

**BIRK PETROLEUM**

874 12<sup>th</sup> Rd, BURLINGTON, KS 66839  
620-364-1311

Received  
KANSAS CORPORATION COMMISSION

**OCT 22 2018**

CONSERVATION DIVISION  
WICHITA, KS

10/15/2018

Michael J. Duenes  
Kansas Corporation Commission  
1500 SW Arrowhead Road  
Topeka, Ks 66604-4027

Re: Docket No. 19-CONS-3106-CUIC

Dear Mr. Duenes,

I am writing this in response to the letter of protest filed by Ms. Susan Royd-Sykes and to address the issues that will be brought at the Prehearing Conference.

First, I would like to state that I have been a licensed operator in the State of Kansas since 1990 and have a well established record of compliance with the Kansas Corporation Commission. The vast majority of Kansas operators are small independent producers, including myself. We are also farmers and ranchers, members of our communities, employers and parents. We contribute to our local economies and the state economy. I am a 4th generation and life-long resident of Coffey County where the application wells are located so I have a direct interest in following good operating practices. The Kansas Corporation Commission has implemented rules and regulations governing the operations of the oil and gas industry in Kansas. As you know, waste water comes with the production of crude oil. It is proven that the best way to limit pollution to our surface water and environment is to dispose or inject the waste water back into the ground at depths that keep the surface water protected. The KCC has established regulations concerning the depths, pressures, and rates for disposal and injection wells. The applicant wells have had mechanical integrity tests performed as per regulations and have been approved by District staff. The applicant wells meet the existing regulations and should be approved.

Ms. Royd-Sykes sites concerns about earthquakes being caused by "heavy saltwater disposal". I believe that concern is unfounded in this instance and most other instances in Eastern Kansas. The application wells have a maximum operating pressure of 300 psi and a maximum injection rate of 100 bbls/day and well #5 is already permitted at a max operating pressure of 100 psi and maximum injection rate of 50 bbls/day and has had no issues. According to information obtained from the Kansas Geological Survey the most recent earthquakes recorded in Kansas have been at a depth of 5 km or more, or over 16,404 feet and have been between magnitudes of 2.0 – 3.5 on the Richter Scale and were located in south

central Kansas. The USGS states that "Earthquakes with magnitude of about 2.0 or less are usually called microearthquakes; they are not commonly felt by people and are generally recorded only on local seismographs." The applicant wells are at a depth of 650-700 feet. It seems unlikely that disposal at the depths and rates requested would be capable of causing earthquakes.

Ms. Royd-Sykes claims damage to her home from earthquakes located in Oklahoma. It should be noted that County records show her home was built in 1885. A structure that is 133 years old may have other issues that affect it besides earthquake activity being the main cause of any damage.

It appears your office is in receipt of the Application to Amend the injection permit and I have enclosed a copy of the completed mechanical integrity test for well #10 that was witnessed and signed by district staff. Please also find copies of data acquired from the KGS, USGS and Coffey County attached.

I look forward to the approval of the applicant wells and a quick resolution to this issue.

Sincerely,



Brian L Birk, dba Birk Petroleum

Cc: Rene Stucky, Kansas Corporation Commission

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## CASING MECHANICAL INTEGRITY TEST

DOCKET# D-32724Disposal Well ☐ Enhanced Recovery: ☐Repressuring ☐Flood ☐Tertiary ☐

Date injection started

API #15- 031-19151-00-00NESWSW), Sec 7, T 23, S, R 15 (E/W)

GPS

Feet from South Section Line

Feet from East Section Line

Lease

Merritt

Well #

10

County

CoffeyOperator: Birk PetroleumOperator License# 31280

Name &amp;

Address 874 12th Rd SWContact Person Brian BirkBurlington KS 66839Phone 620 3641311Max. Auth. Injection Press 300 Psi; Max Inj. Rate 50 bbl/d;

If Dual Completion - Injection above production

Injection below production

Conductor

Surface

Production

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Tubing

Size

Set at

Cement Top

" Bottom

DV/Perf.

Packer type

Zone of injection

ft. to ft.

TD (and plug back)

Size

Set at

Perf. or open hole

ft. depth

Type MIT:

Pressure: ☒Radioactive Tracer Survey: ☐Temperature Survey: ☐F Time: Start 20 Min 40 Min 60 Min

I

E Pressures: 260 260 260 Set up 1System Pres. during test 7 2018

L

D Set up 2

Annular Pres. during test

D

Set up 3

Fluid loss during test bbls.

A

T

A

Tested: Casing ☒ or Casing - Tubing Annulus ☐

The bottom of the tested zone in shut in with

Test Date 9/11/18 Using BAB Company Tools Company's EquipmentThe operator hereby certifies that the zone between 0 feet and 666 feet

was the zone tested

Signature

Title

The results were Satisfactory ☒Marginal ☐Not Satisfactory ☐State Agent: Mike DeffenTitle: ECRSWitness: YES ☒NO ☐

REMARKS:

Annular 20' from surface 666-20 = 646-50 = 596 X .43 = 256.28

Orgin. Conservation Div.:

KDHE/T: mf

Dist. Office

SEP 17 2018

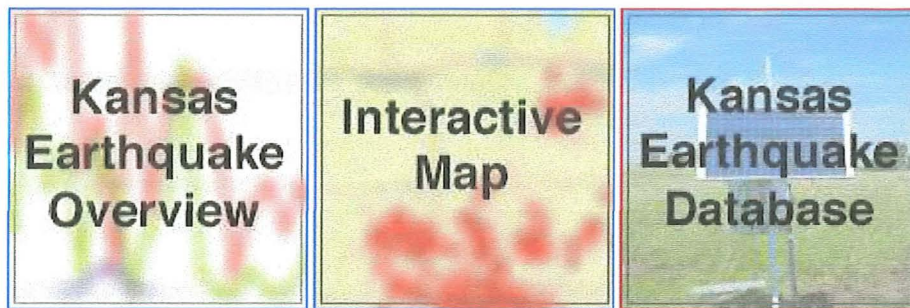
Computer Update

Is there Chemical Sealant or a Mechanical Casing patch in the annular space? (Y/N) ☐GPS Lat 38.05629GPS Long 095.80947(If YES please describe in REMARKS)  
KCC Form U-7



## Kansas Earthquakes

Kansas Geological Survey



### Topics...

[Home](#)

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[Public Information Circular  
on Earthquakes](#)

[Kansas Earthquake History](#)

[Seismometer Network Data](#)

["Earthquake Highlights"  
newsletter](#)

[Kansas Earthquake  
Database](#)

[Oklahoma Geological  
Survey Earthquake  
Information](#)

### Most Recent Quakes from the Survey's Network

ID: 1001454210  
UTC Date: 2018-10-14 12:10:27  
Local Date: OCT-14-2018, 07:55:27 AM  
Latitude: 37.079  
Longitude: -97.812  
Magnitude: 2.5  
County: Harper

ID: 1001454206  
UTC Date: 2018-10-14 06:10:10  
Local Date: OCT-14-2018, 01:21:10 AM  
Latitude: 37.092  
Longitude: -97.809  
Magnitude: 2  
County: Harper

ID: 1001454205

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### USGS Notifications

The following data are from alerts sent from the [U.S. Geological Survey](#) Earthquake Hazards Program. If you feel an earthquake you can report it to the USGS using the "Did You Feel It?" link on the page for the earthquake you felt. Reporting the quake helps the USGS get a more complete description of what people experienced, the effects of an earthquake, and the extent of damage.

### Most Recent Earthquake

Oct. 11, 2018

Date: 10/11/2018, 5:30:27 AM  
Latitude: 37.061  
Longitude: -97.846  
Depth (km): 5.0  
Magnitude: 2.7  
More info: [us1000haix](#)  
Location: 3.1 km (1.9 mi) ESE of Bluff City, Kansas

## Most Recent Earthquakes

Oct. 3, 2018

Date: 10/3/2018, 2:36:41 AM  
Latitude: 38.336  
Longitude: -96.826  
Depth (km): 5.0  
Magnitude: 3.5  
More info: [us1000h656](#)  
Location: 4.8 km (3.0 mi) W of Runnymede, Kansas

Date: 10/3/2018, 7:40:46 PM  
Latitude: 37.364  
Longitude: -97.983  
Depth (km): 5.0  
Magnitude: 2.4  
More info: [us1000h6q2](#)  
Location: 8.5 km (5.2 mi) WNW of Clements, Kansas

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## Most Recent Earthquakes

Sept. 30, 2018

Date: 09/30/2018, 3:39:08 AM  
Latitude: 37.175  
Longitude: -97.478  
Depth (km): 5.0  
Magnitude: 2.6  
More info: [us1000h4jy](#)  
Location: 2.4 km (1.5 mi) E of Perth, Kansas

Date: 09/30/2018, 7:33:23 PM  
Latitude: 37.186  
Longitude: -97.442  
Depth (km): 5.8  
Magnitude: 3.0  
More info: [us1000h4tp](#)  
Location: 5.7 km (3.6 mi) ENE of Perth, Kansas

[Kansas Geological Survey](#), Exploration Services

Updated Oct. 13, 2018

Comments to [webadmin@kgs.ku.edu](mailto:webadmin@kgs.ku.edu)

The URL for this page is <http://www.kgs.ku.edu/Geophysics/Earthquakes/index.html>



# The Severity of an Earthquake

The severity of an earthquake can be expressed in terms of both *intensity* and *magnitude*. However, the two terms are quite different, and they are often confused.

Intensity is based on the observed effects of ground shaking on people, buildings, and natural features. It varies from place to place within the disturbed region depending on the location of the observer with respect to the earthquake epicenter.

Magnitude is related to the amount of seismic energy released at the hypocenter of the earthquake. It is based on the amplitude of the earthquake waves recorded on instruments which have a common calibration. The magnitude of an earthquake is thus represented by a single, instrumentally determined value.

Earthquakes are the result of forces deep within the Earth's interior that continuously affect the surface of the Earth. The energy from these forces is stored in a variety of ways within the rocks. When this energy is released suddenly, for example by shearing movements along faults in the crust of the Earth, an earthquake results. The area of the fault where the sudden rupture takes place is called the *focus* or *hypocenter* of the earthquake. The point on the Earth's surface directly above the focus is called the *epicenter* of the earthquake.



*San Fernando, California, 1971. Highway interchange heavily damaged by the magnitude 6.5 earthquake*

[Click on image for a larger view]

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## The Richter Magnitude Scale

Seismic waves are the vibrations from earthquakes that travel through the Earth; they are recorded on instruments called seismographs. Seismographs record a zig-zag trace that shows the varying amplitude of ground oscillations beneath the instrument. Sensitive seismographs, which greatly magnify these ground motions, can detect strong earthquakes from sources anywhere in the world. The time, location, and magnitude of an earthquake can be determined from the data recorded by seismograph stations.

The Richter magnitude scale was developed in 1935 by Charles F. Richter of the California Institute of Technology as a mathematical device to compare the size of earthquakes. The magnitude of an earthquake is determined from the logarithm of the amplitude of waves recorded by seismographs. Adjustments are included in the magnitude formula to compensate for the variation in the distance between the various seismographs and the epicenter of the earthquakes. On the Richter Scale, magnitude is expressed in whole numbers and decimal fractions. For example, a magnitude of 5.3 might be computed for a moderate earthquake, and a strong earthquake might be rated as magnitude 6.3. Because of the logarithmic basis of the scale, each whole number increase in magnitude represents a tenfold increase in measured amplitude; as an estimate of energy, each whole number step in the magnitude scale corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number value.



*Van Norman Dam, San Fernando, California, 1971. Earthquake-induced liquefaction of the earth-filled dam resulted in a landslide that caused partial collapse*

[Click on image for a larger view]

At first, the Richter Scale could be applied only to the records from instruments of identical manufacture. Now, instruments are carefully calibrated with respect to each other. Thus, magnitude can be computed from the record of any calibrated seismograph.



Earthquakes with magnitude of about 2.0 or less are usually called microearthquakes; they are not commonly felt by people and are generally recorded only on local seismographs. Events with magnitudes of about 4.5 or greater--there are several thousand such shocks annually--are strong enough to be recorded by sensitive seismographs all over the world. Great earthquakes, such as the 1964 Good Friday earthquake in Alaska, have magnitudes of 8.0 or higher. On the average, one earthquake of such size occurs somewhere in the world each year. Although the Richter Scale has no upper limit, the largest known shocks have had magnitudes in the 8.8 to 8.9 range. Recently, another scale called the moment magnitude scale has been devised for more precise study of great earthquakes.

The Richter Scale is not used to express damage. An earthquake in a densely populated area which results in many deaths and considerable damage may have the same magnitude as a shock in a remote area that does nothing more than frighten the wildlife. Large-magnitude earthquakes that occur beneath the oceans may not even be felt by humans.



*(Top) San Francisco, California, 1906. Collapse of City Hall after the 8.3 magnitude earthquake. Most of the property destruction was caused by the fire that raged after the earthquake.*



*(Bottom) Anchorage, Alaska, 1964. Much of the damage after this magnitude 8.6 earthquake was due to huge landslides, such as this one under Government Hill elementary School.*

[Click on image for a larger view]

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## The Modified Mercalli Intensity Scale

The effect of an earthquake on the Earth's surface is called the intensity. The intensity scale consists of a series of certain key responses such as people awakening, movement of furniture, damage to chimneys, and finally--total destruction. Although numerous intensity scales have been developed over the last several hundred years to evaluate the effects of earthquakes, the one currently used in the United States is the Modified Mercalli (MM) Intensity Scale. It was developed in 1931 by the American seismologists Harry Wood and Frank Neumann. This scale, composed of 12 increasing levels of intensity that range from imperceptible shaking to catastrophic destruction, is designated by Roman numerals. It does not have a mathematical basis; instead it is an arbitrary ranking based on observed effects.

The Modified Mercalli Intensity value assigned to a specific site after an earthquake has a more meaningful measure of severity to the nonscientist than the magnitude because intensity refers to the effects actually experienced at that place. After the occurrence of widely-felt earthquakes, the Geological Survey mails questionnaires to postmasters in the disturbed area requesting the information so that intensity values can be assigned. The results of this postal canvass and information furnished by other sources are used to assign an intensity value, and to compile isoseismal maps that show the extent of various levels of intensity within the felt area. The maximum observed intensity generally occurs near the epicenter.



*(Top) Mindanao, Phillippines, 1976. Apartment building destroyed by a magnitude 7.9 earthquake.*



*(Bottom) Long Beach, California, 1933. Exterior walls collapsed onto parked cars after this magnitude 6.3 earthquake (photo by Southern California Earthquake Pictures).*

[Click on image for a larger view]

The lower numbers of the intensity scale generally deal with the manner in which the earthquake is felt by people. The higher numbers of the scale are based on observed structural damage. Structural engineers usually contribute information for assigning intensity values of VIII or above.

## Real Estate Information



This database was last updated on 10/15/2018 at 5:27 AM

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## Parcel Details for 016-138-27-0-40-10-001.00-0 - Printer Friendly Version

Quick Reference #: r5207

Owner Information	
<b>Owner's Name (Primary):</b>	ROYD-SYKES, SUSAN M
<b>Mailing Address:</b>	504 S 6th St Burlington, KS 66839
Property Address	
<b>Address:</b>	504 S 6th St Burlington, KS 66839
General Property Information	
<b>Property Class:</b>	Residential - R
<b>Living Units:</b>	1
<b>Zoning:</b>	R-1
<b>Neighborhood:</b>	002
<b>Taxing Unit:</b>	001-BURLINGTON CITY
Deed Information	
<b>Document #</b>	<b>Document Link</b>
176-96	<a href="#">View Deed Information</a>
175-374	<a href="#">View Deed Information</a>
174-41	<a href="#">View Deed Information</a>
172-184	<a href="#">View Deed Information</a>

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Neighborhood / Tract Information				
<b>Neighborhood:</b>	002 Block: 081 Lot: 1, 2 AND			
<b>Tract:</b>	Section: Township: Range:			
<b>Legal Description:</b>	BURLINGTON CITY, BLOCK 081, Lot 1, 2 AND, E 35' OF LOT 3			
<b>Acres:</b>	0.00			
<b>Market Acres:</b>	0.00			

Land Based Classification System	
<b>Function:</b>	Single family residence (detached)
<b>Activity:</b>	Household activities
<b>Ownership:</b>	Private-fee simple
<b>Site:</b>	Developed site - with buildings

Property Factors			
<b>Topography:</b>	Above Street - 2	<b>Parking Type:</b>	On and Off Street - 3
<b>Utilities:</b>	All Public - 1	<b>Parking Quantity:</b>	Adequate - 2
<b>Access:</b>	Paved Road - 1; Alley - 7	<b>Parking Proximity:</b>	On Site - 3
<b>Fronting:</b>	Residential Street - 4	<b>Parking Covered:</b>	
<b>Location:</b>	Neighborhood or Spot - 6	<b>Parking Uncovered:</b>	

Appraised Values				
Tax Year	Property Class	Land	Building	Total
2018	Residential - R	5,490	179,610	185,100

Market Land Information					
Type	Method	Area or Acres	Eff. Frontage	Depth	Est. Value
Regular Lot - 1	Frontage and Depth		120	135	5,490
<b>Influence #1:</b>	<b>Influence #2:</b>	<b>Influence Override:</b>			
<b>Factor:</b>	<b>Factor:</b>	<b>Depth Factor: 0.9600</b>			

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## Residential Information

## Building #: 1

## Dwelling Information

Residence Type: Residential/Agricultural - 1

Quality: GD

Year Built: 1885

Effective Year:

MS Style: 2

LBCS Structure: Detached SFR unit

# of Units:

Total Living Area:

Calculated Area: 2,698

Main Floor LA: 1,848

Upper Floor LA %: 46.0

CDU: GD

Phys / Func / Econ: AV / N/A / N/A

Ovr % Good / RCN: /

Remodel:

% Complete:

Assessment Class:

MU Class #1 / %: / MU Class #2 / %: / MU Class #3 / %: /

## Residential Components

Code / Description	Units	Percentage	Quality	Year
Wood Deck (SF) with Roof	112		GD	
Frame, Siding, Vinyl		100		
Composition Shingle		100		
Total Basement Area (SF)	432			
Raised Subfloor (% or SF)	2,698			
Warmed & Cooled Air		100		
Plumbing Fixtures (#)	8			
Plumbing Rough-ins (#)	1			
Single 1-Story Fireplace (#)	1			
Automatic Floor Cover Allowance				
Wood Deck (SF)	56		FR	1991
Open Slab Porch (SF)	360		GD	2008
Slab Porch (SF) with Roof	236			
Wood Deck (SF) with Roof	145			

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## Residential Information

## Building #: 1 Sketch Vector : Sketch Vector Not Available

## Commercial Information [Information Not Available]

## Other Building Improvement Information

Occup	MS Class	Rank	Quantity	Year Built	Effective Year	LBCS	Area	Perim	Hgt	Dimensions (L x W)	Stories	Phys Cond	Func	Econ	Ovr %	Reason	RCN	% Good	MS Value
Residential Garage - Detached	D	AV	1	1975			884	120	8	34 x 26	1	AV	AV				2020	9	2020

## Components

Code	Units	Percentage %	Area	Other	Rank	Year
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## Agricultural Information [Information Not Available]

This parcel record was last updated on 10/15/2018 at 6 am.

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Version: 2.0.0.48 : 04/14/2015