

Gas Sparger for Airlift Pumping Strategy

Lifting Geothermal Fluid with the Help of Gravity

Team: Terence Musho, WVU, Nigel Clark, WVU, Dan Hand, Sustainable Engineering, Roy Mink, Mink GeoHydro

Objective:

To design, optimize, and 3D print an optimal sparger head for a given depth, fluid, and flow requirement.

Technology Advantages:

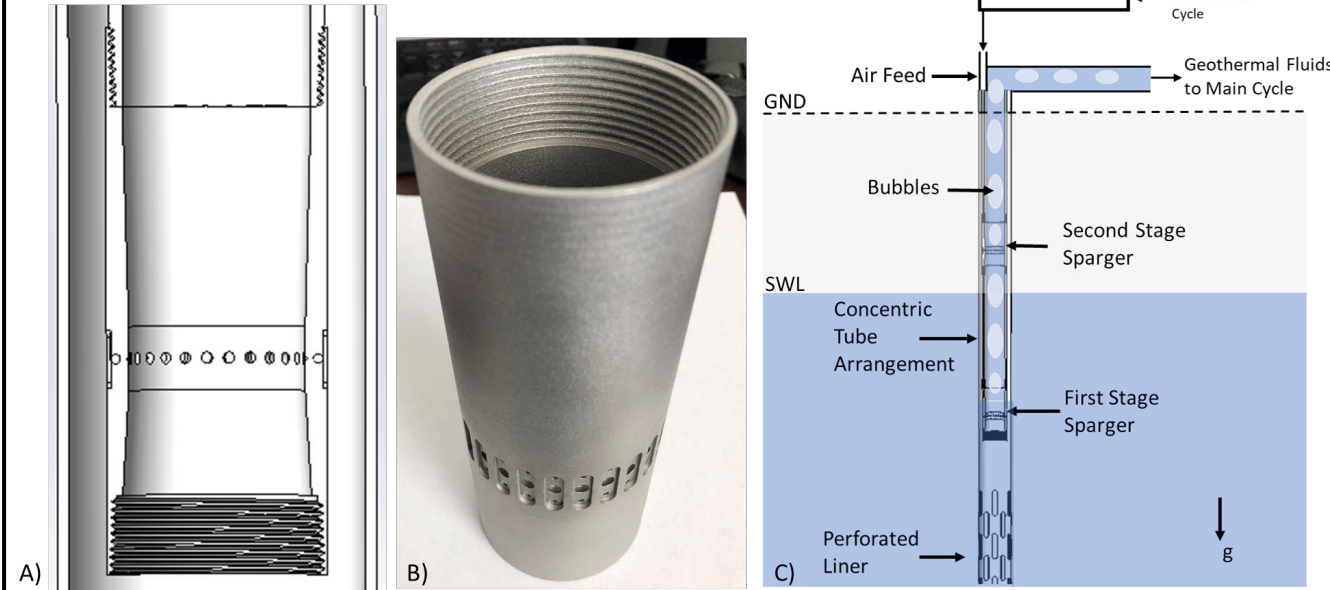
Airlift Geothermal Approach involves inject high pressure air within well to displace and lift fluids to the surface.

Advantages: Low Cost, Low Maintenance, Access to Deeper Fluids, Less Downtime and Maintenance Equipment.

Approach:

- Simulate well flow at temperature and pressure.
- Determine overall efficiency when recovering pressure at top of well.
- Optimize the sparger for deeper depths. Print optimal design at AM-partner Facilities. CT scan parts at ORNL.
- Test the sparger in an actual geothermal well.
- Develop a strategy for scaling technology.

Version 2 Sparger Design



AM Network Connector: ORNL, Xometry