

FAWN TOWNSHIP
YORK COUNTY, PENNSYLVANIA

ORDINANCE NO. 6-2015

**AN ORDINANCE REGULATING THE INSTALLATION AND USE OF
GEOTHERMAL WELLS, INCLUDING GEOTHERMAL VERTICAL CLOSED LOOP
AND HORIZONTAL CLOSED LOOP INSTALLATIONS WITHIN FAWN TOWNSHIP.**

NOW, THEREFORE, be it ordained and enacted and it is hereby ordained and enacted as follows:

Section 1. Purpose. The purpose of this Ordinance is to regulate the use and construction of geothermal heating and cooling systems within Fawn Township while protecting the Township water resources. In furtherance of this overall purpose, this Ordinance is specifically intended to serve the following sub-purposes:

- A. Protect and preserve the water resources and water supply that serve all Fawn Township residents;
- B. Conservation and beneficial management of geothermal resources and thermal ground waters in a comprehensive and coordinated manner so as to assure their continued availability and productivity;
- C. Continued support and assistance for individual private geothermal resources and thermal groundwater uses, including residential, institutional, commercial and industrial activities;
- D. Maximization of the public welfare and economic benefit to be derived from geothermal resources and thermal ground waters;
- E. Minimization of the potential for damage or degradation to geothermal resources and thermal ground waters;
- F. Protection of the surface and subsurface environment during development and utilization of geothermal resources and thermal ground waters; and

Section 2. Definitions. The following terms, as used in this Ordinance, shall have the following meanings, unless the context clearly indicates a different meaning is intended:

ALTERING – The deepening, recasing, perforating, reperforating, the installation of packers or seals, and other material changes in the design of a geothermal heating system.

TOWNSHIP – Fawn Township.

CLOSED LOOP SYSTEMS – A geothermal heat pump system which relies on the contained circulation of geothermal fluids through an underground loop of pipes. The loops act as a subsurface heat exchanger, which transports the heat to or from the ground. The loop of pipe is installed either vertically in borings or horizontally in trenches.

CLOSED LOOP, HORIZONTAL – A Closed Loop System where the loops of the pipe are laid horizontally in the ground, in trenches.

CLOSED LOOP, VERTICAL – A Closed Loop System where the loops of the pipe are installed vertically into the ground, in well borings.

CONSTRUCTING – The boring, digging, drilling, or excavating of a geothermal heating system, including the installation of casing or geothermal heating system screens.

GEOHERMAL FLUID – Any fluid transporting or capable of transporting geothermal heat.

GEOHERMAL HEAT – Heat derived from geothermal resources, or heat derived from groundwater.

GEOHERMAL HEATING SYSTEM - A geothermal heat pump system which relies on the contained circulation of geothermal fluids to obtain and to utilize geothermal resources.

GEOHERMAL RESOURCES – The natural heat of the earth, and the energy, in whatever form, below the surface of the earth present in, resulting from, or created by, or which may be extracted from, the natural heat, and all minerals in solution or other products obtained from naturally heated fluids, brines, associated gases, in whatever form, found below the surface of the earth, exclusive of oil, hydrocarbon gas, other hydrocarbon gas, other hydrocarbon substances of helium, but including specifically:

- (a) All products of geothermal processes, embracing indigenous steam, hot water and hot brines;
- (b) Steam and other gases, hot water, and hot brines resulting from water, gas, or other fluids artificially introduced into geothermal formations;
- (c) Heat or other associated energy found in geothermal formations; and
- (d) Any by-product derived from them.

GROUNDWATER – Any water, except capillary moisture, beneath the land surface or beneath the bed of any stream, lake, reservoir, or other body of surface water,

whatever may be the geological formation or structure in which such water stands, flows, percolates, or otherwise moves.

OPEN LOOP SYSTEMS – A geothermal heat pump system which relies on the circulation of groundwater from a supply well, spring or surface water. The source for heat, groundwater is moved from the ground to a heat pump. The water then transferred to a discharge area, typically a surface water body, storm or recharge well.

OWNER – The Person who is the holder of the record title to real property or the person entitled to use of the thermal groundwater at the property.

PERSON – A natural person, firm, partnership, association, social or fraternal organization, corporation, non-profit corporation, trust, estate, receiver, syndicate, branch of government, or similar entities, any group or combination acting as a unit, or the successors or assigns of any of the aforesaid.

POLLUTION – The contamination or other alteration of the physical, chemical, or biological properties of any surface or ground waters which will or can reasonably be expected to render such waters harmful, detrimental, or injurious to domestic, commercial, industrial, agricultural, recreational or other legitimate beneficial use.

RESERVOIR – An aquifer or combination of aquifers or zones containing a common geothermal or groundwater resource.

THERMAL GROUNDWATER – Groundwater which is less than 250 degrees Fahrenheit at bottom-hole temperature, and possessing sufficient heat to be used for a direct thermal application or in conjunction with a groundwater heat pump.

WELL OFFICER – The Township Sewage Enforcement Officer.

Section 3. Construction and Severability.

a. The provisions of this Ordinance shall be construed to the maximum extent possible to further the purposes and policies set forth herein, as consistent with applicable state statutes and regulations. If the provisions of this section and state law are in conflict, then state law shall prevail.

b. It is the intention of the Board of Supervisors that the provisions of this Ordinance are severable, and if any provisions of this Ordinance shall be declared unconstitutional or invalid by the judgment or decree of a court of competent jurisdiction, such unconstitutionality or invalidity shall not affect any of the remaining provisions of this Ordinance.

Section 4. Preordinance Geothermal Heating Systems. All Geothermal Heating Systems existing within the Township on the effective date of this Ordinance shall be known as preordinance Geothermal Heating Systems. As of the date of this Ordinance, there are known or permitted Geothermal Heating Systems. If any such other Geothermal Heating Systems exist, they may be subject to, and brought into compliance with this Ordinance.

Section 5. Subsurface Water Management Policy. In furtherance of the purposes of this Ordinance, it shall be the policy of the Township that all Geothermal Heating Systems existing on the effective date of this Ordinance, and those constructed or altered thereafter, be used in such a manner as to:

- a. Conserve and protect the Geothermal Fluids and groundwater within and adjacent to the Township in order to: enhance reservoir productivity, prevent wasteful extraction and disposal of Geothermal Fluids and Thermal Groundwater, prevent Geothermal Fluid and Thermal Groundwater temperature degradation, prevent thermal pollution of surface environments and water, and prevent harmful intermixing of Geothermal Fluids and other groundwater;
- b. Allow appropriate utilization of Geothermal Fluids and Thermal Groundwater for residential, commercial, industrial, and other lawful purposes; and
- c. Protect the public health, safety, and welfare from improperly constructed, operated, maintained, or abandoned Geothermal Heating Systems.

Section 6. Postordinancé Geothermal Heating Systems.

- a. All Geothermal Heating Systems constructed or altered within the Township subsequent to the effective date of this Ordinance shall be known as postordinancé Geothermal Heating Systems and shall be subject to the requirements of this Ordinance.
- b. Only food-grade or USP-grade propylene glycol may be used as a Geothermal Fluid. No other materials or additives may be used except for potable water. A permanent sign must be attached to the heat pump specifying that only approved heat transfer fluids must be used.

Section 7. Application for Geothermal Heating System Permit. Any persons desiring to construct, install, or alter a Geothermal Heating System within the Township shall first apply for a Geothermal Heating System permit at the Township Office on forms provided for that purpose. No Person shall commence construction or alteration of a Geothermal Heating System prior to the Owner of a proposed Geothermal Heating System receiving a permit.

Section 8. Application Fee. All applications for a Geothermal Heating System permit shall be accompanied by an application fee established by resolution payable to the Township in accordance with a schedule of fees established/revised from time to time.

Section 9. Application Review. The Township, or any persons designated by the Township, shall review each application for conformity with the applicable Township ordinances and law.

Section 10. Permit Decision Criteria. Permit decisions shall contain written findings for approval or denial which may include, but are not limited to, the following criteria:

- a. The estimated hydrological impact of the proposed Geothermal Heating System's operations upon the water system and surrounding Geothermal Heating Systems;
- b. The adequacy of provisions for environmental protection, public safety, and furtherance of the purposes above; and
- c. The compliance of the proposed Geothermal Heating System and its use with this Ordinance, the Township's Comprehensive Plan, and all other applicable laws, ordinances, and regulations.

Section 11. Geothermal Wells for Closed Loop, Vertical Systems – Requirements/Procedures.

No geothermal well shall be installed without receiving a well permit and meeting the requirements of this Ordinance. The procedure for opening a permit to drill a well and then closing this permit within the Township shall be as follows:

- a. Before any drilling or site preparation begins, the well driller shall apply for a Well Permit from the Township Well Officer. At this time, the Well Officer shall provide a copy of the requirements of this Ordinance.
- b. During the well drilling and construction process, the Township Well Officer may enter the premises to determine if the well is being installed according to the requirements of the Township.
- c. The applicant well driller shall provide a detailed site plan depicting the location of the proposed geothermal wells. The site plan shall indicate other features including but not limited to, buildings, existing wells, existing septic system components, driveways, underground tanks, storm drains, property lines, easements, right of ways, ponds, drainage ways, streams, surface water, swimming pools, underground utilities, and other features as deemed necessary by the township well officer.
- d. Within two (2) weeks of the completion of the well, the well owner or driller shall submit a copy of the Pennsylvania Department of Conservation and Natural Resources (PADCNR) Water Well Completion Report to the Township Well Officer. In addition to this report, the well owner or driller shall submit the following:
 - i. The address and mapped location of the well, including the coordinates and GPS location.
 - ii. Depth of the well from land surface.
 - iii. Casing length, type, material and volume.

iv. Total well depth.

e. Upon receipt of the data required above, the Well Officer shall check this information for compliance with the requirements of this section.

Section 12. Well Construction Requirements.

A well installed for the purposes of heating and cooling a facility must adhere to the International Ground Source Heat Pump Association's (IGSHP) *Design & Installation Standards*. The following requirements are based on the American Water Works Association (AWWA) Standard A100-06. AWWA Standard A100-06 or its successors provide the basis for these requirements and shall be followed in the Township.

a. Construction by Licensed Driller

1. All geothermal wells in the Township shall be constructed in accordance with PA Act 610 (Water Well Drillers License Act).
2. The well Owner or driller shall submit a copy of the PADCNR Well Completion Report to the Township within four (4) weeks of the completion of the well.
3. The depth of any well shall not exceed 800 ft.

b. Casing: not required unless determined otherwise by the Township.

c. Grout Requirements: A statement that the well has been grouted in accordance with this Section shall be submitted to the Township along with the Water Well Completion Report.

- i. Bentonite grout or other approved material may be utilized if the manufacturer's specifications for use in water well construction are followed.
- ii. Such grout shall be applied from the bottom of the well continuously to the top of the well, until the surface of the ground or such location where the piping for the system is placed in a trench and directed into the dwelling on the property.

Section 13. Well Siting Requirements.

a. Wells must not be sited in floodplains unless this is not feasible within the parameters of the parcel.

b. Wells must maintain the required minimum isolation distances from the potential pollution sources listed in the table below unless doing so is not feasible and the Owner can provide a basis acceptable to the Township for a lesser distance, which distance shall still further the purposes of this Ordinance.

POTENTIAL POLLUTION SOURCE	MINIMUM ISOLATION DISTANCE
Animal enclosures or barnyards	As Approved
Stormwater drains	25 ft.
Building foundations	20 ft.
Buried petroleum tanks	As Approved
Cemetery or grave site	As Approved
Driveways	10 ft.
On-lot sewage system line	25 ft.
Lakes, ponds, or surface water	25 ft.
Property lines and right-of-way easements	10 ft.
Salt piles	300 ft.
Septic tanks - active	50 ft.
Septic drain fields, seepage pits, privies, or cesspools -	50 ft.
Storm water retention/detention ponds berm (measured from top to bottom)	25 ft.
Swimming pools	25 ft.

Section 14. Additional Requirements. Since the technology surrounding Geothermal Heating Systems continues to evolve and change, the Township reserves the right to impose additional requirements on an Owner seeking to install or maintain a system, if the Township or its representatives determine that such requirements are necessary to further the purposes of this Ordinance. Additionally, the Township may impose further requirements to supplement this Ordinance, or amend existing requirements, by resolution duly adopted at a meeting of the Board of Supervisors.

Section 15. Inspection. The following inspections shall be required by the Township:

- a. Site inspection before any work is done, showing the location of proposed work.
- b. Inspection of grouting.
- c. Inspection of the completely installed system before operations commence and upon commencement of operations.
- d. Inspection if geothermal system or well is abandoned.

- g. Any other inspections required by applicable law, including the Uniform Construction Code.

Section 16. Well Abandonment.

- a. All abandoned wells must be filled and sealed by a PADCNR licensed water well driller according to the PADEP/DCNR Water Well Abandonment Guidelines. A copy of the PADEP/DCNR Water Well Abandonment form shall be submitted to the Township within thirty (30) days of abandonment.
- b. Abandonment procedures shall be subject to Township inspection and shall follow PADEP guidelines.

Section 17. Closed Loop, Horizontal Installation – Requirements/Procedures.

- a. The application and submittal of a detailed site plan shall be made to the Township Permit Office.
- b. The site plan shall include but not limited to buildings, existing wells, existing septic system compounds, driveways, underground tanks, storm rains, property lines, easements, rights of ways, ponds, drainage ways, streams, surface water, swimming pools, underground utilities, and other features as deemed necessary by the permit office.
- c. Prior to any on lot excavation or installation of the horizontal closed loop system a permit for same shall be secured from the permit officer.
- d. During the construction process the permit officer may enter the premises to determine compliance with the requirements of the township or any often environmental issues which may be of concern.
- e. Within two (2) weeks of the completion of the system the property owner shall submit an as-built drawing depicting the system configuration on the parcel in relation to but not limited to the features as mentioned in Section 17. b. above.

Section 18. Closed Loop, Horizontal Geothermal Siting Requirements.

- a. Closed Loop Horizontal Geothermal Systems must not be sited in flood plains unless this is not feasible within the parameters of the parcel.
- b. Closed Loop Horizontal Geothermal Systems must maintain the minimum isolation distances as depicted below unless waived by the permit officer in consent with a basis acceptable to the Township.

FEATURE	Minimum Isolation Distance
Animal enclosures or barnyards	As Approved
Storm water drains	10 ft.
Building foundations	10 ft.
Buried petroleum tanks	As Approved

Cemetery or grave site	As Approved
Driveways	10 ft.
On-lot sewage system line	10 ft.
Lakes, ponds, or surface water	20 ft.
Property lines and right-of-way easements	10 ft.
Septic tanks - active	10 ft.
Septic drain fields, seepage pits, privies, or cesspools -	10 ft.
Storm water retention/detention ponds berm (measured from top to bottom)	10 ft.
Swimming pools	10 ft.

Section 19. Surface Discharges. No Geothermal Heating System constructed or altered after the effective date of this Ordinance shall be operated or altered in such a manner as to cause Geothermal Fluids or Thermal Groundwater to be discharged onto the surface of the ground or into any public ditch or drainage facility.

Section 20. Township Monitoring of Geothermal Facilities. In connection with the principal functions and activities of the Township resource management responsibility, Township officials may, upon reasonable notice to the owner, enter upon any property within the Township for purposes of inspecting geothermal facilities, or monitoring the operational characteristics of such facilities, when such inspection or monitoring is reasonably necessary to the assessment of other indices related to geothermal or groundwater reservoir management, or protection of the public safety and welfare. The Township shall provide affected property owners or occupants with reasonable prior notice, describing the nature, purpose, and duration of the necessary inspection or monitoring; such inspections or monitoring shall be conducted in accordance with applicable Township and state procedures for inspections. If any person refuses to permit any officer or employee to enter and inspect, the Township officer or employee shall not attempt to force entrance, but shall with the assistance of the Township's attorney, seek a search warrant or other appropriate court order.

Section 21. Defective Geothermal Heating Systems. Whenever the Township determines that any Geothermal Heating System within the Township is by the nature of its construction, installation, or operation is adversely interfering with other Geothermal Heating Systems, or is polluting groundwater or surface water, the Township shall promptly notify the affected owner of the wasteful or defective Geothermal Heating System and require said owner to cease operation thereof immediately. Such notice may be verbal and/or written. If the system is causing any adverse effects, then repairs shall be commenced immediately and completed as promptly as possible. If the Owner fails to act promptly, the Township may take such action as may be necessary, in its discretion, and the Owner shall be liable for all Costs related thereto. A Geothermal Heating System continuing wasteful or defective operation after the expiration of the time provided by notice shall be prosecuted as a violation of this Ordinance.

Section 22. Enforcement.

- a. Upon the knowledge or receipt of a written complaint setting forth the existence of unauthorized construction, modification, or use in violation of this Ordinance, or other notice thereof, the Township Secretary, Zoning Officer, Sewage Enforcement Officer, Solicitor or other representative that may be authorized by the Township Board of Supervisors shall cause written notice to be given either by personal service or registered or certified mail to the Owner of the Property upon which the violation exists, to immediately cease the construction, modification or the unauthorized use of the system. Such a written notice shall be required to enforce the remedies set forth in this section. However, the Township shall still be entitled to give a verbal notice for defective systems as authorized above.
- b. The Owner shall not be entitled to written notice for any subsequent or similar violations of this Ordinance that occur within 180 days of the service of the first notice. The first notice shall be deemed ongoing for any violations within that time period, and the Township may proceed immediately with enforcement.
- c. Upon failure of such Owner to comply as directed in said notice, the proper Township officials or the Township Solicitor may appear on behalf of the Township and initiate legal proceedings to enforce the provisions of this Ordinance before a District Magistrate.
- d. Any Owner who or which shall violate or permit to be violated the provisions of this Chapter shall, upon being found liable therefore in a civil enforcement proceeding brought by the Township before a District Magistrate, pay a fine of not less than three hundred (\$300.00) nor more than six hundred (\$600.00) dollars, plus all court costs, including reasonable attorneys fee's incurred by Fawn Township as a result thereof. No fine shall commence or be imposed, levied, or be payable until the date of the determination of the violation by a District Magistrate. Each day that a violation exists and is continued shall constitute a separate offense, unless the District Magistrate who determines that a violation has occurred further shall determine that there was a good faith basis for the defendant to have believed that there was no such violation, in which event there shall be deemed to have been only one such violation until the fifth day following the date of determination by such District Magistrate and thereafter every day shall constitute a separate offense.
- e. The Township shall also be entitled to recover from any Owner all Township costs or fees (the "Costs") arising out of or related to the application or enforcement of this Ordinance. Such Costs may also include those to remedy violations of this Ordinance, protect the water supply, and abate nuisances. The Costs shall include, but not be limited to, engineer fees, geologist fees, attorney fees, zoning officer fees, and staff/employee time. The Costs may be collected as a Municipal Claim under applicable law against the property.

Section 23. Exemption. The ordinance is not applicable to geothermal systems installations on Agricultural Adaptations within the Township. Specifically non-residential utilization or geothermal heating or cooling for crop or livestock production on farmland where the installation if the system is a minimum of 200 feet from property boundaries.

Section 24. Repealer. All prior ordinances that are inconsistent herewith are hereby repealed to the extent of such inconsistency.

Section 25. Severability. Should any section or provision of this Ordinance be declared by the Courts to be unconstitutional or invalid, such decisions shall not affect the validity of the Ordinance as a whole or any part thereof other than the part so declared to be unconstitutional or invalid.


Section 26. Effective Date. This Ordinance shall become effective five (5) days after its enactment.

ORDAINED AND ENACTED this 9th day of November, 2015.

ATTEST:

**FAWN TOWNSHIP
BOARD OF SUPERVISORS**


Secretary

By: 
VICE Chairman