



## City of Dubuque Geothermal Permit Application & Requirements

The City of Dubuque Ordinance NO. 37-15 was adopted on June 1st, 2015 and offers additional information and definitions of terms used in our Geothermal and Well Application forms, the Ordinance is available to view on our web page under Geothermal and Well Projects.

### Purpose:

The purpose of our Ordinance is to protect the health, safety and general welfare of the people of the City of Dubuque by ensuring that ground water will not be polluted or contaminated. Because of the serious potential of adverse environmental impacts, this Ordinance does not allow open loop geothermal systems. The Ordinance allows for closed loop systems subject to the requirements contained in our Ordinance for the construction, reconstruction, repair and destruction of geothermal wells. The construction of the geothermal wells must use construction standards designed to adequately protect the aquifers in each specific geologic setting encountered and in all other criteria, comply with 567 Iowa Administrative Code Chapter 49. All well services must be performed with and Iowa Department of Natural Resources certified well contractor as required by 567 Iowa Administrative Code Chapter 82. The certified well contractor must be on-site and in direct control of all well services being performed.

### Projects Subject to this Ordinance:

**Existing Geothermal Open & Closed Loop Systems:** All existing Geothermal open or closed loop systems within the City of Dubuque are subject to this Ordinance if the following work is done. No person may dig, bore, drill, replace, modify, repair or destroy a geothermal well or any other excavation that may intersect ground water without first applying for and receiving a permit from the Building Services Department.

**New Geothermal Closed Loop Systems:** All new Geothermal closed loop systems install after June 1<sup>st</sup>, 2015 are subject to the adopted Ordinance and must apply and receive a permit prior to any work being done.

**Major Geothermal System:** A horizontal or vertical closed loop system that is located more than 20 feet below the ground surface at any given point.

**Minor Geothermal Systems:** A horizontal closed loop system that is placed at or less than 20 feet below the ground surface.

## **Application/Plan Review Procedures and Checklists:**

**NOTE: OPEN LOOP SYSTEMS ARE PROHIBITED WITHIN THE CITY OF DUBUQUE AND APPLICATIONS WILL NOT BE ACCEPTED FOR REVIEW.**

### **Step 1:**

**Private Water Wells:** Contact the City of Dubuque Building Department to request a site map which will display any known locations of private water wells or other possible water sources within the minimum 1000 foot radius of your proposed project location. You will need to supply us with the address or parcel number of your proposed project location in order for us to provide you with a map showing these potential private well or water source locations.

**Major Systems:** May not be located within 1000 feet of a current city well, private water well or other water source.

**Minor Systems:** May not be located within 200 feet of a city deep (Jordan/Cambrian-Ordovician) well or within 400 feet of a City shallow (Alluvial Aquifer) well.

### **Step 2:**

**(LUST) Leaking Underground Storage Tanks:** No Geothermal system is allowed to be constructed within a 500-foot radius of an identified leaking underground storage tank site. Information will be available through the Iowa Department of Natural Resources.

### **Step 3:**

**Site Plan Requirements:** A site plan must be submitted showing the exact location of each proposed closed vertical or horizontal loop along with the proposed depth of the each loop below the ground surface. Please establish the location of the loops by providing measurements from the adjacent property lines. For horizontal loops provide measurements from the adjacent property lines to a minimum of two sides along with the length and width of the horizontal loops to be installed. The site plan must also include a radius drawn around the perimeter of the proposed location of the vertical or horizontal closed loop system to display there are not water sources or (LUST) sites within the prohibited distances. Site Plan must show the property boundaries and easements of record. Location of all loops must be within the property boundaries of the building lot and not encroach on any recorded easements.

**Step 4:**

**Base Map:** A base map showing any known operating and non-operating mines is also required with the application. Base maps are available online by the City of Dubuque Engineering Department and/or by the Iowa Department of Natural Resources geologists. Construction of a Geothermal heat pump systems (GHEX) within close proximity of mine shafts and mine workings has the potential of creating additional hazards to both the structural integrity of the (GHEX) system as well as increasing vulnerability to the shallow aquifer.

**Step 5:**

**Material Information:** The application must contain the following information of materials to be used. Include MSDS sheets and description of the heat transfer fluid to be used. Heat transfer fluids that are toxic as identified by the International Plumbing Code under essentially toxic transfer fluids will not be accepted, and fluids must comply with the 567 Iowa Administrative Code Section 49.29(5). Provide the calculated anticipated volume of grout that will be required. Geothermal pipe loops must be of approved material for geothermal installation, must have a 50 year warranty against defect and workmanship, and must be installed with a tracer wire.

**Step6:**

**Plan Review Submittal:** Submit a copy of your application form along with your Site Map and Base Map into the City of Dubuque Building Services Department for review.

**Special Notes:**

**Testing of System:** Geothermal piping systems must be pressure tested as required by the Building Services Department prior to the initial operation of the system. All geothermal systems installed after June 1<sup>st</sup>, 2015 are required to have a pressure test performed every 3 years after the initial certification and thereafter.

**Compliance:** All procedures and methods for construction of geothermal wells must comply with the 567 Iowa Administrative Code Chapters 82 and 49 for non-public water supply wells and all applicable regulation of the United States Environmental Protection Agency.

**Regulation Conflict:** In the event any of the provisions of our Ordinance conflict with any State or Federal regulation, the state or federal regulation will control.