

PMC-EF2a

(20402)

**U.S. DEPARTMENT OF ENERGY  
EERE PROJECT MANAGEMENT CENTER  
NEPA DETERMINATION**



RECIPIENT: PA Department of Environmental Protection

STATE: PA

PROJECT TITLE : PA Conservation Works - Geothermal Systems -- ARRA-EECBG

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0000013	DE-EE0000942		0

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:

**CX, EA, EIS APPENDIX AND NUMBER:**

## Description:

**B5.1** Actions to conserve energy, demonstrate potential energy conservation, and promote energy-efficiency that do not increase the indoor concentrations of potentially harmful substances. These actions may involve financial and technical assistance to individuals (such as builders, owners, consultants, designers), organizations (such as utilities), and state and local governments. Covered actions include, but are not limited to: programmed lowering of thermostat settings, placement of timers on hot water heaters, installation of solar hot water systems, installation of efficient lighting, improvements in generator efficiency and appliance efficiency ratings, development of energy-efficient manufacturing or industrial practices, and small-scale conservation and renewable energy research and development and pilot projects. The actions could involve building renovations or new structures in commercial, residential, agricultural, or industrial sectors. These actions do not include rulemakings, standard-settings, or proposed DOE legislation.

## Rational for determination:

The State of Pennsylvania has sub-granted their funds to other units of government. This NEPA determination reviews the ten proposed geothermal systems located in different municipalities throughout the state. Nine systems have been designed and are ready for construction with DOE funds. One system, (Millheim) has been initially designed as closed loop 10-15 tons and DOE funds would be used for finalizing design work and construction/equipment installation. The proposed projects are listed below.

1. Bradford – The Bradford Township is proposing a 7 ton closed loop vertical system, to be used to heat and cool the township building. The wells and trench will be in an open area next to an existing building. From the aerial photograph provided, it is clearly visible that all installation will occur on previously disturbed land. The proposed system will require 7 bore holes drilled to a depth of 150 feet with the entire well field being 540 square feet. All boreholes will be cased in a thermally enhanced bentonite grout to form a seal that will not allow any surface runoff water to contaminate ground water sources. Bore holes will be drilled and grouted by a professional well driller who has prior experience. There will be a three foot deep trench connecting the well field to the facility that will be filled and reclaimed to original when the installation is finished. This will occur on previously disturbed land. The closed loop heat exchange will use a propylene glycol/water refrigerant that is non-toxic minimizing the risk of contamination to soil and groundwater sources. The proposed system will use high density polyethylene pipe that is heat fused at the joint to further reduce the risk of leaks and contamination. Erosion and sediment control will be silt fences and bail checks. The contractor will remove all non-hazardous waste and dispose of same at the Centre County Landfill. Such waste will be unusable plastic, such as duct material, PVC pipe, etc. Metals are recycled. The proposed project will comply with the National Pollutant Discharge Elimination System regulations and the Uniform Construction Code. The proposed project will not affect the view or integrity of any historical structures. Analyzing the National Wetland Inventory on the EPA's NEPAAssist, the reviewer has concluded that there are no wetlands, floodplains or coastal zones in proximity to the proposed site location.

2. Decatur – The Decatur Township is proposing a 7 ton closed loop vertical system, to be used to heat and cool the township building. The wells and trench will be in an open area next to an existing building. From the aerial photograph provided, it is clearly visible that all installation will occur on previously disturbed land. The proposed system will require 7 bore holes drilled to a depth of 150 feet with the entire well field being 540 square feet. All boreholes will be cased in a thermally enhanced bentonite grout to form a seal that will not allow any surface runoff water to contaminate ground water sources. Bore holes are drilled and grouted by a professional well driller who has prior experience. There will be a three foot deep trench connecting the well field to the facility that will be filled and reclaimed to original when the installation is finished. This will occur on previously disturbed land. The closed loop heat exchange will use a propylene glycol/water refrigerant that is non-toxic minimizing the risk of contamination to soil and groundwater sources. The proposed system will use high density polyethylene pipe that is heat fused at the joint

to further reduce the risk of leaks and contamination. Erosion and sediment control will be silt fences and bail checks. The contractor will remove all non-hazardous waste and dispose of same at the Centre County Landfill. Such waste will be unusable plastic, such as duct material, PVC pipe, etc. Metals are recycled. The proposed project will comply with the National Pollutant Discharge Elimination System regulations and the Uniform Construction Code. The proposed project will not affect the view or integrity of any historical structures. Analyzing the National Wetland Inventory on the EPA's NEPAassist, the reviewer has concluded that there are no floodplains or coastal zones in proximity to the proposed site location. The proposed site location is .3 miles from the nearest wetland.

3. Millheim – The Borough of Millheim is proposing a 10-15 ton closed loop vertical system to be used to heat and cool the municipal building. Wells and trench will be installed in an existing municipal parking lot, which will be resurfaced. From the aerial photograph provided, it is clearly visible that all installation will occur on previously disturbed land. The proposed system will require bore holes with the entire well field being 15,000 square feet. All boreholes will be cased in a thermally enhanced bentonite grout to form a seal that will not allow any surface runoff water to contaminate ground water sources. Bore holes are drilled and grouted by a professional well driller who has prior experience. There will be a trench connecting the well field to the facility that will be filled and reclaimed to original when the installation is finished. This will occur on previously disturbed land. The recipient has stated that they will use the non-toxic refrigerant mixture of potable water/propylene glycol. The proposed system will use high density polyethylene pipe that is heat fused at the joint to further reduce the risk of leaks and contamination. Erosion and sediment control will be silt fences and bail checks. Waste materials will be collected in a roll off dumpster, properly labeled as municipal solid waste, and wet to control fugitive dust. All waste will be transported to the municipal solid waste landfill. The proposed project will comply with the National Pollutant Discharge Elimination System regulations and the local and state regulations. The proposed project will not affect the view or integrity of any historical structures. Analyzing the National Wetland Inventory on the EPA's NEPAassist, the reviewer has concluded that there are no floodplains or coastal zones in proximity to the proposed site location. The proposed site location is .38 miles from the nearest wetland.

4. Radnor – The Township of Radnor is proposing a 12 ton closed loop vertical system to heat and cool the Delaware County Willows park building. Wells and trench will be in open grass area next to park building. From the aerial photograph provided, it is clearly visible that all installation will occur on previously disturbed land. The proposed system will require 6 bore holes drilled to a depth of 300 feet. All boreholes will be cased in a thermally enhanced bentonite grout to form a seal that will not allow any surface runoff water to contaminate ground water sources. Bore holes are drilled and grouted by a professional well driller who has prior experience. There will be a four foot deep trench connecting the well field to the facility that will be filled and reclaimed to original when the installation is finished. This will occur on previously disturbed land. The closed loop heat exchange will use a propylene glycol/water refrigerant that is non-toxic minimizing the risk of contamination to soil and groundwater sources. The proposed system will use high density polyethylene pipe that is heat fused at the joint to further reduce the risk of leaks and contamination. Erosion and sediment control will be silt fences, sediment pit excavation for pumping fill infiltration and bail checks. The construction area will be reclaimed to its original state. The contractor will remove all non-hazardous waste and dispose of same at the Centre County Landfill. Such waste will be unusable plastic, such as duct material, PVC pipe, etc. Metals are recycled. The proposed project will comply with the National Pollutant Discharge Elimination System regulations and the Uniform Construction Code. The proposed project will not affect the view or integrity of any historical structures. Analyzing the National Wetland Inventory on the EPA's NEPAassist, the reviewer has concluded that there are no floodplains or coastal zones in proximity to the proposed site location. The proposed site location is .1 miles from the nearest wetland.

5. Towanda – The Towanda Municipal Authority is proposing a 12 ton open loop system at a waste water treatment plant, and will use additionally filtered waste water as a heat source. There will be no wells or trenches. The system is a water source heat pump using treated wastewater effluent as the source water. This reused effluent (also known as utility water or process water) is currently used for equipment washdown and other non-potable applications at the wastewater treatment plant. The reused effluent will require additional filtration prior to prevent fouling of the water source heat exchanger. The only piping will be in the building of installation where utility water and waste lines are presently available. Tie in will be a routine matter. The recipient states that all equipment and piping will be housed within the building of installation. The proposed project will not create any land disturbance therefore there will be no erosion and sediment control needed. Scrap metal will be recycled and any non-hazardous construction waste will be disposed of with a local solid waste hauler. The proposed project will comply with the National Pollutant Discharge Elimination System regulations and local electrical/mechanical building code. The proposed project will not affect the view or integrity of any historical structures. The proposed project is being installed inside an existing building with no expansion to the existing building and no new construction, so there should be no adverse impacts to wetlands, floodplains, coastal zones, T&E species or cultural resources.

6. Tamaqua – The Borough of Tamaqua is proposing a 16 ton closed loop vertical system for the Main Control Building and Headworks/Grit Building. From the aerial photograph provided, it is clearly visible that all installation will occur on previously disturbed land. The proposed system will require 7 bore holes drilled to a depth of 400 feet with the entire well field being 500 square feet. All boreholes will be cased in a thermally enhanced bentonite grout to form a seal that will not allow any surface runoff water to contaminate ground water sources. Bore holes are drilled and

grouted by a licensed regulated driller in Pennsylvania and also be a Ground Source Heat Pump Certified installer under the International Ground Source Heat Pump Association. There will be a four to six foot deep trench connecting the well field to the facility that will be filled and reclaimed to original when the installation is finished. This will occur on previously disturbed land. The closed loop heat exchange will use a 20% propylene glycol /water refrigerant that is non-toxic minimizing the risk of contamination to soil and groundwater sources. The proposed system will use high density polyethylene pipe that is heat fused at the joint to further reduce the risk of leaks and contamination. Erosion and sediment control will be silt fences and bail checks. Non-hazardous waste is not anticipated other than packaging materials. Those that can be recycled (cardboard) will be bundled and stored for removal by the local solid waste services provider. Any remaining materials will be sent to the solid waste collection unit at the plant. The Borough of Tamaqua will provide dumpsters etc. via its existing solid waste contract. The proposed project will comply with the National Pollutant Discharge Elimination System regulations and the Uniform Construction Code. The proposed project will not affect the view or integrity of any historical structures. Analyzing the National Wetland Inventory on the EPA's NEPAAssist, the reviewer has concluded that there are no floodplains or coastal zones in proximity to the proposed site location. The proposed site location is .25 miles from the nearest wetland.

7. Orwigsburg – The Borough of Orwigsburg is proposing a 20 ton closed loop vertical system to heat and cool the Orwigsburg Memorial building. Wells and trench will be in existing paved parking lot, which will be resurfaced. From the aerial photograph provided, it is clearly visible that all installation will occur on previously disturbed land. The proposed system will require 10 bore holes drilled to a depth of 300 feet with the entire well field being 2100 square feet. All boreholes will be cased in a thermally enhanced bentonite grout to form a seal that will not allow any surface runoff water to contaminate ground water sources. The field for bore holes has been identified and each bore will be spaced at fifteen feet from the adjacent bore. The drill equipment will be surrounded by geo-textile material, suitably anchored into the ground to insure no runoff material leaves the area of the bore field. Bore holes are drilled and grouted by a professional well driller who has prior experience. The closed loop heat exchange will use a propylene glycol/water refrigerant that is non-toxic minimizing the risk of contamination to soil and groundwater sources. The proposed system will use high density polyethylene pipe that is heat fused at the joint to further reduce the risk of leaks and contamination. Currently, a land development plan is in progress, and compliance with Schuylkill County Conservation District directives will be maintained and a complete E & S Control Plan will be submitted for the work, which will include infiltration barriers and other devices as required. All waste will be disposed of in an approved manner, in the appropriate landfill by the contractor for the work. The proposed project will comply with the National Pollutant Discharge Elimination System regulations, Orwigsburg Borough Zoning and UCC requirements, and PA DEP Rules and Regulation. The proposed project will not affect the view or integrity of any historical structures. Analyzing the National Wetland Inventory on the EPA's NEPAAssist, the reviewer has concluded that there are no floodplains or coastal zones in proximity to the proposed site location. The proposed site location is .25 miles from the nearest wetland.

8. Huntingdon – The Borough of Huntingdon is proposing a 20 ton closed loop vertical system for a municipal building. Wells and trench will be in existing paved parking lot, which will be resurfaced. From the aerial photograph provided, it is clearly visible that all installation will occur on previously disturbed land, in this case an existing parking lot. The proposed system will require bore holes with the entire well field being 36,000 square feet. All boreholes will be cased in a thermally enhanced bentonite grout to form a seal that will not allow any surface runoff water to contaminate ground water sources. Bore holes are drilled and grouted by a professional well driller who has prior experience. There will be a trench connecting the well field to the facility that will be filled and reclaimed to original when the installation is finished. This will occur on previously disturbed land. The recipient has stated that they will use the non-toxic refrigerant mixture of potable water/propylene glycol. The proposed system will use high density polyethylene pipe that is heat fused at the joint to further reduce the risk of leaks and contamination. Erosion and sediment control will be silt fences and bail checks. Waste materials will be collected in a roll off dumpster, properly labeled as municipal solid waste, and wet to control fugitive dust. All waste will be transported to the municipal solid waste landfill. The proposed project will comply with the National Pollutant Discharge Elimination System regulations and the local and state regulations. The proposed project will not affect the view or integrity of any historical structures. Analyzing the National Wetland Inventory on the EPA's NEPAAssist, the reviewer has concluded that there are no floodplains or coastal zones in proximity to the proposed site location. The proposed site location is 1.0 miles from the nearest wetland.

9. London Grove – The London Grove Township is proposing an estimated 24 ton closed loop vertical system to heat and cool the township municipal building. Wells and trench will be in existing parking lot, which will be resurfaced. From the aerial photograph provided, it is clearly visible that all installation will occur on previously disturbed land. The recipient is proposing to drill a 500 foot deep test well with a vertical loop grouted in to conduct thermal conductivity tests. This will also identify the presence and depth of ground water and operational water wells in the area. The proposed system will require bore holes drilled to a depth of 500 feet. All boreholes will be cased in a thermally enhanced grout to form a seal that will not allow any surface runoff water to contaminate ground water sources. Bore holes are drilled and grouted by a well driller licensed by the Chester County Health Department who has prior experience. They will meet the requirements of the Chester County Health Department Rules and Regulations, Chapter 500: Water, Wells, Nuisances, Sewage and Liquid Waste, Section 501, Water Well Construction, Monitoring Wells, and Individual, Semi-Public Water Supplies, and Geothermal Boreholes as well as the standards of the

International Ground Source Heat Pump Association. There will be a trench connecting the well field to the facility that will be filled and reclaimed to original when the installation is finished. This will occur on previously disturbed land. The closed loop heat exchange will use a propylene glycol/water refrigerant that is non-toxic minimizing the risk of contamination to soil and groundwater sources. The proposed system will use high density polyethylene pipe that is heat fused at the joint to further reduce the risk of leaks and contamination. The recipient states that the successful bidder will be required to prepare and implement a Stormwater Pollution Prevention Plan. Non-hazardous wastes will be disposed of in accordance with the London grove Township Construction and Demolition ordinance. The proposed project will comply with the National Pollutant Discharge Elimination System regulations, London Grove Township Storm water management ordinance, and the state Uniform Construction Code. The proposed project will not affect the view or integrity of any historical structures. Analyzing the National Wetland Inventory on the EPA's NEPAAssist, the reviewer has concluded that there are no floodplains or coastal zones in proximity to the proposed site location. The proposed site location is .6 miles from the nearest wetland.

10. Perry County – Perry County is proposing an 80 ton closed loop vertical system for the County Prison. The wells and trench will be located adjacent to and west of the prison. The proposed system will require 45 bore holes drilled to a depth of 400 feet with the entire well field being 10,000 square feet. All boreholes will be cased in a thermally enhanced bentonite grout to form a seal that will not allow any surface runoff water to contaminate ground water sources. Bore holes are drilled and grouted by a professional well driller licensed in the state of Pennsylvania. There will be a four foot deep trench connecting the well field to the facility that will be filled and reclaimed to original when the installation is finished. This will occur on previously disturbed land. The closed loop heat exchange will use a 30% propylene glycol/water refrigerant that is non-toxic minimizing the risk of contamination to soil and groundwater sources. The proposed system will use high density polyethylene pipe that is heat fused at the joint to further reduce the risk of leaks and contamination. Erosion and sediment control will be sedimentation ponds and filtration fabric. The area in which the proposed installation is being placed will be re-seeded to original. The contractor will remove all non-hazardous waste and dispose of same at the Centre County Landfill. Such waste will be unusable plastic, such as duct material, PVC pipe, etc. Metals are recycled. The proposed project will comply with the National Pollutant Discharge Elimination System regulations and a county erosion permit. The proposed project will not affect the view or integrity of any historical structures. Analyzing the National Wetland Inventory on the EPA's NEPAAssist, the reviewer has concluded that there are no floodplains or coastal zones in proximity to the proposed site location. The proposed site location is .2 miles from the nearest wetland.

After a thorough review of the submitted information, it has been determined that the proposed project will not have a significant impact to human health and/or environment. Therefore, all activities in the proposed project are categorically excluded under CX B5.1 "actions to conserve energy" from further NEPA review.

**NEPA PROVISION**

Note to Specialist :

None Given.

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature:



NEPA Compliance Officer

Date:

3/30/10

**FIELD OFFICE MANAGER DETERMINATION**

Field Office Manager review required

**NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:**

- Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

**BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :**

Field Office Manager's Signature:

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Field Office Manager

Date:

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