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

WELL OWNER INFORMATION

NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL THAT DRILLS, MAINTAINS, OPERATES, OR CONTROLS OIL AND GAS WELLS IN MISSOURI	OPERATOR LICENSE NUMBER

PERMIT INTENT (SELECT ONE)

☐ New request

☐ Modification to existing injection permit

IF MODIFICATION, CHECK ALL THAT APPLY

☐ Increase pressure ☐ Increase rate ☐ Increase volume ☐ Change/add injection zone

☐ Add/delete disposed fluid source (no fee required) ☐ Other _____

WELL INFORMATION

PRODUCTION UNIT (LEASE OR SURFACE UNIT NAME)	WELL NUMBER	API NUMBER

TYPE OF INJECTION

CHOOSE ONE

☐ Disposal of produced water ☐ Enhanced oil recovery (EOR) – Water ☐ EOR – Steam/Gas ☐ EOR – Other (specify)_____

INJECTION PRESSURE CALCULATION METHOD (SELECT A METHOD PER 10 CSR 50-2.055)

Default method for calculating injection pressure. For liquid injection - downhole injection pressures shall be approved at 0.75 psig/ft. based on the depth to the mid-point of the perforations or injection interval. For example, a wellhead injection pressure of 375 psig may be approved for a 500 ft. deep injection interval using the default method. For steam or other gas injection – wellhead injection pressures may be approved at 3.0 psig/ft. based on the depth to the mid-point of the perforations or injection interval.

☐ Liquid injection (depth to mid-point of injection interval x 0.75 psig/ft.) ☐ Steam or other gas injection (depth to mid-point of injection interval x 3.0 psig/ft.)

Alternative method for determining injection pressure. If an injection pressure is requested that is greater than the calculated default injection pressure, an alternative method of injection pressure calculation must be used. Supporting documentation detailing the method of calculation must be submitted with this form. Alternative methods may include step-rate test data, formation breakdown pressure, leak-off test data, limit test data, pump pressure test data or other pertinent data that quantifies the integrity of the injection zone. If alternative method is used, attach supporting documentation.

☐ Step-rate test ☐ Leak-off test ☐ Limit test ☐ Pump pressure/well fracture data ☐ Formation breakdown pressure ☐ Other _____

PROPOSED INJECTION INFORMATION

MAXIMUM WELLHEAD INJECTION PRESSURE	AVERAGE WELLHEAD INJECTION PRESSURE	MAXIMUM DAILY INJECTION RATE (SELECT UNITS)	AVERAGE DAILY INJECTION RATE (SELECT UNITS)
PSIG	PSIG	_____ ☐ BPD ☐ GPM ☐ SCFM	_____ ☐ BPD ☐ GPM ☐ SCFM

ESTIMATED FORMATION FRACTURE PRESSURE	ESTIMATED FRACTURE PRESSURE GRADIENT OF INJECTION ZONE
PSIG	PSIG/FT

INJECTION FLUID INFORMATION

Additional chemical analyses of the injected fluid may be required for this injection well as part of the approval process or to yield data that establishes representative characteristics of the injection fluid over time.

SOURCE AND ADDITIVES OF FLUID	TOTAL DISSOLVED SOLIDS
	PPM

COMPATIBILITY WITH RECEIVING STRATUM/STRATA

INJECTION ZONE INFORMATION

Additional chemical analyses of the injection zone formation fluid may be required for this injection well as part of the approval process or to yield data that establishes representative characteristics of the injection zone formation fluid over time.

GEOLOGIC NAME (MISSOURI NOMENCLATURE)	LITHOLOGIC DESCRIPTION OF INJECTION ZONE	
STRATA DEPTH (UPPER CONTACT/LOWER CONTACT)	STRATA THICKNESS	TOTAL DISSOLVED SOLIDS
_____/_____ FT.	FT.	PPM

PERFORATION/OPEN-HOLE INTERVAL(S)

_____/_____ FT. _____/_____ FT. _____/_____ FT. _____/_____ FT.

UPPER CONFINING ZONE INFORMATION

GEOLOGIC NAME (MISSOURI NOMENCLATURE)	LITHOLOGIC DESCRIPTION OF INJECTION ZONE
STRATA DEPTH (UPPER CONTACT/LOWER CONTACT)	SATURATED HYDRAULIC CONDUCTIVITY
_____/_____ FT.	CM/SEC

LOWER CONFINING ZONE INFORMATION

GEOLOGIC NAME (MISSOURI NOMENCLATURE)	LITHOLOGIC DESCRIPTION OF INJECTION ZONE
STRATA DEPTH (UPPER CONTACT/LOWER CONTACT)	SATURATED HYDRAULIC CONDUCTIVITY
_____/_____ FT.	CM/SEC

SEND COMPLETED FORM ALONG WITH $100 PERMIT FEE TO: MISSOURI DEPARTMENT OF NATURAL RESOURCES, MISSOURI GEOLOGICAL SURVEY, GEOLOGIC RESOURCES SECTION, PO BOX 250, ROLLA, MO 65402 PHONE: 573-368-2100 FAX: 573-368-2111 EMAIL: oilandgas@dnr.mo.gov

PROPOSED WELL CONSTRUCTION AND LITHOLOGIC LOG

Provide a well/wellhead schematic or draw and label the schematic below with the information shown.

WELL CONSTRUCTION

SURFACE ELEVATION AT WELL _____ FT.

DEPTH TO COMPETENT BEDROCK _____ FT.

SURFACE CASING DEPTH _____ FT.

FULL LENGTH SURFACE CASING CEMENT ☐ YES ☐ NO

IF NO, EXPLAIN ANNULAR SEAL:_____

_____

_____

_____

CASING DEPTH _____ FT.

FULL LENGTH CASING CEMENT ☐ YES ☐ NO

IF NO, EXPLAIN ANNULAR SEAL:_____

_____

_____

_____

ADDITIONAL CASING STRING DEPTH _____ FT.

FULL LENGTH CASING CEMENT ☐ YES ☐ NO

IF NO, EXPLAIN ANNULAR SEAL:_____

_____

_____

_____

TUBING DEPTH _____ FT.

PACKER DEPTH _____ FT.

ANNULAR FLUID TYPE:_____

_____

_____

FOR OPEN HOLE CONSTRUCTION, LIST OPEN HOLE

INTERVAL: _____ FT. TO _____ FT.

FOR PERFORATED CONSTRUCTION, LIST PERFORATION

INTERVAL(S): _____ FT. TO _____ FT.

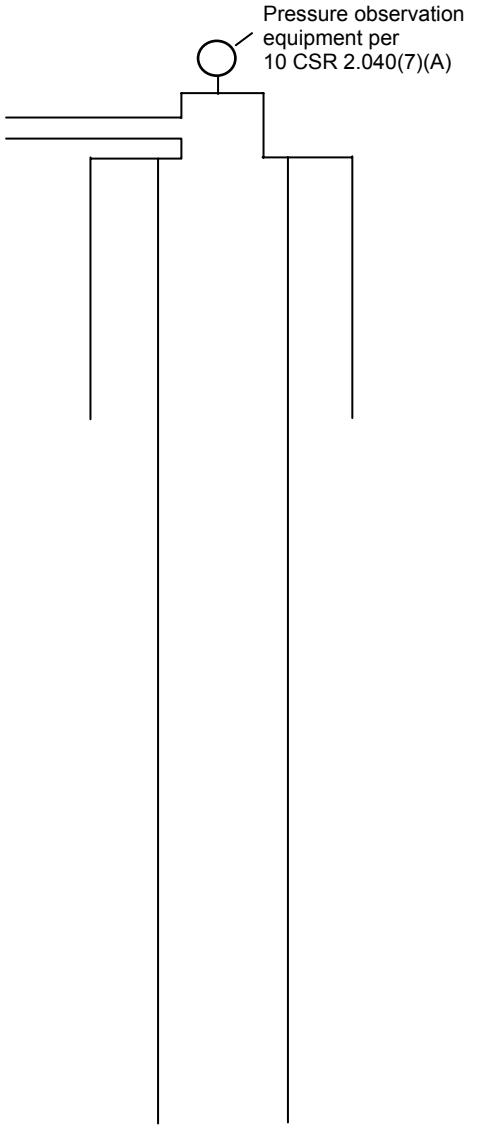
_____ FT. TO _____ FT.

_____ FT. TO _____ FT.

_____ FT. TO _____ FT.

WELL/WELLHEAD SCHEMATIC

Diagram the following: location of all cemented intervals, tubing, packer, casing, perforations, USDW, injection zone and upper and lower confining zones.



LITHOLOGIC LOG

DEPTH FROM	DEPTH TO	FORMATION DESCRIPTION (OR ATTACH LITHOLOGIC LOG)
Total Depth FT.		

UNDERGROUND SOURCE OF DRINKING WATER (USDW)

INTERVAL(S): _____ FT. TO _____ FT.

_____ FT. TO _____ FT.

UPPER CONFINING FORMATION INTERVAL:

_____ FT. TO _____ FT.

INJECTION INTERVAL(S):

_____ FT. TO _____ FT.

_____ FT. TO _____ FT.

_____ FT. TO _____ FT.

_____ FT. TO _____ FT.

LOWER CONFINING FORMATION INTERVAL:

_____ FT. TO _____ FT.

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AREA OF REVIEW

Per 10 CSR 50-2.055, the submission of a map that shows the area of review within one-half mile of the proposed injection well (or lease boundaries) documenting all wells penetrating the injection interval is required. Each well location on this map must be labeled with the well's API number (or well certification number). In addition to the map, each well must be entered into the table below with the corresponding information.

API # or Certification #	Well Number	Well Location	Owner Name	Well Type	Well Status	Total Depth	Casing Depth
		LATITUDE: LONGITUDE:					
		LATITUDE: LONGITUDE:					
		LATITUDE: LONGITUDE:					
		LATITUDE: LONGITUDE:					
		LATITUDE: LONGITUDE:					
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		LATITUDE: LONGITUDE:					

REQUIRED INFORMATION FOR SUBMISSION

Per 10 CSR 50-2.055, the following documents must be submitted with this form:

- Non-refundable fee of $100
- Well/wellhead construction schematic
- Area of review
- Affidavit of public notice and notification of all
- Landowners within ½ mile radius of the project boundaries
- Chemical analysis of injection fluid and injection formation fluid ☐ Attached ☐ On-file
- Electric log of entire injection well borehole ☐ Attached ☐ On-file
- MIT submitted with permit ☐ Attached ☐ On-file

METHOD OF PAYMENT

☐ Check or Money Order. Enclose check, payable to Department of Natural Resources, with submitted form.
☐ Credit Card (transaction fee applies). Attach contact information of person authorized to make transaction.
☐ Automated Clearing House. Attach contact information of person authorized to make transaction.

AMOUNT DUE: $100

CERTIFICATION

I, the undersigned, certify that:

- I am authorized to act as an agent for the applicant of this well.
- The information on this application has been reviewed by me and is true, correct and complete to the best of my knowledge.
- I understand this permit, if approved, is not transferable to another party or location without approval of the state geologist.
- I understand the submittal fee assessed to this injection permit is non-refundable and non-transferable.
- I understand the submission of this application is not a guarantee of its approval.
- I understand this application will become null and void if no response has been received after thirty (30) days of notification requesting required missing or incomplete information.
- I agree to abide by Chapter 259, RSMo, and the Missouri Code of State Regulations Oil and Gas Council Rules 10 CSR 50.
- I understand this permit, in no way, relieves me of my obligations to comply with all applicable federal, state and local laws or regulations.

PRINT NAME	TITLE	COMPANY

PRIMARY PHONE NUMBER WITH AREA CODE	EMAIL ADDRESS

SIGNATURE	DATE

FOR OFFICE USE ONLY

APPROVED MAXIMUM WELLHEAD INJECTION PRESSURE	APPROVED AVERAGE WELLHEAD INJECTION PRESSURE
PSIG	PSIG
APPROVED MAXIMUM DAILY INJECTION RATE	APPROVED AVERAGE DAILY INJECTION RATE
_____ ☐ BPD ☐ GPM ☐ SCFM	_____ ☐ BPD ☐ GPM ☐ SCFM

APPROVED BY	DATE

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