NGWA broke ground on a geothermal retrofit at its headquarters on August 22, 2023, in Westerville, Ohio. Utilizing the geothermal tax credits available for nonprofit organizations that were signed into law in 2022, NGWA is replacing 9 furnaces, 9 air conditioners, and a mini split with 9 geothermal units. Ductwork and other modifications will be made to improve comfort and better utilize the building’s HVAC system. Many industry stakeholders came together for this renovation, including IGSHPA and NGWA members and suppliers of equipment, pipe, and other system components. An IGSHPA member engineering firm even provided discounted pricing for design of the system. This project is a great example of how retrofit applications can work well and be good business for well water and geothermal contractors, engineering firms, and building owners.

NGWA selected Jackson Geothermal of Mansfield, Ohio, to drill 20 boreholes for a vertical closed loop system. The company drilled two test boreholes with its Versa-Drill V-100NG drilling rig in the lower level of the building’s parking lot that were both set with 65 feet of temporary casing. The drilling formations encountered were asphalt, gravel fill, sandy gray clay, coarse gravel, sand, clay & gravel, hard gray shale, light gray shale, and gray shale. Jackson Geothermal drilled the top 65 feet with fluid drilling, then set casing, and drilled out of the casing with air. It used a polycrystalline diamond compact (PDC) bit to drill the rock formation. After drilling the borehole, the loop was set, the borehole was then grouted from the bottom all the way up to the bottom of the casing at 65 feet. The casing was then removed, and the remainder of the hole was grouted up to the surface.

NGWA selected Federal Elite Heating & Cooling with locations in Pataskala, Dresden, Frazeysburg, Zanesville, Coshocton, and Dover, Ohio for the inside heat pump installation. Both Jackson Geothermal and Federal Elite are IGSHPA members.

Salas O’Brien, the engineer of record, created engineering drawings for the system layout, including variable speed Grundfos Magna3 pumps.

For information about ground source (geothermal) heat pumps, go to https://igshpa.org
This isn’t the first time NGWA has supported geothermal. The Association had an open loop heat pump using a water well installed in a new building that became its headquarters in 1985 in Dublin, Ohio. Its Airport Drive building in 1995 in Columbus was fully geothermal where more than 100 boreholes were drilled by the company of long-time geothermal advocate, the late Ralph Cadwallader of Texas. There was a geothermal unit set up for training among many others (dozens). Like at its previous headquarters, NGWA will use its vertical closed loop system to educate the industry and public about geothermal. NGWA also wanted to make the most of its geothermal retrofit by hosting a short course, Geothermal Drilling and Grouting Fundamentals, on August 29, 2023. Below are photos from the field day.

Inserting pipe and U-bend into the bore

Drill rig and construction equipment on site, ready to install ground heat exchangers

Stuart Lyle of ISCO Industries, instructing the class on the pipe fusion process

Grout and piping, ready for installation

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