

Lorath Geothermal Generator

Designer: [Lorath Matriarchy](#) (Pre-house separation).

During the Lorath exile underground the need for a method of generating electricity and heat in a clean and efficient manner became an obvious one. With the resources at hand, the Lorath determined that using a variety of geothermal devices would be feasible and most effective.

Technical Information

The standard geothermal power generation method in use by the Lorath is a combination of a “Binary-Cycle” type generator with a “Hot Dry Rock” heating method.

The “Binary-Cycle” generator operates as a closed loop system that releases a very low amount of particles into the atmosphere, if any. The Binary-Cycle generator works by drawing heated steam from deep ground sources and allowing the steam to travel up through a pipe system. When the steam travels to the generator, the pipe it travels in is passed through a container that holds a fluid with a lower boiling temperature than the water vapor traveling through the pipe. The second fluid is referred to as a “binary” fluid. The heat from the water vapor is passed through the binary fluid to a second pipe that contains additional water. The water in the second pipe is then heated to flash point; the heated vapors are then allowed to travel along the pipe and to a turbine that is rotated by the steam pressure. After the vapor passes the turbine, it then cools back to a liquid state and travels through a pipe to pass back through the binary fluid, thus completing the cycle.

The original fluid that heats the “binary” fluid is heated through a “Hot Dry Rock” method. This method involves the drilling of a hole several kilometers below the ground’s surface. (Due to the Lorath’s position, this was a simple task.) Water is then pumped down into hole through the use of a high pressure pump. The water that is pumped down is then heated to flash point. The steam generated is then allowed to travel upward through a second pipe that travels up into the generator system. Vapors that have passed through the generator then continue through the pipe until they are collected back into a liquid state. The cooled liquid is then passed through a high pressure pump system and back down to the heated rocks, thus allowing the cycle to continue.

The system that is employed by the Lorath involves an excess amount of water to be pumped into the heated rock depths. The excess steam that is generated is then allowed into a third pipe system; this system runs through the cavern system that the Lorath were exiled in. In times prior to their freedom this system was used to heat the caverns and provide water to the occupants of the cavern through the use of valves (with self contained water filter systems) that ran along the pipe systems.

Since the retaking of the surface, the Lorath continue to use the caverns as housing for geothermal power plants. The pipe system previously used to cycle water through the caverns has been expanded to the surface of the central city to provide water and heat. The power grid has also been expanded from the caverns, and into the central city. Additional power plants have also been constructed since the retaking of the surface, these plants are scattered throughout the surface of Lor. They continue to provide utilities to the population of the planet much like the original units.

Historical Notes

The Geothermal Plant System was also used as a means of retaking the surface of Lor from the [Helashio](#). In the first days of the uprising, the Lorath used the heated steam from the rock depths to propel large amounts water vapor and dust into the atmosphere of Lor, thus blocking out the sunlight and causing a “shock and awe” effect upon the Helashio population.

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