

MISSOURI DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY PROGRAM

OIL AND GAS PERMIT TO INJECT OR INJECTION PERMIT MODIFICATION APPLICATION

FOR OFFICE USE ONLY	DATE RECEIVED		
CHECK NUMBER	CHECK AMOUNT		
PROCESSED BY	PERMIT NUMBER		

APPI	LICATION						
WELL OWNER IN	FORMATION			·			
NAME OF COMPANY, ORG	GANIZATION OR INDIVIDUAL					OPERATOR LICENSE	IUMBER
PERMIT INTENT (SELECT	ONE)	IF MODIF	FICATION, CHECK ALL THAT AF	PPLY			
☐ New request		☐ Incr	ease pressure Increas	se rate Increase vol	ume 🗌 Char	nge/add injection zone	
☐ Modification to exi	sting injection permit	☐ Add	l/delete disposed fluid sou	urce (no fee required) [Other		
WELL INFORMAT	ION						
LEASE NAME			WELL ID NUMBER		API NUMBER		
TYPE OF INJECTI	ON						
CHOOSE ONE	d water □ Enhanced oil i	ecovery	(EOR) – Water □ EOR – St	team/Gas □ EOR – Othe	r (specify)		
			THOD (SELECT A ME	_			
the perforations or inject For steam or other gas in Liquid injection (de	ion interval. For example, njection – wellhead injection epth to mid-point of injection	a wellhea on pressu on interva	injection - downhole injection ad injection pressure of 375 pures may be approved at 3.0 at x 0.75 psig/ft) Steam of the control of the con	osig may be approved for a psig/ft. based on the depth or other gas injection (depth	a 500 ft. deep in to the mid-point th to mid-point	njection interval using the de int of the perforations or injection interval x 3.0 psi	fault method. ction interval. g/ft.)
of injection pressure calc include step-rate test dat injection zone. If alternat	culation must be used. Sup ta, formation breakdown p tive method is used, attact	oporting or ressure, or support	documentation detailing the n leak-off test data, limit test da	nethod of calculation must ata, pump pressure test da	be submitted value or other per	with this form. Alternative me tinent data that quantifies the	thods may
PROPOSED INJEC	CTION INFORMATION	ON					
MAXIMUM WELLHEAD INJECTION PRESSURE	AVERAGE WELLHEAD INJECTION PRESSURE	MAXIMU	M DAILY INJECTION RATE (SEL	ECT UNITS) A	VERAGE DAILY	INJECTION RATE (SELECT UN	TS)
PSIG	PSIG		П	BPD □ GPM □ SCFM		∏ RPD [GPM □ SCFM
ESTIMATED FORMATION F				ESTIMATED FRACTURE PRE	SSURE GRADIE		- OI W - OOI W
		PSIG				PSIG/FT	
INJECTION FLUID	INFORMATION		 				
	nalyses of the injected eteristics of the injection		ny be required for this inje	ection well as part of the	e approval pro	ocess or to yield data tha	t establishes
SOURCE AND ADDITIVES						TOTAL DISSOLVED SOLIDS	PPM
COMPATIBILITY WITH REC	CEIVING STRATUM/STRATA				<u> </u>		
INJECTION ZONE	INFORMATION						
Additional chemical a	nalyses of the injection	zone fo	ormation fluid may be required injection zone formation	uired for this injection w	vell as part of	the approval process or	to yield data
GEOLOGIC NAME (MISSOL			<u>, </u>	PTION OF INJECTION ZONE			
STRATA DEPTH (UPPER C	CONTACT/LOWER CONTACT		STRATA THICKNESS			TOTAL DISSOLVED SOLIDS	2014
PERFORATION/OPEN-HOL	/	_ FT.		FT.			PPM
/	FT.		/ FT.	/	FT.	/	FT.
UPPER CONFININ	IG ZONE INFORMA	TION					
GEOLOGIC NAME (MISSOU	JRI NOMENCLATURE)		LITHOLOGIC DESCRIF	PTION OF INJECTION ZONE			
STRATA DEPTH (UPPER C	ONTACT/LOWER CONTACT)		SATURATED HYDRAULIC CO	ONDUCTIVITY		
		_ FT.				CM/SEC	
GEOLOGIC NAME (MISSON	NG ZONE INFORMA	ATION	LITHOLOGIC DESCRIP	PTION OF INJECTION ZONE			
	JA NOWENCEATURE)			TION OF INSECTION ZONE			
STRATA DEPTH (UPPER C	ONTACT/LOWER CONTACT)		SATURATED HYDRAULIC CO	ONDUCTIVITY		
	/	FT.				CM/SEC	

PROPOSED WELL CONSTRUCTION AN	ND LITHOLOGIC LOG				
	label the schematic below with the information shown.	1			
WELL CONSTRUCTION	WELL/WELLHEAD SCHEMATIC	LITHOLOGIC LOG			
	Diagram the following: location of all cemented	DEPTH		FORMATION DE (OR ATTACH LI	
SURFACE ELEVATION AT WELL FT.	intervals, tubing, packer, casing, perforations, USDW, injection zone and upper and lower confining zones.	FROM	ТО	LOG)	
DEPTH TO COMPETENT BEDROCK FT.	Pressure observation				
SURFACE CASING DEPTH FT.	equipment per 10 CSR 2.040(7)(A)				
FULL LENGTH SURFACE CASING CEMENT YES NO					
IE NO. EVELAIN ANNUI AR OFAL.					
IF NO, EXPLAIN ANNULAR SEAL:					
CASING DEPTH FT.					
FULL LENGTH CASING CEMENT ☐ YES ☐ NO	1 1				
IF NO, EXPLAIN ANNULAR SEAL:					
ADDITIONAL CASING STRING DEPTH FT.					
FULL LENGTH CASING CEMENT YES NO		Total Depth	FT.		
IE NO EVDI AIN ANNI II AD CEAL.					
IF NO, EXPLAIN ANNULAR SEAL:		UNDERGROUN	ND SOURCE O	F DRINKING WAT	ER (USDW)
		INTERVAL(S):		FT. TO	FT
		iiti Eitti/tE(O).			···
				FT. TO	FT.
TUBING DEPTH FT.		LIDDED CONEI	NING EODMAT	ION INTERVAL:	
PACKER DEPTH FT.		OI I EIL OOM I			F.T.
ANNULAR FLUID TYPE:				FT. TO	F1.
		INJECTION IN	ΓERVAL(S):		
				FT. TO	FT.
				ET TO	F.T.
FOR OPEN HOLE CONSTRUCTION, LIST OPEN HOLE				FT. TO	F1.
INTERVAL: FT. TO FT.				FT. TO	FT.
FOR PERFORATED CONSTRUCTION, LIST PERFORATION				FT. TO	FT.
INTERVAL(S): FT. TO FT.					
FT TO					
FT. TO FT.		LOWER CONF	INING FORMAT	TION INTERVAL:	
FT. TO FT.				FT. TO	FT.
FT. TO FT.					

		submission of a map the trating the injection inte						
		dition to the map, each					AFT HUITIDE	(OI WEII
API # or	Well ID	Well Location	Owner	Name	Well Type	Well Status	Total	Casing
Certification #	Number						Depth	Depth
		LATITUDE:						
		LONGITUDE:						
		LATITUDE:						
		LONGITUDE:						
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RECUIRED I	NEORMAT	TION FOR SUBMISS	SION					
LandeChemElectiMIT s	owners within nical analysis or ic log of entire submitted with	<u>'</u>	on formation fluid 🔲	Attached	ile			
METHOD OF	PAYMEN	Т						
☐ Credit Card (t	ransaction fee	close check, payable to De applies). Attach contact in Attach contact information	formation of person auth	orized to make trai			AMOUNT \$	DUE 100
CERTIFICAT			•				Ψ	100
I, the undersigne								
I am a The ii I und I un	authorized to a information on erstand this pe erstand the su erstand the su erstand this ap inplete information to abide by	act as an agent for the app this application has been re ermit, if approved, is not tra bmittal fee assessed to this bmission of this application oplication will become null a tion. Chapter 259, RSMo, and termit, in no way, relieves m	reviewed by me and is transferable to another par as injection permit is non- n is not a guarantee of its and void if no response I the Missouri Code of Sta	ty or location witho refundable and nor sapproval. has been received at the Regulations Oil	ut approval of the state g n-transferable. after thirty (30) days of no and Gas Council Rules 10	eologist. utification requesting re		ng or
PRINT NAME	·	-	TITLE		COMPAN			
PRIMARY PHONE	NUMBER WITH	AREA CODE		EMAIL ADDRES	S			
SIGNATURE				DATE				
FOR OFFICE	USE ONI	Y						
		D INJECTION PRESSURE		APPROVED AV	ERAGE WELLHEAD INJECT	TION PRESSURE		
		PSIG				PSIG		
APPROVED MAXIN	IUM DAILY INJE			APPROVED AVI	ERAGE DAILY INJECTION R			
		□ BPD □ GF	PM □ SCFM		_]BPD □ GPM □	SCFM	
APPROVED BY			30		DATE		m	

AREA OF REVIEW

MO 780-0212 (03-17)