

**State of Montana**  
**Board of Oil and Gas Conservation**

**Docket No. 13 – 2017**  
Underground Injection Control  
Application

Pondera Field

**Briggs 1**  
API # 25-099-21019-00-00

SE NW SW of Sec. 33, Township 27 North, Range 4 West  
Teton County, Montana

**BALKO, INC**

**Balko Inc**

Phone 406-271-2828  
P.O. Box 910 , Conrad, Montana 59425

September 24, 2017

Montana Board of Oil & Gas Conservation  
2535 St. Johns Avenue  
Billings, MT 59102

Attn: Mr. George Hudak  
UIC Program Director

RE: Request for Conversion and Subsequent Injection Permit  
Pondera Field  
Briggs 1 (25-099-21019)  
Located in Section 33, Township 27 North, Range 4 West  
Teton County, Montana

Dear Mr. Hudak,

Please find enclosed an underground injection control (UIC) application by Balko Inc. (Balko) requesting the granting of authority to convert and inject water into the Mississippian Madison Limestone formation in the currently non-producing Briggs 1 well operated by Balko in the Pondera Field, in Teton County, Montana. Balko is requesting that the application be placed on the docket for the MBOGC December 14, 2017 hearing.

Please place on the Default Docket if possible.

If you have questions concerning the enclosed application, please call Justin Balkenbush at (406) 281-0037.

Respectfully,

Justin Balkenbush, VP Operations  
Balko, Inc.

**Underground Injection Control(UIC) Permit Application  
 Briggs 1  
 SE NW SW 33-T27N-R4W  
 Pondera Field  
 Teton County, Montana**

The following is submitted in support of Balko’s application to permit the conversion of the Briggs 1 non-producing well for the purpose of injection into the Mississippian Madison Limestone within the Pondera Field, as required by Rule 36.22.1403 of the Rules and Regulations of the Montana Board of Oil and Gas Conservation.

**1(a) Well Locations**

The Briggs 1 well has been proposed for conversion and water injection within the Pondera Field in Teton County, Montana as described below. Currently the Briggs 1 is not producing from the Mississippian Madison Limestone formation. *Exhibit 1* shows the surface location and a circle of a quarter (1/4) mile radius representing the area of review (AOR) for this well

Briggs 1	1650’ FSL, 990’ FWL	33-27N-4W
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**1(b) Wells within Quarter Mile AOR**

There are four (4) wells that have been drilled within the ¼ mile AOR as listed below. All wells within the AOR were drilled to the Mississippian Madison Limestone formation.

Briggs 1		
Briggs B-1	NW NW SW 33-27N-4W	Shut-In Oil Well
Erickson E-1	NE NE SE 32-27N-4W	Shut In Oil Well
Briggs 1	SW SW NW 33-27N-4W	P&A (1957)
Briggs 2	NW NE SW 33-27N-4W	Shut In Oil Well

The (3) SI Oil Wells are all operated by Balko and will be brought on line once a disposal solution is approved.

**1(c) Location of All Pipelines**

Injection water will be delivered to the water injection well by buried pipeline. The water source for the injector well will be from the tank battery for the Donovan/Briggs tank battery located in the SW NW SE 33-27N-4W. *Exhibit 2* illustrates the proposed pipeline layout. Injection water will be produced Mississippian Madison Limestone water.

**1(d) Area Producing Formations, Fresh Water Aquifers and Water Information**

The Mississippian Madison Limestone is the only producing formation within a radius of one-quarter (1/4) mile of the proposed injection well location. The Mississippian Madison Limestone is at a depth of 2,150’ K.B.

Water well information from the Ground Water Information Center at the Montana Bureau of Mines and Geology indicates there are no fresh water wells within the AOR of the proposed injector.

**1(e) Name and Geologic Description of Injection Zone:**

The proposed injection zone is the Mississippian Madison Limestone located at a depth of 2165'. The Briggs 1 well was acidized with 3000 gals (77 bbls) of 28% HCL Acid in 1973, and subsequent production tests indicate communication with the Madison-Sun River 'B' which is showed no sign of oil when drilled (and cored) and is considered to be water wet. The Madison-Sun River B zone does not show indication of communication of the Sun River A zone which produces oil in the Erickson E-1, Briggs B-1 and Briggs 2 wells.

In the Pondera Field area the Madison Limestone is characterized by fractured vugular and intercrystalline porosity. This zone is bounded on top by approximately 200 feet of dense Jurassic Swift and Rierdon Shales.

The original reservoir pressure for the Madison Limestone in the Pondera Field is unknown. From recent fluid level data based on swabbing water contact of approximately 1000' the current reservoir pressure is approximately 440 psi.  
(800' x .44 = 440 psi)

A fracture gradient of 0.733 psi/ft is assumed for the area. An injectivity test will be performed prior to initiating injection.

**1(f) Additional Information on Wells drilled within the AOR**

As stated previously, there are four (4) wells drilled within the AOR. Three of the wells are currently SI, but are planned to be produce once a water injection option is approved. These three wells, in addition to the Donovan 2 & 3 wells will provide the source of the produced salt water to be disposed.

<b>Briggs B-1</b>	<b>NW NW SW 33-27N-4W – Madison</b>
<i>Surface Casing:</i>	10 3/4", 32.75 lb/ft, Grade Unknown, set @ 176' KB Cemented to Surface sacks
<i>Production Casing:</i>	5 1/2", 14 lb/ft, Grade Unknown, set @ 2,132' KB
<i>Perforations:</i>	Open Hole TD at 2,158'
<i>Last Production:</i>	1 BOPD, 10 BWPD June, 2013
<b>Erickson E-1</b>	<b>NE NE SE 32-27N-4W – Madison</b>
<i>Surface Casing:</i>	10-3/4", 32.75 lb/ft, H-40, set @ 141' KB Cemented to surface
<i>Production Casing:</i>	7", 17&20 lb/ft, Grade Unknown, set @ 2,143' KB
<i>Perforations:</i>	Open Hole TD at 2,171'
<i>Last Production:</i>	0.5 BOPD, 5 BWPD July, 2012
<b>Briggs 1</b>	<b>SW SW NW 33-27N-4W – Madison</b>
<i>Conductor Casing:</i>	13 3/8" 40 lb/ft. Cemented to Surface
<i>Production Casing:</i>	Pulled
<i>P&amp;A:</i>	11/21/1957 Cemented Bottom w/ 25 sacks cement Top Cemented with 5 Sacks Cement...Approved CT Eline

**Briggs 2****NW NE SW 33-27N-4W – Madison**

*Surface Casing:* 8 5/8", 28 lb/ft, Grade Unknown, set @ 193' KB  
Cemented with 150 sacks

*Production Casing:* 5 1/2", 14 lb/ft, Grade Unknown, set @ 2,212' KB

*Perforations:* 2,145' – 2,157'

*Last Production:* 1.3 BOPD, 13 BWPD July, 2012

**1(g) Open Hole Logs**

There are Induction Electrical w/ SP and Compensated Formation Density logs run on this well. Both logs will be available at the hearing for review.

**1(h) Description of Wellbore Construction**

*Exhibit 3* shows the current wellbore configuration for the Briggs. Lined 2-3/8" EUE 4.6# J-55 tubing was run and set at 2,130'. A Baker AD-1 Packer was set at 2,130'. This is well within the maximum allowable of 100' above the open hole injection zone.

**1(i)** The injection fluid will consist of produced water from the Briggs B-1, Erickson E-1, Briggs 2 and Donovan 2&3 wells. A water sample analysis will be provided. An anticipate injection rate of 200-300 bwpd.

**1(j) Names of Owners of Record**

Balko Inc. is the operator of the Briggs 1 wells proposed injection well and the wells listed above which will provide source water for the injection well. The name and address of Surface Owners and other Operators within the AOR are presented in *Exhibit 4* (which is the actual Notice mailed).

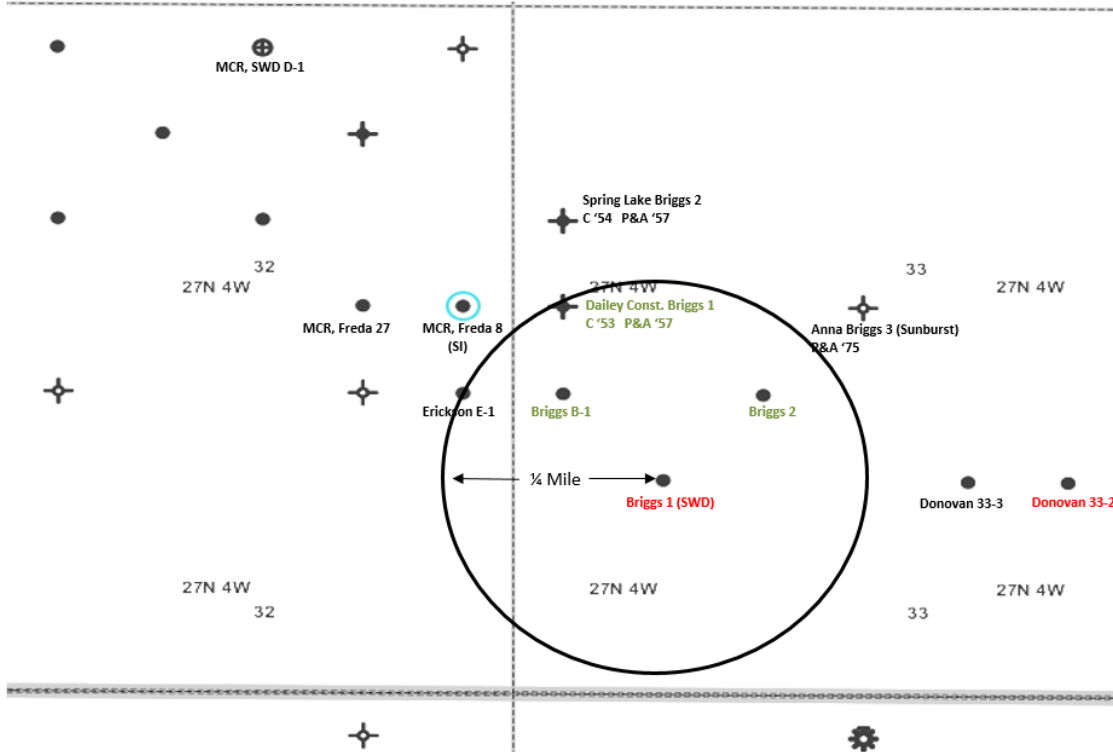
Balko Inc. has notified the Surface Owners and other Operators in accordance with 36.22.1410 (1) notification requirements for an underground injection permit. *Exhibit 5* is an Affidavit to the fact the notices have been mailed.

**ATTACHMENTS:**

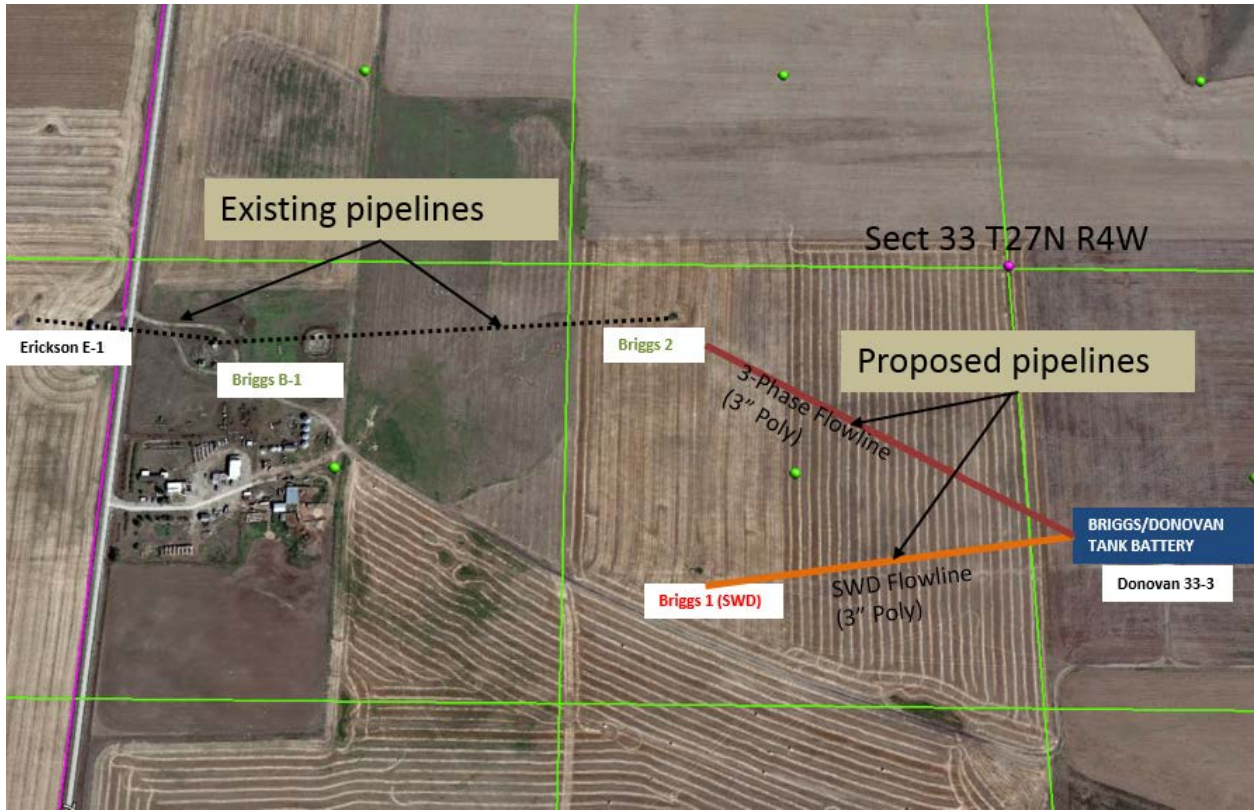
Exhibit 1: Plat of ¼ mile radius of the Area of Review (AOR)  
Exhibit 2: Plat of existing and proposed water lines  
Exhibit 3: Briggs 1 SWD Well Schematic  
Exhibit 4: Surface Owner & other Operator Notice with names and addresses  
Exhibit 5: Affidavit of Notification  
Exhibit 6: Sundry Notice for the Intent to convert the Hanson 2-19 to injection  
Exhibit 7: Water Analysis

# EXHIBIT 1

## AREA OF REVIEW 1/4 MILE RADIUS Section 32 & 33 TOWNSHIP 27 NORTH, RANGE 4 WEST



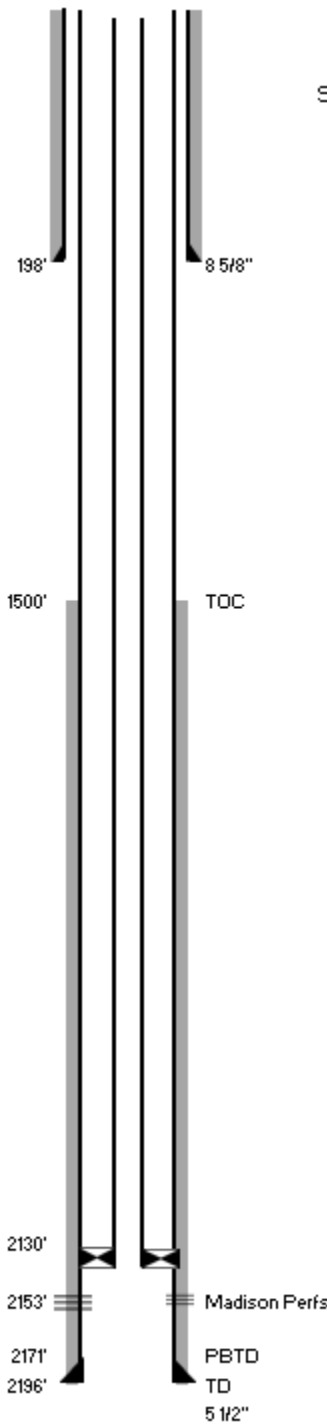
**EXHIBIT 2**



**EXISTING & PROPOSED WATER LINES**

### Exhibit 3

## WELL SCHEMATIC FOR THE BRIGGS 1 SWD PROPOSED INJECTION WELL



**BALKO INC**

WELL:	<b>BRIGGS 1</b>	FIELD:	<b>PONDERA</b>
SURF LOCATION:	SE NW SW Sec. 33, T27N, R4W	COUNTY:	<b>TETON</b>
	1650' FSL 990'	FWL STATE:	<b>MT</b>
LATITUDE:		LONGITUDE:	
API NO:	25-099-21019-00-00	STATE ID #:	
ELEVATION:	KB: 3,977' GL: 3,987'	STATUS:	SI
		H2S:	YES
SPUD DATE:	01/03/73	CMP DATE:	5/31/1973
ROTARY TD:	2,196'	PBTD:	2,171'
WELLHEAD:			
<b>SURF CSG:</b>	198' Size: 8 5/8" Details: 24# J/K-55		
	Cement: 125 SKS...No other details		
<b>PROD CSG:</b>	2,194' Size: 5 1/2" Details: 14# J-55		
	Cement: 100 SKS...No other details		<b>Top Cmt 1,500'</b>

Perforation Info			
TOP	BOTTOM	STATUS	ZONE DESCRIPTION
2,151'	2,153'	OPEN	Sun River 'A' Zone

Rods/Pump		
Size/Grade	Length or #	Depth (Top)
		0'
		0'
		0'
		0'
		0'

Tubing Detail		Date Run: 3/12/3013	
Size/Grade/Description	Length	Depth (Top)	
Liner 2 3/8" 4.5#	2115'	10'	
Baker 2 3/8" x 5 1/2" Pkr	5'	2125'	
		2130'	
		2130'	
		2130'	
		2130'	
		2130'	
EOT:		2130'	

**Lift Type / Description:**

Updated:  
8/14/2017 By: J. Balkenbush



**Exhibit 4**

**Surface Owner & other Operator Notice with names and addresses**

**Surface Owner:** William P. Briggs and Amy L. Briggs  
3050 7<sup>th</sup> Lane NW, Conrad, MT 59425

**BEFORE THE BOARD OF OIL AND GAS CONSERVATION  
OF THE STATE OF MONTANA**

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IN RE THE APPLICATION OF  
BALCO INC FOR HEARING  
OF ITS REQUEST FOR A UIC PERMIT  
TO CONVERT THE BRIGGS 1 WELL,  
1650' FSL, 990' FWL, SEC. 33, T27N-R4W,  
TO AN INJECTION WELL FOR THE  
PURPOSE OF WATER INJECTION  
WITHIN THE PONDERA FIELD  
[TETON COUNTY, MONTANA]

AFFIDAVIT  
OF NOTIFICATION

DATE: November 9, 2017

State of Montana                    )  
  ) ss  
County of Yellowstone            )

Justin Balkenbush, being first duly sworn, deposes and says:

That Notice advising of Balco Inc's application for UIC permit in the captioned matter, in the form attached as Exhibit "A", was mailed to the Surface Owners and other Operators within the area of review (AOR) at the addresses shown in the exhibit attached to the Notice, by mailing a true copy thereof the 9th day of November, 2017, postage prepaid, First Class Mail. This affidavit is given as evidence of compliance with ARM 36.22.1410.

\_\_\_\_\_  
Justin Balkenbush

Subscribed and sworn to before me this 9th day of November, 2017

My commission expires: \_\_\_\_\_  
Notary Public for the State of Montana  
Printed Name: \_\_\_\_\_  
Residing at: \_\_\_\_\_

