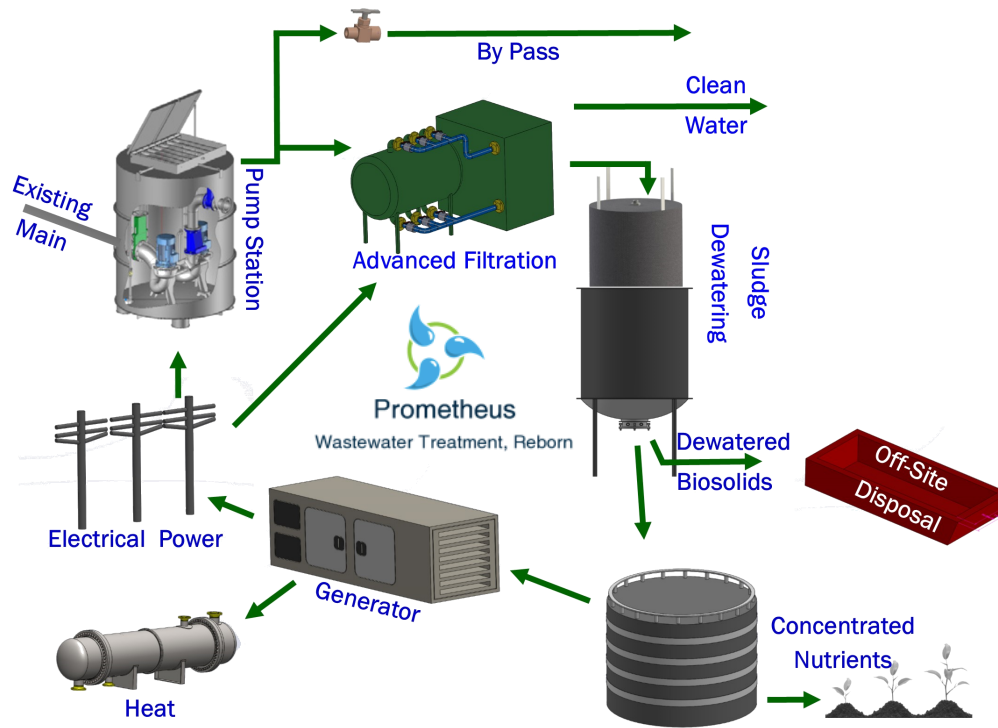




Prometheus—Wastewater Treatment, Reborn



The **Prometheus Wastewater Treatment System** represents a revolution in wastewater treatment design, energy conservation & production. The compact, zero waste design allows the system to be used virtually anywhere. The simplicity of operation and minimized operator attention allows the system to be utilized in applications and locations which conventional treatment technologies cannot.

We have redesigned the process itself while replacing conventional treatment equipment with innovative state of the art technology. This new treatment system is not only more efficient and effective than conventional wastewater designs but the system offers a lower capital cost, a far lower operating cost and shrinks the required footprint drastically. The system is available in multiple designs and scopes to fit the wastewater, the customer and the budget.

Treatment process: The process starts with a unique advanced filtration process as the primary treatment which removes suspended and dissolved solids. An optional second stage filtration step will allow the system to meet the tightest requirements for re-use or discharge. Whether the goal is direct discharge to surface water, groundwater, reuse of the treated wastewater, or simply to reduce the strength of the wastewater, Prometheus offers an option and can meet the challenge.

Treated Water is clean enough to be used for a variety of reuse options including irrigation or as feed for industrial or commercial uses where allowable. The system is capable of delivering high purity water that meets or exceeds drinking water standards.





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Solids removed from the wastewater are dewatered using a simple Sludge dewatering system. This innovative system uses gravity to dewater the solids automatically, with no operator intervention or labor. These fully dewatered solids can be transported off site or can be digested on site and converted to methane.

Our Anaerobic Digestion process will reduce the organic volume by up to 95%, much higher than conventional digesters. This innovative system harnesses the nutrients into a high strength, natural fertilizer product that can be marketed or utilized locally. This advanced Digestion system will generate high quality methane which can be used to power a CHP system, or simply used as heat. Prometheus includes a gas handling and treatment process with an option to remove the CO₂ from the gas to lower the carbon footprint for the process.

Advantages:

Prometheus represents a whole new approach to handling and treating wastewater. This approach has a number of advantages when compared to traditional wastewater systems

- **Reduced capital, operating costs, and installation costs**
- **Much smaller footprint**
- **Lower Energy use**
- **Higher quality effluent**
- **Low operator attention**
- **Produces valuable outputs (depending on options selected)**
 - **Clean water**
 - **Energy**
 - **Nutrients**
 - **Calcium carbonate**

Applications:

New /Upgrade to Municipal Wastewater Treatment Plants: for anyone considering a new treatment plant or upgrading an older plant, this state-of- the- art design offers a lot of advantages over conventional treatment plant design. The system produces higher quality effluent while greatly reducing the energy use and limiting the physical size required to build the plant. The Prometheus system requires a fraction of the space required for a conventional plant. The system is fully automated, requiring far less attention from the operations staff and can generate its own energy.

Industrial Wastewater: whether you are pretreating your wastewater for discharge to the local municipal system or treating it for reuse or direct discharge, this highly advanced, compact wastewater system is ideal for the job. The Prometheus system can take on virtually any strength wastewater and still meet the tightest discharge or reuse requirements.

Re-use of the wastewater can be a huge savings, mitigating or eliminating the discharge costs while reducing the volume of water that needs to be purchased. In addition to cost savings, wastewater reuse can afford the facility a higher degree of independence and control over its production.





Replacing existing conveyance systems: The Prometheus System design is compact enough to be installed in place of existing pump stations. The system design is flexible enough to fit most locations and designed to minimize operator requirements.

Rather than retransmitting wastewater to the next town or even to your own plant that is many miles away, this design eliminates the need for the extra transmission and replaces it with a state-of-the-art treatment process that is energy efficient and environmentally friendly. Typical payback for the plant is 2-4 years.

Shopping Centers and Housing Developments: Prometheus offers a simple, compact and efficient treatment system for commercial and institutional requirements. The System will reliably meet the discharge standards without constant attention and will not be vulnerable to upsets like most biological systems. Treated wastewater can typically be used on site for a variety of applications. If the digester option is chosen, the system can potentially provide its own backup power should the need arise. Prometheus is a new concept that revolutionizes the treatment process by utilizing innovative pieces in a new way.

The Pieces

Advanced Filtration: Prometheus starts with Advanced Filtration to remove suspended and dissolved solids. This step can take the wastewater directly to discharge, reuse, or even drinking water standards. Primary treatment is designed around the customer's goals for the project as well as the discharge requirements and the budget for the project. We also offer an option which is designed to reduce solids sufficiently to hit specific targets to allow for discharge to existing wastewater systems.



Whichever option you select, we offer a design which is simple to operate and maintain and one that requires limited operator intervention. These filtration systems are designed to deal with the toughest wastewater while requiring the minimum of attention and maintenance.



Solids Handling and Dewatering: The Best Filter system in the world is of little use without an effective means of dealing with the large volume of solids generated during the process. Prometheus offers a unique solution which allows fully automated handling of the solids generated during backwash or from reject water. Our dewatering process uses time and gravity to automatically dewater these solids and to place them into a rolloff, dump truck, etc or to send them to the next stage in the system.

Like the rest of the treatment process, this step requires no regular operator attention and is compact and efficient.





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Digestion/Nutrient Extraction: Dewatered solids can be sent off site or can be eliminated in our unique digestion system. This proprietary design yields far higher organic destruction than conventional digesters. The higher efficiency design generates more methane and leaves almost no organic waste behind, reducing the customer's operating cost and increasing the value they gain.



This system also extracts the residual nutrients as a high strength and high value fertilizer than can be utilized or potentially marketed. The nutrients can be delivered as a very high value liquid or can be adsorbed onto a granular media if a solid version is of interest.



Gas Handling & Enhancement: Methane is extracted from the digester and conditioned for use in either a CHP system or for a simple boiler. Once the gas is conditioned, it can be used in a similar manner to natural gas.

Prometheus is offered with a number of options for this step. In addition to removing H₂S, Siloxanes, and moisture, etc, we offer an option for CO₂ removal which allows for a higher methane content, opening up more uses for the gas.

Our CO₂ removal system is simple and inexpensive, utilizing our Icarus media which turns the CO₂ into Calcium Carbonate. This product has a good value for a number of commercial uses, including as alkalinity for wastewater plants. This step also full sequesters the CO₂, reducing the carbon footprint when the methane is utilized.



Energy production: Methane from the Digester can be used for a CHP (Combined Heat and Power) system or a simple boiler to provide hot water for use or for heat for the enclosures or building that is housing the treatment system.

A CHP system will generate the same amount of heat as a conventional gas heater with the added bonus of generating electricity which can be used to operate the treatment system.



Pumping the Wastewater: the Prometheus System can be added where there is an existing pump station. We can utilize what is there or replace it with our innovative In-line Pumping System which will pressurize the wastewater as needed for the treatment system and be used to bypass the system should it ever be necessary. This innovative design removes the need to store wastewater at the station, removing one of the major headaches associated with pump stations.

Theia, together with,

