



APPLICATION FOR PERMIT TO:

DRILL  DEEPEN  CONVERT  
AND OPERATE A WELL

By authority of Part 615 or Part 625 of Act 451 PA 1994, as amended.  
Non-submission and/or falsification of this information  
may result in fines and/or imprisonment.

1a. Part 615 Supervisor of Wells

- Oil and Gas
- Brine Disposal
- Hydrocarbon Storage
- Injection for Secondary Recovery

b. Part 625 Mineral Wells

- Waste Disposal
- Brine Production
- Processed brine disposal
- Storage
- Test, fee sched. on rev.

1c. Fee enclosed

- Yes
- No, revision of application
- No, leg of horz drainhole

2. List all previous permit numbers		3. Fed. ID. No. (do not use SSN) 38-3251129		Locate well and outline drilling unit on section plat	
4. Conformance bond <input checked="" type="checkbox"/> Blanket <input type="checkbox"/> Single well	5. <input type="checkbox"/> Attached <input checked="" type="checkbox"/> On file	6. Bond number LOC #147	7. Bond amount \$250,000		
8. Applicant (name of permittee as bonded) Jordan Development Company					
9. Address 1503 Garfield Road North Traverse City, MI 49696		Phone 231-935-4220			
I authorize DEQ 4 additional days to process this application. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
10. Lease or well name (be as brief as possible) Grove		Well number #1-15			
11. Surface owner <input checked="" type="checkbox"/> Private <input type="checkbox"/> State <input type="checkbox"/> Federal <input type="checkbox"/> Indian <input type="checkbox"/> Other, identify Beverly Grove					

12. Surface location SE 1/4 of NE 1/4 of NE 1/4 of Sec 15 T 19N R 02W		Township Sage	County Gladwin
13. If directional, bottom hole location 1/4 of 1/4 of 1/4 of Sec T R		Township	County
14. The surface location for this well is 960 feet from nearest (N/S) North section line AND 365 feet from nearest (E/W) East section line			
15. Is this a directional well? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, complete line 15. The bottom hole location for this well is feet from nearest (N/S) section line AND feet from nearest (E/W) section line			
16. The bottom hole location (whether straight or directional) of this well is 351 feet from nearest (N/S) South drilling unit line AND 948 feet from nearest (E/W) West drilling unit line			
17. Kind of tools <input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable <input type="checkbox"/> Combination		18. Is sour oil or gas expected? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> H <sub>2</sub> S Cont. plan enclosed	
20. Intended total depth MD 4300' TVD 4300'		19. Base of lowest known fresh water aquifer Formation Saginaw Depth 440'	
21. Formation at total depth Detroit River Anyhdrite		22. Producing/injection formation(s) Dundee	
23. Objective pool, field, or project Exploratory			

24. PROPOSED DRILLING, CASING AND CEMENTING AND SEALING PROGRAM												
HOLE			CASING				CEMENT			MUD		
Depth (MD)	Geol. Formation	Bit Dia.	O.D. Size	Wt/Ft	Grade	Condition	Depth (MD)	Sacks	T.O.C.	W.O.C.	WL	Vis.
50'	Drift	Driven	16"	65#	H-40	New	50'					
650'	Saginaw	14-3/4"	11-3/4"	42#	H-40	New	650'	379	Surf	12 hr	8.4	60
1550'	Coldwater	10-5/8"	8-5/8"	24#	J-55	New	1550'	334	Surf	12 hr	8.8	var
4300'	DRA	7-7/8"	5-1/2"	15.5#	J-55	Used/Tested	4300'	150	3620'	12 hr	9	var

25. DETAIL CEMENTING PROGRAM. IDENTIFY ALL CEMENT CLASSES, ADDITIVES, AND VOLUMES (IN CU. FT.) FOR EACH CASING STRING.

Surface 229 sx 65/35 Poz/Type I (387 CF) + 150 sx Class A (177 CF)

Intermediate 184 sx 65/35 Poz/Type I (312 CF) + 150 sx Class A (177 CF)

Production/Injection 150 sx Class A (177 CF)

26. Send correspondence and permit to  
Name Jordan Development Company, LLC E-mail troy@jordanex.com  
Address 1503 Garfield Road North, Traverse City, MI 49696 Phone 231-935-4220

CERTIFICATION "I state that I am authorized by said applicant. This application was prepared under my supervision and direction. The facts stated herein are true, accurate and complete to the best of my knowledge."

27. Application prepared by (print or type) Phone  
Troy E. Molby, P.E., Authorized Agent 231-935-4220

28. Signature Date  
*Troy E. Molby* 12/12/16

Office of Oil, Gas, and Minerals Use Only

Permit number	API number	Date issued	Owner number
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Enclose the receipt of electronic payment or a check made payable to State of Michigan. The permit fee is \$300 for Part 615 wells; \$2,500 for a Part 625 waste disposal well; \$500 for brine production, processed brine disposal, or storage well. DEQ Cashier use only.



United States Environmental Protection Agency  
**Underground Injection Control  
 Permit Application**  
 (Collected under the authority of the Safe Drinking  
 Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number  
 MI-051-2D-0241 T/A C  
 U

Read Attached Instructions Before Starting  
 For Official Use Only

Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			III. Operator Name and Address		
Owner Name Jordan Development Company, LLC			Owner Name Jordan Development Company, LLC		
Street Address 1503 Garfield Rd. N		Phone Number (231) 935-4220	Street Address 1503 Garfield Rd. N		Phone Number (231) 935-4220
City Traverse City	State MI	ZIP CODE 49696	City Traverse City	State MI	ZIP CODE 49696

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")

<input checked="" type="checkbox"/> A. Operating	Date Started mo day year 11/21/2015	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed
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IX. Type of Permit Requested (Mark "x" and specify if required)

<input checked="" type="checkbox"/> A. Individual	<input type="checkbox"/> B. Area	Number of Existing Wells	Number of Proposed Wells	Name(s) of field(s) or project(s) Sage

X. Class and Type of Well (see reverse)

A. Class(es) (enter code(s)) II	B. Type(s) (enter code(s)) D	C. If class is "other" or type is code 'x', explain	D. Number of wells per type (if area permit)

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark "x")			
Latitude			Longitude			Township and Range								<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line		
44	02	49	84	31	29	11	19N	2W	SW	489	S	199	W		

XIII. Attachments

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)  
 For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

XIV. Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document 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. (Ref. 40 CFR 144.32)

A. Name and Title (Type or Print) Troy E. Molby, P.E. Authorized Agent	B. Phone No. (Area Code and No.) (231) 935-4220
C. Signature 	D. Date Signed 06/07/2017

JORDAN DEVELOPMENT COMPANY, LLC

**ATTACHMENT 'Q'**



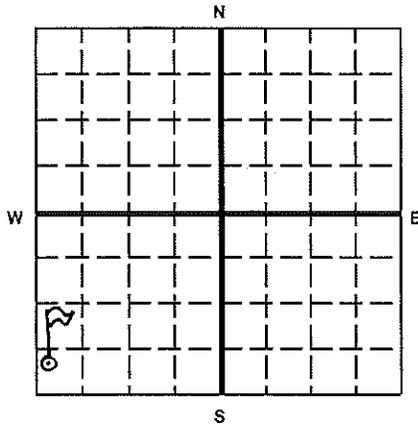
United States Environmental Protection Agency  
Washington, DC 20460

### PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility  
Grove #13-11 SWD

Name and Address of Owner/Operator  
Jordan Development Company, LLC  
1503 Garfield Rd. N., Traverse City, MI 49696

Locate Well and Outline Unit on Section Plat - 640 Acres



State: MI County: Gladwin Permit Number: pending

Surface Location Description  
NW 1/4 of SW 1/4 of SW 1/4 of Section 11 Township 19n Range 2w

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 489 ft. frm (N/S) S Line of quarter section and 199 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION  
 Individual Permit  
 Area Permit  
 Rule  
 Number of Wells:   
 Lease Name: Grove

WELL ACTIVITY  
 CLASS I  
 CLASS II  
 Brine Disposal  
 Enhanced Recovery  
 Hydrocarbon Storage  
 CLASS III  
 Well Number: 13-11

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
16	65#		53	Driven
11-3/4	42#		680	14-3/4
8-5/8	24#		1573	10-5/8
5-1/2	15.5#		3910	7-7/8

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- The Balance Method
- The Dump Bailer Method
- The Two-Plug Method
- Other

CEMENTING TO PLUG AND ABANDON DATA:

	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche)	5-1/2	5-1/2	8-5/8	8-5/8			
Depth to Bottom of Tubing or Drill Pipe (ft)	3880	3060	800	50			
Sacks of Cement To Be Used (each plug)	28	46	61	15			
Slurry Volume To Be Pumped (cu. ft.)	33	54	72	18			
Calculated Top of Plug (ft.)	3630	2860	600	Surf			
Measured Top of Plug (if tagged ft.)	NA	NA	NA	NA			
Slurry Wt. (Lb./Gal.)	15.6	15.6	15.6	15.6			
Type Cement or Other Material (Class III)	A	A	A	A			

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
Open Hole 4-3/4" 3910' MD	3919' MD		

Estimated Cost to Plug Wells

\$28,500

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document 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. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)  
Troy E. Molby, P.E. Authorized Agent

Signature  
*Troy E. Molby*

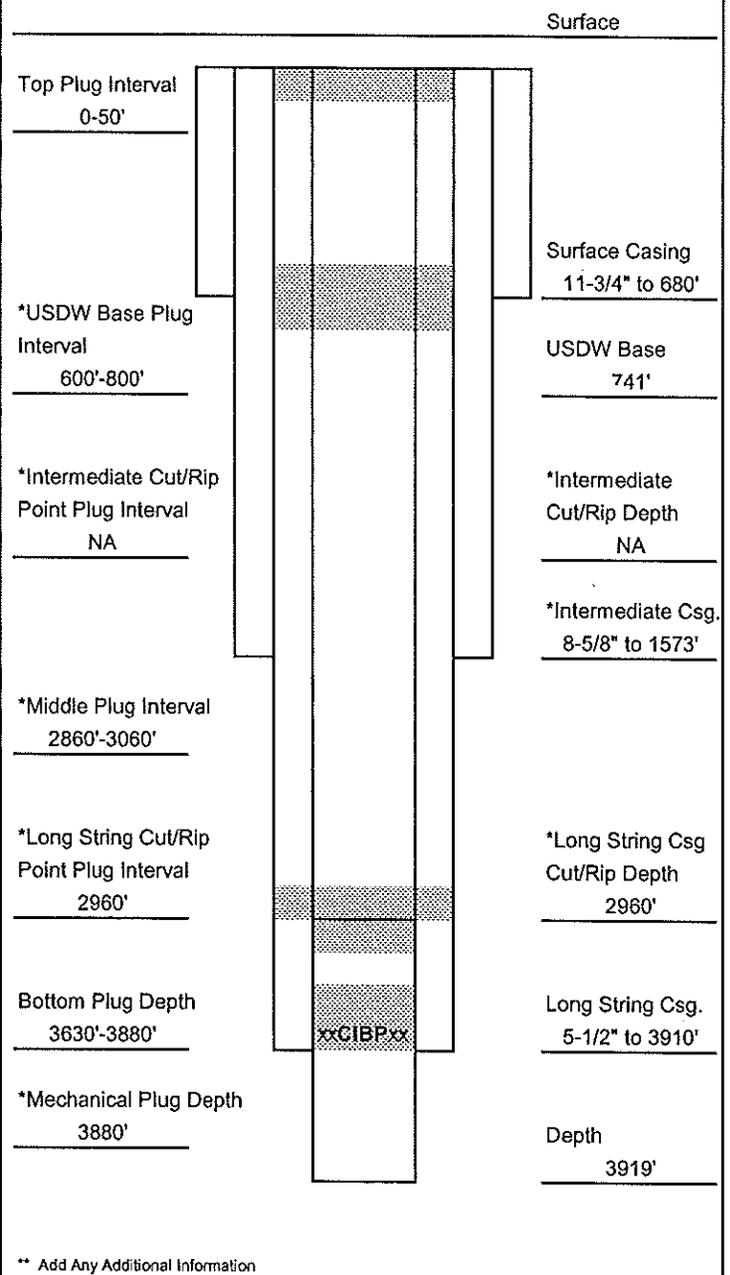
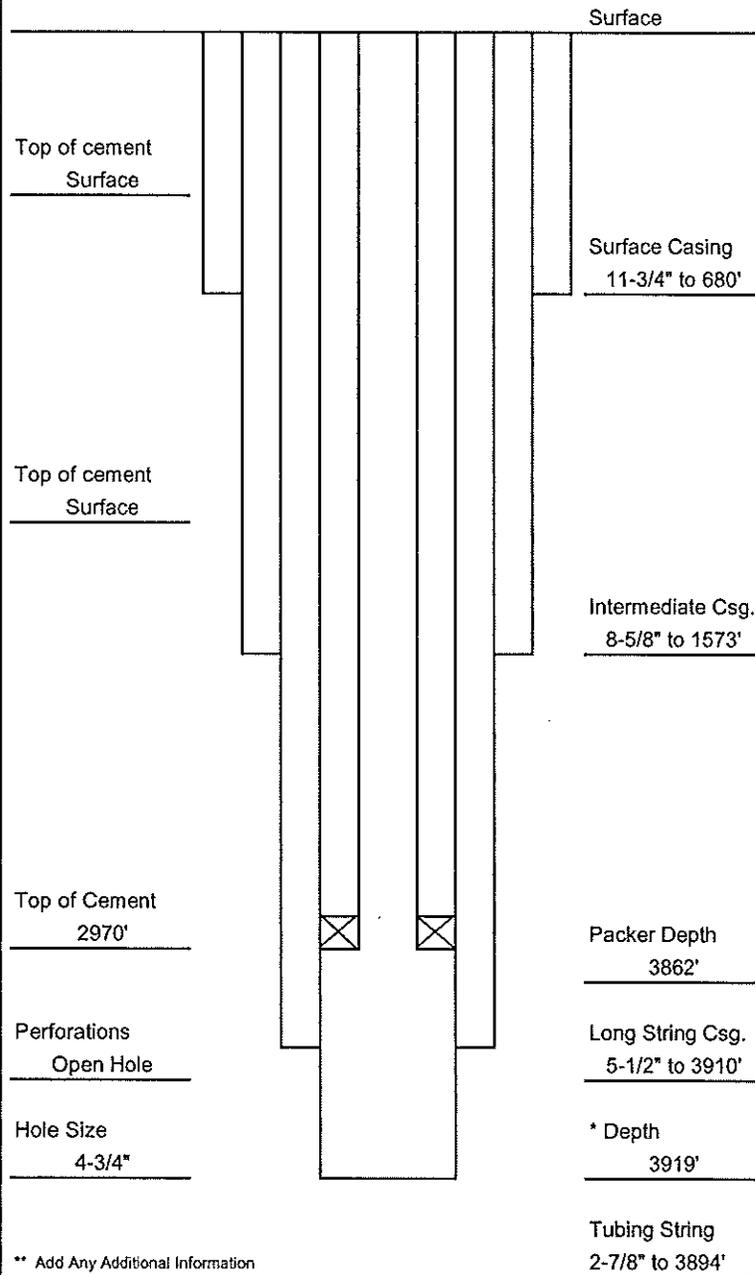
Date Signed  
06/07/2017

**ORIGINAL WELL CONSTRUCTION DURING OPERATION**

**PLUGGING AND ABANDONMENT CONSTRUCTION**

GROVE #13-11

GROVE #13-11



**LIST OF ALL OPEN AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED**

Specify Open Hole/ Perforations/ Varied Casing	From	To	Formation Name
Open Hole	3910'	3919'	Dundee

# Mid State Oil Tools, Inc.

The Fishing Tool People

John R. Keathley, President/ CEO  
Michael W. Machuta, V.P./CFO  
1934 Commercial Dr.  
Mt. Pleasant, MI 48858

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Telephone (989) 773-4114

Fax (989) 773-4227

To: Jordan Development  
Attn: Mr. Troy Molby

June 6, 2017

We would like to thank you for the opportunity to bid on the following well.

The following is a Turnkey price for plugging the Grove #13-11 SWD.

Plug and Abandon for:  
Grove #13-11 SWD                      \$28,500.00

Price includes:

Rig With 3 Man Crew

Tools

BOP

Cement

Dump Bailer

Retainer

Norm Check

Water Hauling

Welder To Cap Well

Customer is responsible for location restoration.

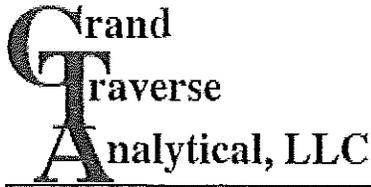
Mid State Oil Tools, Inc. Can be of service to you. If you have any questions, or need additional Information please feel free to contact me.

Sincerely,

John R. Keathley  
Eagle Rock Drilling  
President

JORDAN DEVELOPMENT COMPANY, LLC

**APPENDIX '5'**

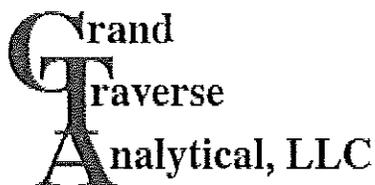


COMPANY:	JORDAN DEVELOPMENT CO. LLC	GTA PROJECT NO:	022717-3
PROJECT NO:		GTA SAMPLE NO:	1
LOCATION:	GROVE 1-14	DATE SAMPLED:	2/27/2017
		TIME SAMPLED:	10:00 AM
	MI	DATE RECEIVED:	2/27/2017
SAMPLED BY:	T. ROBB/JORDAN	TIME RECEIVED:	1:45 PM
		SAMPLE MATRIX:	BRINE
SAMPLE ID:	GROVE 1-14		

**METALS**

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
BARIUM DISS EPA 208.2	ND	0.50	mg/L (PPM)	MR/TR	3/14/2017	EPA 3005A
CALCIUM DISS EPA 215.1	21,000	5,000	mg/L (PPM)	MR/TR	3/14/2017	EPA 3005A
IRON TOTAL EPA 236.1	ND	0.25	mg/L (PPM)	MR/TR	3/14/2017	EPA 3020A
MAGNESIUM DISS EPA 242.1	3,500	25	mg/L (PPM)	MR/TR	3/14/2017	EPA 3005A
POTASSIUM DISS EPA 258.1	1,600	25	mg/L (PPM)	MR/TR	3/14/2017	EPA 3005A
SODIUM DISS EPA 273.1	44,000	500	mg/L (PPM)	MR/TR	3/14/2017	EPA 3005A

ND = NOT DETECTED, RESULT < LOD  
 LOD = LIMIT OF DETECTION  
 DISS = DISSOLVED



**INDEPENDENT TESTING LAB**

830 ROBINWOOD COURT, TRAVERSE CITY, MI 49686

PH: 231-929-0905

FAX: 231-929-0894

www.gtanalytical.com

COMPANY:	JORDAN DEVELOPMENT CO. LLC	GTA PROJECT NO:	022717-3
PROJECT NO:		GTA SAMPLE NO:	1
LOCATION:	GROVE 1-14	DATE RECEIVED:	2/27/2017
	MI	TIME RECEIVED:	1:45 PM
SAMPLED BY:	T. ROBB/JORDAN	DATE SAMPLED:	2/27/2017
SAMPLE ID:	GROVE 1-14	TIME SAMPLED:	10:00 AM
		SAMPLE MATRIX:	BRINE

**SAMPLE RESULTS**

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	67	10	mg/L (PPM)	TR	3/3/2017
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	3/3/2017
CHLORIDE EPA 300.0	296,000	2,000	mg/L (PPM)	LC	3/1/2017
CONDUCTIVITY SM2510-B	510,000	5	uS/cm@25C	LC	3/1/2017
pH EPA 150.1	6.4	0.1	mg/L (PPM)	TR	3/3/2017
RESISTIVITY SM 2510A	2.0	-	ohms x cm	LC	3/1/2017
SPECIFIC GRAVITY SM 2710F	1.206	-	-	LC	3/1/2017
SULFATE EPA 300.0	350	50	mg/L (PPM)	LC	3/1/2017
SULFIDE SM 4500S D	6.6	1.0	mg/L (PPM)	KC	2/27/2017
TOTAL DISSOLVED SOLIDS EPA 160.1	300,000	5.0	mg/L (PPM)	TR	3/2/2017

ND = NOT DETECTED, RESULT < LOD  
 LOD = LIMIT OF DETECTION  
 s.u. = STANDARD pH UNITS REPORTED AT 25 C  
 DISS = DISSOLVED