORN TO AND SUBSCRIBED BEFORE ME THIS _____ DAY OF _____, 20_____
MY COMMISSION EXPIRES: _____, _____
NOTARY PUBLIC

TESTING PERMIT
REPORT OF INVESTIGATION
Page 2
PERMIT NUMBER _____

CTRL#	
OPERATOR NUMBER:	
BOND NUMBER:	

I REQUEST THIS WELL TO BE TRANSFERRED TO OUR BOND: YES ☐ NO ☐
(IF YES, PLEASE SIGN BELOW)

ATTEST: I, THE UNDERSIGNED, SUCCESSOR TO THE WELL LISTED ON THE REVERSE OF THIS DOCUMENT, REQUEST THE DIVISION OF OIL AND GAS, DEPARTMENT FOR NATURAL RESOURCES TO TRANSFER AND PLACE THIS WELL UNDER MY BOND. THEREBY, I AM ASSUMING COMPLETE RESPONSIBILITY FOR IT UNDER KRS CHAPTER 353 AND THE RULES AND REGULATIONS PROMULGATED THEREUNDER.

_____ _____
SIGNATURE OF OPERATOR DATE

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P. O. Box 2244
FRANKFORT, KY 40602 PHONE: (502) 573-0147

AFFIDAVIT OF WELL LOG AND COMPLETION REPORT
AS REQUIRED BY LAW

(TYPE OR PRINT IN INK) OPERATOR'S PHONE: _____

WELL IDENTIFICATION PERMIT NO. _____
OPERATOR _____
FARM NAME _____ WELL NO. _____

TYPE OF OPERATION
TWIN..... ☐
REOPEN..... ☐
NEW WELL..... ☐
WORKOVER..... ☐
DEEPENING..... ☐

LOCATION
COUNTY _____
SEC. _____, LTR. _____, NO. _____
_____ ☐ FNL _____ ☐ FEL
_____ ☐ FSL _____ ☐ FWL

ELEVATION _____ (GROUND) _____ (D.F.) (K.B.)

TYPE OF COMPLETION (CHECK ONE)
DRY HOLE..... ☐
OIL..... ☐
GAS..... ☐ DOMESTIC GAS..... ☐
ENHANCED RECOVERY: SERVICE WELL:
WATER INJECTION..... ☐ WATER SUPPLY..... ☐
GAS INJECTION..... ☐ SALT WATER DISPOSAL... ☐
GAS STORAGE: OBSERVATION..... ☐
INJECTION-EXTRACTION.. ☐ OTHER..... ☐
OTHER DESCRIBE _____

OPERATIONAL DATES
COMMENCED _____ COMPLETED _____
PLACED IN OPERATION _____
PLUGGED _____ SHUT-IN _____

DRILLING CONTRACTOR
NAME _____
ADDRESS _____

WATER ENCOUNTERED (FRESH, SALT, SULFUR)

TYPE	FROM	TO

COMMENTS

GEOPHYSICAL LOGS RUN (AS REQUIRED BY KRS 353.550(2))
(ELECTRICAL, INDUCTION, SONIC, GAMMA RAY, NEUTRON, DENSITY, ETC.)

TYPE	FROM	TO

TOTAL DEPTH DRILLED _____
(AS REQUIRED BY KRS 353.570)

CASING DATA

CASING OUTSIDE DIAMETER	HOLE DIAMETER	DEPTH	CEMENT NO. SKS.	PULLED YES/NO

CEMENT YIELD IN CUBIC FEET/SACK = _____
COMMENTS

WELL TREATMENT **TYPE OF FRAC.**
SHOT
TYPE SHOT _____
SHOT INTERVAL _____
SHOT AMOUNT _____

COMPLETION INTERVAL, PERFORATIONS OR OPEN HOLE
FORMATION _____ INTERVAL _____
FORMATION _____ INTERVAL _____
PLUGGED _____ SHUT-IN _____

TREATMENT
TYPE OF TREATMENT _____
ACID AMOUNT _____ BBLS. _____ BBLS.
2ND STAGE
TOTAL FLUID _____ BBLS. _____ BBLS.
2ND STAGE
TOTAL NITROGEN _____ SCF
TOTAL SAND _____ LBS

ADDITIONAL CEMENTING
SQUEEZE CEMENT _____ SKS. _____ TOP
_____ INTERVAL
PLUG BACK _____ SKS. _____ TOP
_____ INTERVAL

INITIAL TEST VOLUMES
OIL: NATURAL _____ B/D _____ DATE
AFTER TREATMENT _____ B/D _____ DATE
GAS: NATURAL _____ MCF _____ DATE
AGAINST BACKPRESSURE OF _____ PSI
SHUT-IN PRESSURE _____ AFTER _____ HOURS
AFTER TREATMENT _____ MCF _____ DATE
AGAINST BACKPRESSURE OF _____ PSI
SHUT-IN PRESSURE _____ AFTER _____ HOURS

LIST DST'S, CORES, FILL-UP TESTS AND OTHER SPECIALIZED TESTS

TYPE	FROM

THIS FORM MUST BE COMPLETED AND FILED FOR EVERY PERMIT IMMEDIATELY AFTER COMPLETION OF THE WELL. RE-OPENED WELLS NEED NOT INCLUDE A DRILLER'S LOG. HOWEVER, THE FRONT SIDE OF THIS FORM MUST BE COMPLETED. INCOMPLETE FORMS WILL BE REJECTED.

Kentucky UNBRIDLED SPIRIT

OVER

FORM ED-3 (REV. 6-05) ALL PREVIOUS FORMS ARE OBSOLETE.

FORMATION RECORD

FROM	TO	ROCK TYPE (DESCRIBE ROCK TYPES AND OTHER MATERIALS PENETRATED AND RECORD OCCURENCES OF OIL, GAS AND WATER FROM SURFACE TO TOTAL DEPTH.)	FROM	TO	ROCK TYPE (DESCRIBE ROCK TYPES AND OTHER MATERIALS PENETRATED AND RECORD OCCURENCES OF OIL, GAS AND WATER FROM SURFACE TO TOTAL DEPTH.)

AFFIDAVIT

_____ , OPERATOR OF THE WELL CAPTIONED AS

PERMIT NUMBER _____ DOES HEREBY SWEAR THAT THE DEPTH OF THE WELL IS ACCURATE AND CORRECT AND DOES NOT EXCEED THE **PERMITTED DEPTH** OF _____.

SIGNATURE OF OPERATOR _____

TITLE DATE

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____ DAY OF _____, 20____.

_____

NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
POST OFFICE BOX 2244
FRANKFORT KY 40602-2244
PHONE: 502-573-0147
FAX: 502-573-1099
http://oilandgas.ky.gov

OFFICE USE ONLY

TR LEDGER # _____
OPERATOR NUMBER: _____
BOND NUMBER: _____
TRANSFER FEE: **$25.00/WELL**
TOTAL NUMBER OF WELLS ON THIS LEASE TO BE TRANSFERRED: _____
TOTAL AMOUNT REMITTED ON THIS FORM: _____

WELL TRANSFER

PRESENT OPERATOR:

OPERATOR: _____

ADDRESS: _____

_____

E-MAIL: _____

PHONE NO: _____

TOTAL NUMBER OF WELLS ON THIS LEASE TO BE TRANSFERRED: _____

LEASE NAME: _____

TRANSFERRED TO:

OPERATOR: _____

ADDRESS: _____

_____

E-MAIL: _____

PHONE NO: _____

IF CORPORATION, NAME OF PRINCIPAL OFFICER: _____

COUNTY: _____

WELL NO.	CARTER COORDINATE SPOT LOCATIONS	PERMIT NO.

ATTEST: I, THE UNDERSIGNED, SUCCESSOR IN TITLE TO THE WELLS LISTED ABOVE OR ON THE ATTACHED SHEETS, REQUEST THE DIVISION OF OIL AND GAS, TO TRANSFER AND PLACE THESE WELLS UNDER MY BOND. THEREBY, I AM ASSUMING COMPLETE RESPONSIBILITY FOR THEM UNDER KRS CHAPTER 353 AND THE RULES AND REGULATIONS PROMULGATED THEREUNDER. **I FURTHER AGREE TO PROVIDE A LETTER TO THE DIVISION AFFIRMING I ACCEPT RESPONSIBILITY FOR ANY RECLAMATION PLAN REQUIREMENTS ASSOCIATED WITH THE WELLS LISTED ABOVE AS REQUIRED BY 805 KAR 1:170 (10)(C).**

_____ _____
DATE SIGNATURE OF PURCHASER TITLE

ACKNOWLEDGED: _____
SIGNATURE OF SELLING OPERATOR TITLE

INSTRUCTIONS: USE A SEPARATE FORM FOR EACH LEASE. ATTACH A SEPARATE LIST, IF THERE ARE MORE WELLS THAN CAN BE LISTED ON THIS SHEET. ENCLOSE $25.00 PER WELL TRANSFER FEE.

MAKE CHECKS PAYABLE TO: **KENTUCKY STATE TREASURER**

FORM ED-13 (REV. 5-15)

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
POST OFFICE BOX 2244
FRANKFORT, KY 40601

ISSUER

_____ NAME
_____ADDRESS
_____
_____E-MAIL
_____PHONE
_____CONTACT

IN REFERENCE TO:

LETTER OF CREDIT NUMBER _____

DATED _____

AMOUNT _____

ISSUED BY _____

ACCOUNTANT PARTY – OPERATOR _____

WE ENCLOSE THE ORIGINAL OF THE ABOVE-REFERENCED LETTER OF CREDIT OPENED IN YOUR FAVOR.

WE CONFIRM THE CREDIT AND HEREBY UNDERTAKE THAT ALL DRAFT(S) OR OTHER DEMANDS DRAWN IN COMPLIANCE WITH TERMS OF THE ORIGINAL CREDIT AND ANY OTHER CONDITIONS STATED THEREIN, SHALL BE HONORED.

BY: _____

TITLE: _____

KentuckyUnbridledSpirit.com

Kentucky UNBRIDLED SPIRIT

An Equal Opportunity Employer M/F/D

ED-16 (REV 03/05)

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
POST OFFICE BOX 2244
FRANKFORT, KY 40601

IRREVOCABLE LETTER OF CREDIT NO.: _____
DATE: _____

Dear Department:

We hereby open our irrevocable Letter of Credit in your favor for the account of _____ _____ as operator, to cover wells drilled, deepened, reopened, or transferred to the above-named principal, for the sum of _____ dollars ($_____) available by your draft or other demand on us at sight.

This Letter of Credit constitutes collateral security for performance of the above-named operator's obligations under KRS 353.590.

This Letter of Credit shall be subject to terms contained herein and shall cover all wells as security until plugged with the Department's approval and all records required by the Department are properly filed or all wells covered by this letter as security are transferred to a successor operator with bond as provided in KRS 353.590 or the operator posts a substitute bond to replace this letter of credit subject to the Department's approval.

All drafts drawn under this Letter of Credit are to be endorsed thereon and shall bear the clause "Drawn under Letter of Credit No. _____." This Letter of Credit is effective as of _____ and shall expire on _____ but such expiration date shall be automatically extended for a period of one year and each successive expiration date, unless at least 120 days before the current expiration date, we notify both you and the operator by certified mail that we have decided not to extend this Letter of Credit beyond the current expiration date. In the event you are so notified, any unused portion of the credit shall be available upon presentation of your sight draft for 120 days after the date of receipt by you as shown on the signed return receipt.

We hereby agree with you that all drafts drawn under and in compliance with the terms of the Letter of Credit shall by duly honored upon presentation to us, and we shall remit the amount of the draft by certified check payable to the "Kentucky State Treasurer" in accordance with your instructions.

We shall give notice within fifteen (15) days to the operator and the Director, Division of Oil and Gas, of any notice received or action filed alleging our insolvency or bankruptcy, or alleging any violations of regulatory requirements which could result in suspension or revocation of our charter or license to do business.

Except as otherwise expressly stated herein, the Credit is subject to the uniform Customs and Practice for Documentary Credits (1993 Revision), International Chamber of Commerce, Publication No. 500.

Yours very truly,

_____
Authorized Signature Title

KentuckyUnbridledSpirit.com
ED-16 (REV 03/05)

Kentucky UNBRIDLED SPIRIT

An Equal Opportunity Employer M/F/D

Bond No._____

COMMONWEALTH OF KENTUCKY
DEPT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS

Surety Company's phone number:

_____

SURETY BOND
COVERING WELLS TO BE DRILLED, DEEPENED, RE-OPENED OR TEMPORARILY ABANDONED

KNOW ALL MEN BY THESE PRESENTS:

That we_____
_____, as principal
and_____
a corporation, as surety, authorized to do business in this Commonwealth, are held and firmly bound unto the Commonwealth of Kentucky, Department for Natural Resources, in the penal sum of $ _____ lawful money of the United States, for which payment, well and truly made, we jointly and severally bind ourselves, our personal representatives, our heirs, executors, administrators or successors, and assigns.

The conditions of this obligations is such that whereas the above bounden principal proposed to: ☐ FNL ☐ FEL
Carter Coordinates_____☐ FSL _____☐ FWL Section_____Letter_____Number_____
Drill ☐ Deepen ☐ Reopen ☐ Temporarily Abandon ☐ a well in this Commonwealth known as the_____(farm) No. _____located in_____County; under the provisions of KRS Chapter 353; if the above bounden principal shall comply with the laws of this Commonwealth and the rules, regulations and orders of the Department for Natural Resources, with reference to the proper plugging of said well, and filing with the Department all records required by the Department, in the event that said well does not produce oil or gas in commercial quantities, or cease or produce oil or gas in commercial quantities, then this obligation is void; otherwise, the same shall be and remain in full force and effect.

The duration of this bond shall be from the time filed with the Department until the Director of Oil and Gas, upon being satisfied that the owner or operator has plugged the well in accordance with the law and the rules and regulations of the Department for Natural Resources, and that all logs, plugging affidavits, or other pertinent information required by KRS Chapter 353 and the rules and regulations and orders of the Department have been filed, releases the bond.

IN WITNESS WHEREOF, we have hereunto set our hands and affixed our seals this _____ day of _____, 20____.

When bond is released, return to:

_____
Principal

_____
Surety

by _____

(When principal or surety executes this bond by agent, power of attorney or other, evidence of such authority must be attached.)

Form ED-5 (Rev. 4-90)

Bond No. _____

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS

BLANKET SURETY BOND
COVERING WELLS TO BE DRILLED, DEEPENED, RE-OPENED OR TEMPORARILY ABANDONED

KNOW ALL MEN BY THESE PRESENTS:

That we_____
_____, as principal
and_____
a corporation, as surety, authorized to do business in this Commonwealth, are held and firmly bound unto the Commonwealth of Kentucky, Department for Natural Resources, in the penal sum of _____ lawful money of the United States, for which payment, well and truly made, we jointly and severally bind ourselves, our personal representatives, our heirs, executors, administrators or successors, and assigns.

The condition of this obligation is such that whereas the above bounden principal proposes to drill, deepen, reopen or temporarily abandon wells in this Commonwealth; under the provisions of KRS Chapter 353; if the above bounden principal shall comply with the laws of this Commonwealth and the rules, regulations and orders of the Department for Natural Resources, with reference to the proper plugging of said wells, and filing with the Department all records required by the Department, in the event that said wells do not produce oil or gas in commerical quantities, or cease to produce oil or gas in commerical quantities, then this obligation is void; otherwise, the same shall be and remain in full force and effect.

The duration of this bond shall be from the time filed with the Department until the Director of Oil and Gas, upon being satisfied that the owner or operator has plugged the wells in accordance with the law and the rules and regulatons of the Department for Natural Resources, and that all logs, plugging affidavits, or other pertinent information required by KRS Chapter 353 and the rules and regulations and orders of the Department have been filed, releases the bond.

IN WITNESS WHEREOF, we have hereunto set our hands and affixed our seals this _____ day of _____, 20____.

_____
Principal

_____
Surety

by_____

(When principal or surety executes this bond by agent, power of attorney or other, evidence of such authority must be attached.)

Form ED-6 (Rev. 4-90)

VERIFICATION OF CERTIFICATE OF DEPOSIT

State Form

SEND TO: DEPARTMENT FOR NATURAL RESOURCES
DIVISION OF OIL AND GAS
P. O. BOX 2244
FRANKFORT, KY 40602

Gentlemen:

This is to advise you that the undersigned, pursuant to obligations set forth in KRS 353.590, does hereby assign, transfer to and pledge with the Department for Natural Resources all right, title and interest of the undersign in and to the Certificate of Deposit issued by or carried with

Bank Name	Phone Number
Address	
City and State	Zip Code
E-mail Address	

and identified as Certificate of Deposit # _____, in the face amount of $_____, except that interest on the certificate is the property of the assignor.

The assignment constitutes collateral security for performance of the assignor's obligations under KRS 353.590.

The undersigned appoints the Director for the Division of Oil and Gas, Department for Natural Resources as the true and lawful attorney of the undersigned to demand, collect, and receive all amounts, excluding interest, which shall become due under the certificate of deposit and to endorse the certificate of deposit for payment or negotiation and to endorse any commercial paper given in payment of the certificate of deposit. The Director may permit automatic renewal of the certificate of deposit on any maturity date.

The undersigned warrants that the Certificate of Deposit is contemporaneously with the execution hereof being delivered to the Director; that the Certificate of Deposit is genuine and is in all respects what it purports to be; that the undersigned is the owner thereof free and clear of all liens and encumbrances; and that the undersigned has full power, right and authority to execute and deliver this assignment.

Signature	Date Signed	If Corporation, Title
Signature	Date Signed	If Corporation, Title

SIGNATURE GUARANTEE AND UNDERTAKING BY THE FINANCIAL INSTITUTION

The signature(s) of the assignor(s) appearing above (were) made in the presence of the Undersigned Officer of the Financial Institution in the above collateral assignment and is (are) herewith guaranteed by it.

This institution shall save and hold harmless the Department for Natural Resources and the State of Kentucky from all loss, claims, and litigation which it may suffer in consequence of its action in reliance upon and pursuant to the above assignment.

Financial Institution	By
Signature	Date Signed

The Director of the Division of Oil and Gas, Department for Natural Resources herewith acknowledges receipt of the above assignment and agrees to act there under.

Director, Division of Oil and Gas, Department For Natural Resources	Date Signed

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COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES & ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER

APPLICATION FOR PERMIT TO CONSTRUCT ACROSS OR ALONG A STREAM

Chapter 151 of the Kentucky Revised Statutes requires approval from the Division of Water prior to any construction or other activity in or along a stream that could in any way obstruct flood flows.

1. **OWNER:** _____
   Give name of person(s), company, governmental unit, or other owner of proposed project.
   MAILING ADDRESS: _____
   _____
   _____
   TELEPHONE: _____

2. **AGENT:** _____
   Give name of person(s) submitting application, if other than owner.
   ADDRESS: _____
   _____
   _____
   TELEPHONE: _____

3. **ENGINEER:** _____
   P.E. NUMBER: _____

4. **DESCRIPTION OF CONSTRUCTION:** _____
   Give specifications and type of the proposed construction and tell purpose of the project.
   _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____

5. **LOCATION OF CONSTRUCTION:** _____
   Give county name, directions from nearest town, stream name and mile, latitude, longitude, etc.
   _____
   _____
   _____
   _____
   _____
   _____
   _____

6. ESTIMATED BEGIN CONSTRUCTION DATE: _____

7. ESTIMATED END CONSTRUCTION DATE: _____

8. THE APPLICANT *MUST* ADDRESS PUBLIC NOTICE.

(a) PUBLIC NOTICE HAS BEEN GIVEN FOR THIS PROPOSAL BY THE FOLLOWING MEANS:

___ PUBLIC NOTICE IN NEWSPAPER HAVING GREATEST CIRCULATION IN AREA (provide copy)
___ PROPERTY OWNER AFFIDAVITS (contact Division of Water for requirements)

(b) ___ I REQUEST WAIVER OF PUBLIC NOTICE BECAUSE (contact Division of Water for requirements):

_____
_____

9. I HAVE CONTACTED THE FOLLOWING CITY OR COUNTY OFFICIALS CONCERNING THIS PROJECT (Give name and title of person(s) contacted and provide copy of any approval city or county may have issued):

_____
_____

10. LIST OF ATTACHMENTS: _____
List plans, profiles, or other drawings and data submitted. A map should always be provided.

_____
_____
_____

11. I CERTIFY THAT THE "OWNER" OWNS OR HAS EASEMENT RIGHTS ON ALL PROPERTY ON WHICH THIS PROJECT WILL BE LOCATED OR ON WHICH RELATED CONSTRUCTION WILL OCCUR (including, for dams, the area that would be impounded during the design flood): _____ (Initial here).

12. REMARKS: _____
_____
_____
_____

I hereby request approval for construction across or along a stream as described in this application and any accompanying documents. To the best of my knowledge, all of the information provided is true and correct.

Signature: _____
Owner or Agent sign here (Agent should provide copy of Power of Attorney)

Date: _____

SUBMIT APPLICATION AND ATTACHMENTS TO:

Division of Water
Water Resources Branch
Floodplain Management Section
14 Reilly Road
Frankfort, Kentucky 40601

Rev. 8/96 dws

Commonwealth of Kentucky
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
Department for Environmental Protection
Division of Water

INSTRUCTIONS TO APPLICANTS FOR APPROVAL OF CONSTRUCTION IN A FLOODPLAIN

Chapter 151 of the Kentucky Revised Statutes and related regulations require approval by the Natural Resources and Environmental Protection Cabinet prior to the construction or reconstruction of any dam, embankment, levee, dike, bridge, fill or other obstruction in the floodplain of any stream in the Commonwealth. In order to comply with this statute, anyone who proposes such an activity ***must submit to this Cabinet an application and one (1) set of such plans, drawings, and specifications as are necessary*** for a determination of the proposed project's compliance with state laws and regulations and of the effects of the project on the floodway and the flooding of the stream. The application and other information shall be sent to:

Floodplain Management Section
Division of Water
14 Reilly Road
Frankfort, Kentucky 40601
Telephone: (502) 564-3410

The applicant is responsible for proper design, engineering and construction of the proposed project. The Cabinet's approval of the plans does not relieve the applicant from any liability related to construction, operation, or maintenance of the project.

Each application shall be made on the standard form available from, and in the manner specified by, the Cabinet's Division of Water. [NOTE: The application shall not be considered complete until all information required by the Division has been properly submitted.] The application shall be made in the name of the owner, but may be submitted by an authorized agent of the owner. (If submitted by the agent, a Power of Attorney or other authorization by the owner should be included with the application.) The owner must own or have easement or other rights to all property on which the project is to be located, including all areas that are to be entered onto or disturbed by the construction process (for dams, this applies also to the area that would be inundated during an occurrence of the appropriate design flood). KRS 151.260 requires that all plans and specifications submitted with the application be ***prepared by a professional engineer licensed to practice in Kentucky unless this requirement is waived by the Division.*** In order to facilitate handling and storage, the information accompanying the application should be on ***standard size sheets between 8 X 10 inches and 17 X 22 inches (24 X 36 inches for dams).*** The following listing identifies the types of information generally required for the Division's analysis. In some cases additional information as specified by the Division may be required.

1. **General:** All plans submitted must prominently display at least the following information regarding the proposed project: Name of the project, date, scale, name of stream, direction of flow, purpose and intended use, scheduling of activities, and location. Photographs of the proposed construction site looking both upstream and downstream at each cross-section and other points of interest are generally useful and may be required. All elevations shall be given with respect to mean sea level. Also, a north arrow shall be provided where applicable. A public notice will be required unless waived by the Division, see Section #9 on the following Page.

2. **Bridges or Fills:** A properly completed Stream Construction Permit Application Data Sheet; a map showing the location of the proposed project and showing the stream far enough upstream and downstream to determine the approach and discharge flow conditions above and below the site (500 feet minimum); a section of USGS quadrangle map indicating general location of the project; the drainage area and the method of determining the design flow; the ***finished floor elevations of all houses located within 1000 feet of the project;*** field-surveyed cross-sections (referenced to MSL) of the stream at the site of the project showing conditions both before and after construction and extended to at least the elevation of the extreme flood of record plus three feet, preferably at intervals of not more than one hundred (100) feet; additional cross-sections every one hundred (100) feet for five hundred (500) feet upstream and downstream--the final required number and spacing of cross-sections shall be based on whatever is necessary to determine the effects of the proposed construction on the flow and flooding of the stream, but in general no fewer than four sections shall be provided in each direction. Cross-sections shall be presented with left and right appearing as they would for an observer looking downstream. See typical cross-section detail requirements below.

3. **Dams:** A properly completed Dam Construction Permit Application Data Sheet; the project location (provide portion of USGS quadrangle map); the hazard classification determined by the design engineer to be appropriate (justification for the classification may be required by Division of Water); plans and specifications of sufficient detail to show spillways and other hydraulic and structural features to afford a basis for judgement as to the safety of the structure. In the case of class "B" or class "C" dams (as defined by Division of Water regulations), the Division will require complete design plans in accordance with the minimum design criteria set forth in 401 KAR 4:030. (Copies of this regulation are available from the Division.) **[NOTE:** The owner must own or have adequate easement rights for the property on which the dam is to be constructed and on the entire reservoir area (up to the level of the appropriate design flood).]

4. **Channel Relocations:** A properly completed Stream Construction Permit Application Data Sheet; a project location map (preferably USGS quadrangle map); *the finished floor elevations of all houses located within 1000 feet of the project;* surveyed cross-sections referenced to mean sea level, of both proposed and existing channel with left and right appearing as they would for an observer looking downstream; the cross-sections should extend to at least the height of the extreme flood of record with sections taken at the upstream and downstream ends of the relocation, and sufficient sections taken in between to adequately portray changes in stream gradient and geometry, preferably at intervals of not more than one hundred (100) feet; no fewer than three cross-sections should be submitted; at least one cross-section should be submitted for the channel one hundred (100) feet downstream of the proposed relocation. See typical cross-section requirements in #8 below.

5. **Pipeline Stream Crossings (for crossings that are not covered under 401 KAR 4:050):** A properly completed Stream Construction Permit Application Data Sheet; a location map (preferably USGS); a profile along the pipe; the diameter of pipe; the material and the weight of pipe in pounds per linear foot, and the weight and type of anchorage; and all data requested under Bridges or Fills presented above.

6. **Aerial Crossings:** A properly completed Stream Construction Permit Application Data Sheet; a location map (preferably USGS); a profile along crossing showing supports, water surface elevation, and distance above water at closest point.

7. **Fixed Docks, Piers, Wharves, Water Intakes, etc:** A properly completed Stream Construction Permit Application Data Sheet; a location map (preferably USGS); the elevation of docks, top of structure, extreme high water, and normal pool; and the distance that the structure will project into stream.

8. **Cross-Section Requirements (see typical drawing):**

   (1) All cross-sections shall be obtained by field survey. All sections shall be taken perpendicular to stream flow presented with left and right appearing as they would for an observer looking downstream.

   (2) The horizontal scale shall be such that one inch (1") represents no more than two hundred feet (200'). The vertical scale shall be such that one inch (1") represents no more than twenty feet (20'). This requirement may be waived by the Division upon the request of the applicant if another scale is determined more appropriate.

   (3) The cross-sections shall be designated by horizontal stationing with station 0 + 00 designating the most downstream section, 1 + 00 indicating a section one hundred (100) feet upstream, and so on (see sketch representing typical plan view).

9. **Public Notice Information:**

As part of the stream construction permit issuance procedure, the applicant must provide notice to all parties who might be affected by the construction for which a permit has been requested. Public notice may be provided by either of the following methods:

(1) Publishing a notice in the newspaper or newspapers having greatest circulation in the area of the proposed construction. The notice shall provide at least (a) the name of the applicant, (b) the location, the nature and the extent of the proposed construction, and (c) a statement indicating that any comments and objections are to be directed to the Division of Water. The notice shall prominently display address and telephone number of the Division of Water's Floodplain Management Section, which are given at the beginning of these instructions. The notice shall run for a period of three (3) consecutive days or printings of the newspaper. However, if the newspaper is published weekly, two (2) consecutive printings may be allowed upon request of the applicant. Proof of public notice through the newspaper must be provided to the Division. The public notice shall be at least three column inches in size, but must in all cases be large enough that all of the information required is readable.

(2) Submitting affidavits from all parties who reside, own property, or have other legitimate property interests in the affected areas. The affidavit must contain a complete description of the proposed construction; a place for concerned parties to sign indicating that they have read the statement and that they understand that a permit application is being submitted or has been submitted to the Division; and the Division's address and telephone number with explanation that comments and objection are to be directed to this agency. All affidavits shall be submitted to the Division of Water, Water Resources Branch for review.

Under certain circumstances, where flooding impacts are negligible, the Division may waive the public notification requirement. If desired, the Division can provide more detailed information regarding the circumstances under which such a waiver might be issued.

EXAMPLE OF PUBLIC NOTICE

——Public Notice——

Notice is hereby given that (NAME AND ADDRESS), has filed an application with the Natural Resources and Environmental Protection Cabinet to (BRIEF DESCRIPTION OF CONSTRUCTION). The property is located (LOCATION DESCRIPTION, INCLUDE MILES FROM NEAREST TOWN OR MAJOR ROAD INTERSECTION AND NAME OF STREAM). Any comments or objections concerning this application shall be directed to: Kentucky Division of Water, Water Resources Branch, 14 Reilly Road, Frankfort Office Park, Frankfort, Kentucky 40601. Phone: (502) 564-3410.

rev. 5/95
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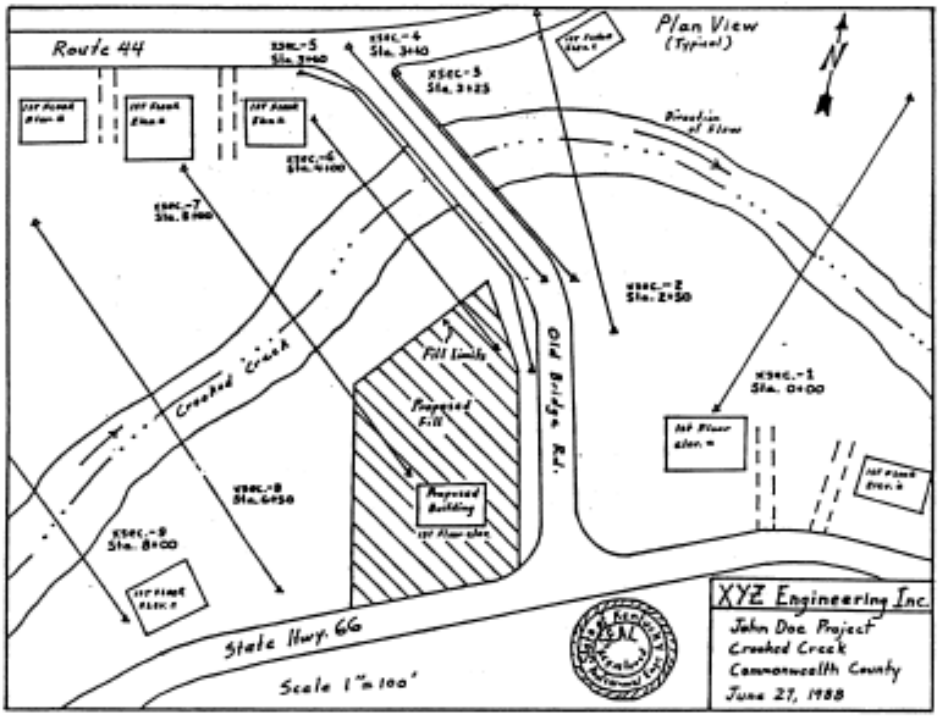
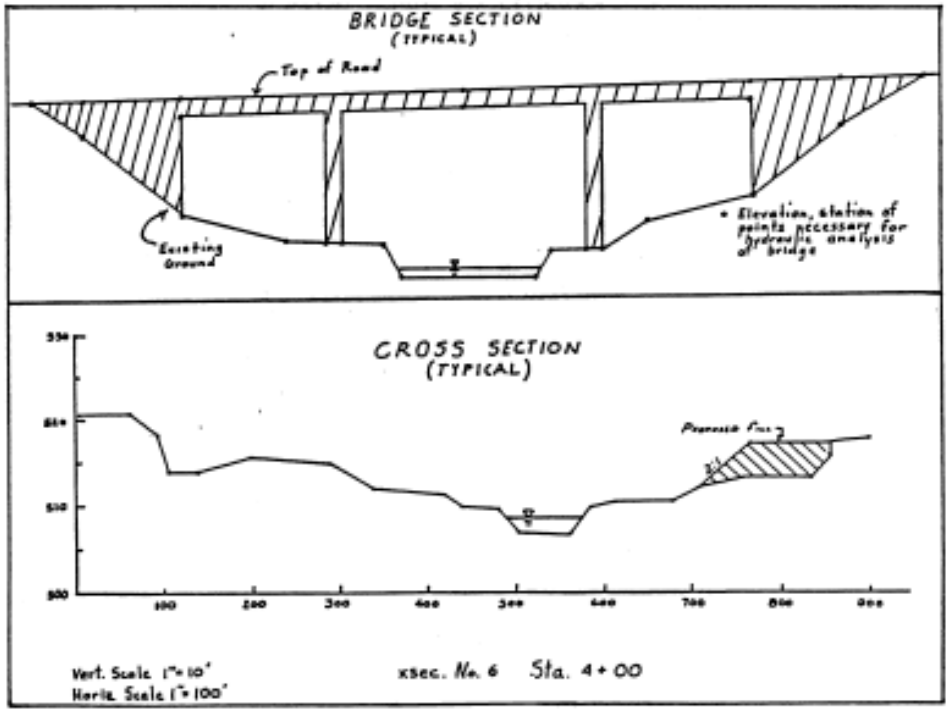

Plan View
(Typical)
Route 44
XSEC.-5
Sta. 3+40
XSEC.-4
Sta. 3+10
XSEC.-3
Sta. 3+25
XSEC.-6
Sta. 4+00
XSEC.-7
Sta. 5+00
XSEC.-2
Sta. 2+50
XSEC.-1
Sta. 0+00
XSEC.-8
Sta. 6+50
XSEC.-9
Sta. 8+00
Crooked Creek
Old Bridge Rd.
Fill Limits
Proposed Fill
Proposed Building
State Hwy. 66
Scale 1"=100'
XYZ Engineering Inc.
John Doe Project
Crooked Creek
Commonwealth County
June 27, 1988


BRIDGE SECTION
(TYPICAL)
Top of Road
Existing Ground
* Elevation, station of points necessary for hydraulic analysis of bridge
CROSS SECTION
(TYPICAL)
Vert. Scale 1"=10'
Horiz. Scale 1"=100'
XSEC. No. 6 Sta. 4+00

7088.REV.9/91

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
Department for Environmental Protection
Division of Water
18 Reilly Road, Frankfort, Kentucky 40601

KENTUCKY WILD RIVERS PROGRAM
Change of Use Permit
APPLICATION

NAME OF WILD RIVER_____

A. APPLICANT INFORMATION

Name: _____

Address: _____

Telephone: _____

Does Applicant own fee title to property affected by the proposed land use change? _____yes _____no

Does Applicant own the mineral rights of the affected property? _____yes _____no

Does Applicant have a lease or contract authorizing the proposed land use change? _____yes _____no

Attach lease or contract to this application form.

B. LEASEE/OPERATOR INFORMATION (If different from Applicant)

Name_____

Address_____

City_____State_____

Zip Code_____Phone_____

C. LANDOWNER INFORMATION (If different from Applicant)

Name_____

Address_____

City_____State_____

Zip Code_____Phone_____

D. TYPE OF LAND USE CHANGE (check those which apply):

_____ Selective Timber Cut
_____ Oil/gas Wells
_____ Underground Mining
_____ Agriculture
_____ Construction

E. LOCATION OF LAND USE CHANGE

County_____

U.S.G.S. Quadrangle Map_____

Latitude_____

Longitude_____

River Mile-point_____

F. EXISTING LAND USE (estimate acreage of each)

_____ acres of Forest
_____ acres of Wetland
_____ acres of Farmland
_____ acres of Residential/urban
_____ acres of Mining/Industrial

G. EXTENT OF LAND USE CHANGE

Total acreage affected: _____

Total miles of river front affected: _____

Total acreage surface disturbance: _____

Total acreage timber removal: _____

Average daily water use required: _____

H. PERMITS. Below list all permits obtained to conduct the land use change:

Permit Number	Issuing Agency

Attach copies of all permits to this application form.

I. DESCRIPTION OF LAND USE CHANGE

Date land use will begin: _____

Date land use will conclude: _____

Effective dates of lease or contract (if applicable): _____

Distance (in feet) of land use change from wild river: _____

Average slope (degrees) of affected land: _____

Soil types (list type nearest to wild river first): _____

_____

Attach Land Use Plan to this application form.

J. STATEMENT OF CONFIRMATION

I hereby agree that the information provided on this application form is accurate to the best of my knowledge, and I will comply fully with all terms and conditions attached to the Change of Use Permit issued in my name by the Natural Resources and Environmental Protection Cabinet.

Signature: _____ _____

Applicant Date

For Agency Use Only

Date Received: _____ *Received By:* _____

Date Site Inspection: _____ *Inspector(s):* _____

Date Public Hearing: _____ *Location:* _____

Date Comment Period Ends: _____ *Comments:* _____

RETURN THIS FORM TO: Wild Rivers Program, Division of Water, Department for Environmental Protection, 18 Reilly Road, Frankfort, KY 40601, or call (502) 564-3410 if you have any questions about completing this application form.

Permit Application No. _____

WILD RIVERS CHANGE OF USE PERMIT APPLICATION
Land Use Plan for Oil and Gas Production

GENERAL PERMIT REQUIREMENTS. KRS 146.290 requires that a landowner obtain a permit prior to conducting a resource removal within a Wild River corridor designated pursuant to KRS 146.220. A permit to authorize oil and gas production contains performance standards and guidelines to protect the scenic and environmental quality of the designated river corridor.

For aesthetic, water quality and fish and wildlife purposes, no clearing of vegetation or other surface disturbance should occur within 100 feet of the banks of a Wild River. No discharge into surface waters of oil, brine water or other substances used in or resulting from the exploration, drilling and production of oil and gas will be permitted within a Wild River corridor. In most cases, storage or holding tanks should be located outside of the corridor. Construction and all activities involving the use of heavy equipment should be conducted during the dry season, generally June 1 to October 31. Blowout prevention equipment should be used on drilling rigs. Other site-specific permit conditions will be determined when the completed permit application is reviewed.

A. GENERAL OPERATION PLAN

1. Attach a U.S. Geological Survey topographic map (scale:1 inch = 500 ft.) showing the planned locations and routes of each of the following:
   a. Access roads and stream crossings
   b. Wells
   c. Tank battery
   d. Equipment holding areas
   e. Collection or holding pits and ponds
   f. Collecting lines and pipelines

2. Provide estimates, to the best of your knowledge, of the following:
   a. Total acreage to be cleared around each well: _____.
   b. Number of trees per acre to be cut, if any: _____.
   c. Number and size of collection or holding pits: _____.
   d. Number and size of tanks in battery: _____.
   e. Length and width of access roads to be constructed or improved: _____.
   f. Total length of collecting lines and pipelines: _____.
   g. Number and acreage of equipment holding areas: _____.

3. Indicate how often the operation facilities will be inspected by the leasee or his representatives:

4. List all chemicals to be used, including cleaning acids, pesticides, etc., and describe the planned methods of application for each:

B. PROTECTION OF SOIL, WATER AND VISUAL QUALITY

1. Briefly describe the methods that will be used to control soil erosion on each of the following:
   a. Access roads

b. Well benches

c. Equipment holding areas

2. Briefly describe planned methods for protecting fish habitat and water quality at stream and drainage crossings (i.e.,use of culverts, temporary bridges, etc.):

3. Briefly describe planned methods for keeping logging debris and other organic matter out of surface waters:

4. Briefly describe planned methods for minimizing the visual impact of the new land use as viewed from the wild river:

C. SPILL PREVENTION AND CONTROL COUNTERMEASURE PLAN

Attach a Spill Prevention and Control Countermeasure (SPCC) Plan (required under 40 CFR Part 112). Describe in detail planned methods for preventing, containing and cleaning up accidental leaks or spills of oil or brine water, explosions, fires or other environmental hazards. Include a description of the tank battery, lining of holding pits, method to separate oil and brine, prevention of vandalism of tanks and placement of pipelines. Attach additional sheets if necessary.

D. RECLAMATION

Describe planned methods for restoring the affected area to its present appearance and condition at the conclusion of the new land use, including plans for revegetation and stabilization of disturbed areas.

NAME AND TELEPHONE NUMBER OF PERSON TO CONTACT FOR MORE INFORMATION:

RETURN THIS FORM TO: Wild Rivers Program, Division of Water, Department for Environmental Protection, Frankfort Office Park, Frankfort, KY 40601.

STOP!! DO NOT ATTEMPT TO COMPLETE THIS FORM UNTIL YOU HAVE CAREFULLY READ THE INSTRUCTIONS

Type of Registration **(check one):** ☐ New ☐ Update ☐ Update Involving Transfer of Ownership

1. Registration No.: _____ **(agency use only)**

2. a. Owner's Name: _____

   b. Owner's Mailing Address: _____

   c. City: _____ State: _____ Zip Code: _____

   d. Telephone No.: (____) _____

   e. Business Form: ☐ Partnership ☐ KY Corporation ☐ Non-KY Corp ☐ Solepropreitor

3. Manager's/Pumper's Name: _____

   Telephone Number: (____) _____

4. Lease Name: _____

5. Tank Battery Location and Size:

   a. Carter Coordinates: Section: _____ Letter: _____ No.: _____

      Feet from North Line _____ or Feet from South Line _____

      Feet from East Line _____ or Feet from West Line _____

   b. County: _____ Highway: _____

   c. Number and storage capacity of tanks: _____

   d. SPCC containment provided ☐ Yes ☐ No

6. Production Associated With This Tank Battery

   a. Total wells connected to battery: _____

   b. Number of production wells: _____

      List Department of Mines and Minerals Well Permit #_____

   c. Amount of oil produced: _____ bbls/day

      Amount of gas produced: _____ mcf/day

   d. Amount of produced water made: _____ bbls/day

(continued)

7. Produced Water Disposal Method **(check one)**

a. ☐ Enhanced Recovery Well ☐ Discharge to a Surface Stream or Pit

☐ Disposal Well ☐ Evaporation (describe) _____

☐ Transported Off-Site for Disposal

☐ Other (describe) _____

☐ KPDES Permit No.: _____

b. If the disposal method is a well, what is the name of the receiving formation and the EPA UIC Permit # _____.

c. If the disposal method involves a discharge to a surface stream, what is the distance to and name of the receiving stream _____.

8. Provide photocopy of USGS topo map with the location(s) of the Tank Batterie(s) marked.

9. Signature _____ Title _____

Please Print Name _____ Date _____

OIL AND GAS PRODUCERS PRODUCED WATER DISPOSAL REGISTRATION FORM
COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER

Regulation 401 KAR 5:090, Section 4 (Control of Water Pollution From Oil and Gas Facilities), requires all oil and gas operators to register their facilities with the Division of Water. Those operators who have submitted registration forms previously are not required to submit these forms unless there has been a change in the information submitted.

INSTRUCTIONS
COMPLETE A REGISTRATION FORM FOR EACH TANK BATTERY
PLEASE PRINT OR TYPE

1. Registration No.: Do not write in this space, this number will be assigned by Division of Water Office personnel.

2. Owner's Name, Mailing Address and Telephone No.: Give the complete name, mailing address, and telephone number of the operator.

3. Manager's/Pumper's Name and Telephone No.: Give the complete name and telephone number of the manager or pumper.

4. Lease Name: Give the current lease name.

5. Tank Battery Location: Give the Carter Coordinate location and the county of this tank battery.

6. Production Associated With This Battery: Give the total number of wells and the number of production wells associated with this tank battery. Give the amounts of oil (in barrels per day), gas (in thousand cubic feet per day) and produced water (in barrels per day) processed at this tank battery.

7. Produced Water Disposal Method: Check the box which best describes your disposal method.

   Enhanced Recovery Well: Produced water is discharged through a well into the production zone to aid in the recovery of oil or gas.

   Disposal Well: Produced water is discharged through a well into a zone other than the production zone for disposal.

   Transported Off-Site for Disposal: Produced water is removed from the tank battery by way of a tank truck or pipeline for disposal at another site.

   Discharge to a Surface Stream or Pit: Produced water is placed in a pit which has a discharge to a surface stream, and/or produced water directly discharges into a surface stream.

   Evaporation: Produced water is placed in a pit which has no surface discharge or enhanced evaporation, please describe.

8. USGS Topographic Map: Please provide photocopy of map spotting location(s) of Tank Batteries(s).

9. Signature: The person who is responsible for the operation of this tank battery shall sign this form and indicate their title.

If more forms are required, please contact the Division of Water at (502) 564-3410.

Return the completed forms to the following address:

Industrial Section
KPDES Branch
Division of Water
14 Reilly Road, Frankfort Office Park
Frankfort, Kentucky 40601

Department for Environmental Protection
Division of Water, KPDES Branch
14 Reilly Road, Frankfort Office Park
Frankfort, Kentucky 40601

TRANSFER OF OWNERSHIP

PURSUANT TO 401 KAR 5:090, SECTION 4

TRANSFERRED TO:	*TRANSFERRED FROM:*
OPERATOR _____	OPERATOR _____
ADDRESS _____	ADDRESS _____
_____	_____
IF CORPORATION, NAME PRINCIPAL REPRESENTATIVE	IF CORPORATION, NAME PRINCIPAL REPRESENTATIVE
_____	_____

Enclose a Completed Updated Registration Form for Each Facility Listed

LEASE NAME	COUNTY	REGISTRATION NUMBER

CERTIFICATION:

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND I AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT. I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE. IN ORDER FOR THE DIVISION OF WATER TO ACCEPT THIS DOCUMENT, SIGNATURES OF BOTH THE BUYER AND THE SELLER ARE REQUIRED. IF YOU ARE UNABLE TO OBTAIN THE SIGNATURE OF THE SELLER, SOME OTHER VERIFICATION OF THE TRANSACTION, SUCH AS A COPY OF THE ASSIGNMENT WILL BE ACCEPTABLE.

_____ _____
SIGNATURE OF PURCHASER DATE

_____ _____
SIGNATURE OF SELLER DATE

KENTUCKY DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
APPLICATION TO DISPOSE OF PRODUCED WATER OFF-FACILITY

(Please Print or Type)

I. **Producing Facility**

Registration Number _____ Lease Name _____

Operator Name _____

Address _____

Barrels of water produced per day _____

Barrels of produced water being transported (bbls/day) _____

II. **Hauler**

Name _____ Phone Number (___) _____

Address _____

Vehicle License _____, _____, _____

Vehicle Description _____

If by pipeline _____ distance _____ diameter

III. **Disposal Site**

Registration Number _____ Lease Name _____

Operator Name _____

Address _____

Location (Carter Coordinates) _____ (County) _____

Method of Final Disposal (choose at least one)

_____ Enhanced Recovery

UIC Permit # _____ (if available)

_____ Disposal Well

UIC Permit # _____

_____ No Discharge System (describe) _____

_____

IV. **Signature** _____ **Date** _____

Name and Title _____

INSTRUCTIONS

I. Producing Facility

Registration Number: Write the seven digit number assigned for the tank battery from which the produced water will be transported. If you have not registered or can not locate the registration number, please call (502) 564-3410.

Lease Name: Give lease name of facility from which the produced water will be transported.

Operator's Name, Address, and Telephone Number: Give the complete name, mailing address, and telephone number of the facility operator.

Barrels of Water Produced Per Day: Give amount of water that is produced per day (example: ? barrels/month or gallons/day, etc.).

II. Hauler

Hauler's Name, Address, and Telephone Number: Give the complete name, mailing address, and telephone number of the transporter.

Transport Vehicle Information: (a) **License Number:** If more than one vehicle is to be used, list all numbers (use separate sheet, if necessary). (b) **Description:** Give the year, make, and capacity of the transport vehicle(s). Or specify alternate method of transportation such as pipelines, etc.

III. Disposal Site

Registration Number: Write seven digit number assigned for the tank battery to which the produced water will be transported. If you have not registered or can not locate the registration number, please call (502) 564-3410.

Lease Name: Give lease name of facility to which the produced water will be transported.

Disposer's Name, Address, and Telephone Number: Give the complete name, mailing address, and telephone number of the disposer.

Location: Give the county name and the Carter Coordinates of the disposal site. If not in Kentucky, please indicate which state.

Final Method of Disposal: Mark final method of disposal (a) **Enhanced Recovery:** Give the Underground Injection Control (UIC) permit number of the disposal facility, if available. Use the Department of Mines and Minerals, Division of Oil and Gas injection well permit number if UIC permit number is not available. (b) **Disposal Well:** Refer to instructions for (a), enhanced recovery. (c) **No Discharge System:** Give a brief description of the no discharge system.

IV. Signature: The person who is responsible for the operation that generates the produced water shall sign this form. **Date, Name and Title:** Self-explanatory.

Send the completed application to the Industrial Wastewater Section, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Office Park, Frankfort, Kentucky 40601. Transport of produced water can not occur until approval has been granted by the Division of Water.

Commonwealth of Kentucky
Natural Resources and Environmental Protection Cabinet
Department for Environmental Protection
Division of Water

APPLICATION FOR CONSTRUCTION AND OPERATION OF A PRODUCED WATER HOLDING PIT - 401 KAR 5:090, SEC. 9

(Instructions for completing and submitting this form on back.)

Please Print or Type

1. Registration No.
2. Operator's Name: _____
   Mailing address: _____
   City: _____ State: ____ Zip Code: _____
   Telephone Number: ( ) _____
3. Lease Name: _____
4. Construction Specifications:
   (a) Dimensions: _____
   (b) Liner Composition: _____
   (c) Liner Thickness: _____
   (d) Height of Berm: _____
5. Operation Specifications: (*See instructions on back*)
6. Closure Specifications: (*See instructions on back*)
7. Permit Fee: Certified check or money order for one hundred dollars ($100.00) is (*check one*)
   ☐ enclosed
   ☐ will submit within 30 days of billing
8. *I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

Name and Official Title: _____
(Please print or type)

Telephone Number: ( ) _____

Signature: _____ Date Signed _____

INSTRUCTIONS

(This form is to be completed and submitted with all necessary attachments at least 20 days prior to the start of construction of a holding pit. Submit two (2) copies of the application package to the Division of Water District Office for the area in which your pit will be located. See attached map.)

1. Registration Number: Write the seven digit number assigned to this facility. If you have not registered or cannot locate the registration number, please call (502) 564-3410 extension 446.

2. Operator's Name, Mailing Address, and Telephone Number: Give the complete name, mailing address, and telephone number of the facility operator.

3. Lease Name: Give the name of the lease and the county in which it is located.

4. Construction Specifications:
   (a) Dimensions: Give the length, width , and depth of the pit in feet,
   (b) Liner Composition: Give the type of liner used (hypalon, polyurethane, etc.),
   (c) Liner Thickness: Give the thickness of the liner in mils,
   (d) Height of Berm: Give the height of the berm in feet.

5. Operation Specifications: The following should be attached to the application:
   1) a diagram (at least 8.5" x 11" and no larger than 11" x14") showing location of surface water diversion structures and their dimensions, and
   2) a narrative describing how minimum freeboard will be maintained and how material will be disposed.

6. Closure Specifications: Attach a narrative describing the type of material that will be used as backfill, final contours, proposed vegetative cover, and how wastes will be disposed.

7. Permit fee: Self explanatory. Make check or money order payable to Kentucky State Treasurer.

8. Certification: Self-explanatory.

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APPLICATION FOR PERMIT TO INSTALL ABOVEGROUND STORAGE TANKS FOR PETROLEUM PRODUCTS OR HAZARDOUS SUBSTANCES

AIG Tanks

For Office Use Only
Revised Form on: December 17, 1996

Permit No.: _____

Approved By: _____

Date Approved: _____

Amount Paid: _____

Installation Site

_____
NAME OF BUSINESS/COMPANY (D/B/A)

_____
STREET ADDRESS

_____
CITY STATE ZIP CODE

( ) _____
TELEPHONE NUMBER COUNTY

_____
CONTACT PERSON FEDERAL TAX ID NUMBER

Owner of Tanks

_____
OWNER/OPERATOR/COMPANY NAME

_____
STREET ADDRESS

_____
CITY STATE ZIP CODE

( ) _____
TELEPHONE NUMBER COUNTY

Installation Contractor

_____
NAME OF CONTRACTOR

_____
COMPANY NAME

_____
STREET ADDRESS

_____
CITY STATE ZIP CODE

( ) _____
TELEPHONE NUMBER

Type of Facility

☐ Commercial ☐ Private Use ☐ Government

☐ Heating Oil ☐ Bulk Plant

☐ Other (Please Specify): _____

_____

PLEASE RETURN COMPLETED APPLICATION TO THE ADDRESS LISTED BELOW:

Department of Housing, Buildings and Construction
State Fire Marshal's Office - Hazardous Materials Section
Attention: Dale Mancuso
1047 U.S. Highway 127 South, Suite 1
Frankfort, Kentucky 40601-4337
Telephone Number: (502) 564-3626

Tank Type Codes:								
	01	UL 142	04	ASME	07	API 12D	10	Sti 921
	02	UL 80	05	API 650	08	API 12F	11	Other
	03	UL 2085	06	API 12B	09	DOT		

1. **Tank Information:**

NOTE: ***Tank numbers shall correspond with the tank numbers on the accompanying site plan.***

TANK #1: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #2: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #3: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #4: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #5: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

TANK #6: ☐ GAL ☐ BBL

CAPACITY (GALLONS) | TANK TYPE CODE | APPROXIMATE AGE OF TANKS

PRODUCT STORED

☐ Vertical ☐ Horizontal ☐ Compartmented

Material safety data sheets must accompany this application if the products to be stored are other than gasoline, diesel fuel, fuel oil, kerosene or lubricating oils.

a) From the tanks, what are the distances to nearest important buildings? _____ feet

b) From the tanks, what are the distances to property lines? _____ feet

c) Will the tanks be near any L.P. containers? ☐ Yes ☐ No

If yes, how far away will they be? _____ feet

d) What type of spillage control facilities will be used?

☐ Dike ☐ Double -wall Tank ☐ Remote Impoundment

e) What will be the capacity of the spillage control facilities? _____ gallons

f) What are the dimensions of each tank?

TANK #1

_____ . ____ ft. (LENGTH/HEIGHT) x _____ . ____ ft. (DIAMETER)

TANK #2

_____ . ____ ft. (LENGTH/HEIGHT) x _____ . ____ ft. (DIAMETER)

TANK #3

_____ . ____ ft. (LENGTH/HEIGHT) x _____ . ____ ft. (DIAMETER)

TANK #4

_____ . ____ ft. (LENGTH/HEIGHT) x _____ . ____ ft. (DIAMETER)

TANK #5

_____ . ____ ft. (LENGTH/HEIGHT) x _____ . ____ ft. (DIAMETER)

TANK #6

_____ . ____ ft. (LENGTH/HEIGHT) x _____ . ____ ft. (DIAMETER)

1. **Tank Information (continued):**

g) What will the fill connection diameter be for each tank (indicate inches)?

Tank #1	TANK #2	TANK #3	TANK #4	TANK #5	TANK #6
☐☐	☐☐	☐☐	☐☐	☐☐	☐☐

h) What are the diameters of the working vents (indicate inches)?

Tank #1	TANK #2	TANK #3	TANK #4	TANK #5	TANK #6
☐☐	☐☐	☐☐	☐☐	☐☐	☐☐

i) What are the diameters of the emergency vents - if equipped (indicate inches)?

Tank #1	TANK #2	TANK #3	TANK #4	TANK #5	TANK #6
☐☐	☐☐	☐☐	☐☐	☐☐	☐.

If the tanks do not have emergency vents, are they designed with a weak roof to shell seam?
☐ Yes ☐ No

j) Will a valve be installed as close to the tank as practical if a connection is made to the liquid area of the tank? ☐ Yes ☐ No

k) If class I liquids are to be stored, will the vent pipe outlets be at least twelve (12) feet above adjacent ground level? ☐ Yes ☐ No

l) If the liquid being stored is other than a class I liquid, will the vent pipe outlet be above the fill connection? ☐ Yes ☐ No

m) If class IA liquids are being stored, will the tanks be equipped with pressure/vacuum venting devices?
☐ Yes ☐ No

n) If the tank is over 1,000 gallons capacity, will overfill prevention be provided? ☐ Yes ☐ No

o) If the liquid being stored is a class I or class II liquid, will the fill connection terminate within six (6) inches of the tank bottom? ☐ Yes ☐ No

p) Will *"no smoking"* signs be provided in the area of the tanks? ☐ Yes ☐ No

q) If the tanks are located at a public facility, will they be enclosed in a chain link fence at least six (6) feet high? ☐ Yes ☐ No

r) Will the tank outlets be equipped with some sort of anti-siphon device located as close as practical to the tank? ☐ Yes ☐ No

s) If the storage tank supplies a day tank, will the day tank be provided with return piping that is a continuous run without traps or sags and that is of a larger diameter than the supply piping?
☐ Yes ☐ No

t) If the fill connection point is other than at tank top, will a check valve be provided to prevent back-flow from the system? ☐ Yes ☐ No

u) Will the tanks be protected from vehicular damage if placed in a traffic area? ☐ Yes ☐ No

- **Aboveground Piping:**

  a) Will the aboveground piping be substantially supported and protected against physical damage and excessive stresses? ☐ Yes ☐ No

  b) Will the aboveground piping be provided with pressure relief devices that discharge to a suitable location? ☐ Yes ☐ No

  c) Will the aboveground piping meet the requirements of ANSI B31, American National Standard Code for Pressure Piping? ☐ Yes ☐ No

- **Underground Piping:**

  a) Delivery Method: ☐ Pressurized ☐ Suction

  b) Type: ☐ Steel ☐ FRP ☐ Approved Non-Metallic

  c) Will FRP and non-metallic piping be listed for use with alcohols and other oxygenated fuels? ☐ Yes ☐ No

  d) Will flexible connections be provided at every change of direction from the vertical to the horizontal, and vice versa? ☐ Yes ☐ No

  e) Type of flexible connections: ☐ Swing Joints ☐ Approved Flexible Connectors

  f) Depth of piping: _____ inches

  g) Is secondary containment provided for product piping? ☐ Yes ☐ No

  h) Will pipe sealant be compatible with product to be used? ☐ Yes ☐ No

  i) Indicate type of bedding and backfill around piping: ☐ Sand ☐ Pea Gravel ☐ Crushed Rock

  j) FRP piping to be properly installed per manufacturer's specifications: ☐ Yes ☐ No

  k) Type of steel pipe used: ☐ Galvanized ☐ Black

  l) Indicate degree of slope on piping (inches per foot): ☐ Level or ☐ ⅛ ☐ ¼ ☐ ½

  m) If suction piping is used, indicate location of check valve: ☐ Tank ☐ Pump/Dispenser

  n) If pressurized pipe is used, will approved leak detectors be used: ☐ Yes ☐ No

  Type: ☐ Mechanical ☐ Electronic

  o) Indicate method of cathodic protection for steel piping: ☐ Anode ☐ Impressed Current

  p) Indicate method of sacrificial anode attachment to piping: ☐ Cadweld ☐ Thermite Weld ☐ Mechanical Clamp

3. **Underground Piping (Continued):**

q) Steel pipe to be used for product or vent lines: ☐ Schedule 40 ☐ Schedule 80

r) Steel couplings for product or vent lines will be: ☐ Schedule 40 ☐ Schedule 80

s) Method of leak detection for piping: ☐ Tightness Testing
☐ Ground Water Monitoring ☐ Vapor Monitoring ☐ Interstitial Monitoring

4. **Pumps/Dispensers:**

a) Where will the pump/dispensers be located in relation to the tanks? ☐ Tank Top
☐ 5 to 49 Feet ☐ 50 Feet and Greater ☐ Directly Adjacent to the Dike Wall

b) Will all dispensers be at least:

Twenty (20) feet from fixed source of ignition? ☐ Yes ☐ No
Ten (10) feet from property lines? ☐ Yes ☐ No
Five (5) feet from any building opening? ☐ Yes ☐ No

c) Will heating fuel dispensers be located on a different island gasoline dispensers? ☐ Yes ☐ No

d) Will each end of a dispenser island be protected with metal crash post barriers at least thirty (30) inches in height? ☐ Yes ☐ No

e) Will shear valves be properly installed on pressurized piping runs? ☐ Yes ☐ No

f) Will the pumps and dispensers be UL listed? ☐ Yes ☐ No

g) Will some sort of emergency shut-off device be provided more than twenty (20) feet, but less than one hundred (100) feet from the dispensing area? ☐ Yes ☐ No

h) Will all wiring be installed in accordance with NFiPA 70, the National Electrical Code?
☐ Yes ☐ No

i) Will the wiring be certified by a certified electrical contractor? ☐ Yes ☐ No

5. **Bulk Plants:**

a) Please indicate the distance from the load rack to nearest building, property line, and storage tanks:
_____ Feet to Building _____ Feet to Property Line _____ Feet to Storage Tanks

b) If the rack is a top loading type, will the final fuel control valve be of the self-closing type?
☐ Yes ☐ No

c) If the rack is a bottom load configuration, will an automatic overfill prevention system be provided?
☐ Yes ☐ No

d) In the load/un-load area, will an emergency drainage system be provided that will direct leakage or spillage to a safe location? ☐ Yes ☐ No

Fee Schedule

KRS 198B requires a fee for plan review services. A charge of $50.00 for the first tank and $25.00 for each additional tank is required for this specialized review. **The required fee must accompany your application for permit.** Your check or money order should be made payable to the *"Kentucky State Treasurer"*. The name and location of the project must be indicated on the check or money order.

I, the undersigned, do hereby agree that this installation shall comply with all applicable requirements of the State Fire Marshal's Office promulgated in 815 KAR 10:050 and all other applicable standards as required. All answers in this application are true and accurate to the best of my knowledge.

_____ _____

Contractor (Signature) Date

Did you enclose your plan review fee? ☐ Yes ☐ No Amount: $ _____ .00

Note: Site plan, specifications and check or money order shall accompany this document for approval.

Approval by the State Fire Marshal's Office

Approval of plans to install, subject to final inspection and testing. System shall not be used or products dispensed prior to notification of local State Fire Marshal representative.

_____

Senior Deputy State Fire Marshal
Office of the State Fire Marshal
Hazardous Materials Section

This storage tank system was tested on _____ with satisfactory results.

Pursuant to KRS 227.300, REG. 815, and KAR 10:050 the above listed installation is found to have substantially complied with the Kentucky *"Standards of Safety"*.

_____

Field Inspector
Office of the State Fire Marshal
Hazardous Materials Section

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DIVISION OF MINE SAFETY

P. O. BOX 2244, FRANKFORT, KY. 40602-2244

Application to Mine Within 300 Feet of an Oil or Gas Well

For Office Use Only
DMS Permit Number

Mine Licensee _____ State File Number: _____

Mine Name or Number: _____ Address: _____

Strata overlying mine at well location: _____ Feet _____

Coal Seam: _____ Seam thickness: _____ Inches

Method of Survey: _____

Office of Mine Safety & Licensing Office: _____

No coal shall be mined from the _____ x _____ foot square block of coal shown to be left centered about the well on the map accompanying the application.

NOTE: Attach an 81/2"x 11" copy of the section of the USGS. 7.5 minute topographic map with the location of the well plotted on the map and identification of the topographic sheet. Attach a certified mine map showing the well location.

Reviewed by: _____ Date: _____
(Div. of Mine Safety, District Supervisor Signature and Date)

_____
Director - DMS Date

Original Well Operator: _____ Current Well Operator: _____

Original Oil/Gas Lease Name: _____ Current Lease Name: _____

Well Operator Number: _____ Div. of Oil & Gas Permit Number: _____

Well Location

To be completed by Div. Of Oil & Gas:	As surveyed by the Mine Licensee:
Longitude _____	Longitude _____
Latitude _____	Latitude _____

Current Well Status

☐ Producing ☐ Plugged and Abandoned ☐ Abandoned (not producing or plugged)

In accordance with KRS 352.510, I have forwarded simultaneously to the well operator and to the Division of Mine Safety, by certified or registered mail, a copy of the maps and plans required by law to be filed and kept up to date, showing on the copy of the map or plan the mine workings and projected mine workings on or beneath the tract of land and within three hundred (300) feet of the well. I further understand that the well operator may, within fifteen (15) days from receipt of the copy of the map, file specific objections in writing to the mining operations and that no action on this application shall therefore be taken by the Office within that fifteen (15) day period.

_____ _____ _____
Signature of mine operator or engineer Typed or printed name Date

Certified Mail Number: _____ Date Mailed: _____ Mailed by: _____
(Engineer or coal company)

Information to be completed by Division of Oil & Gas

Well Type: ☐ Oil Well ☐ Gas Well ☐ Combination (Oil & Gas) ☐ Injection

☐ "As Drilled" Well Survey ☐ Directional/Inclination Survey

Well Completion Date: _____ County: _____

Total Depth: _____ feet Producing Formation(s): _____

Reviewed By: _____ Date: _____
Signature of Oil & Gas Regional Supervisor

FORM-OG500 (REVISED 10/2014)