



Chemical Make Down and Delivery

Our dry polymer make down systems, both wet and dry, provide accurate and cost effective solutions to treat your water. Our dual mix tank design eliminates a transfer pump and reduces polymer shear. We have 30+ years of operational experience as well as time tested equipment, instrumentation, automation and support. Our ability to automatically adjust treatment based on live data is key in the annual savings of water treatment cost.

To get you started, we provide free sample analysis to estimate usage rates and operational costs for process and storm water. We'll then work with you to develop a plan, install equipment and customize support to keep your plant running efficiently.

Process Engineers & Equipment Corporation is a family-owned business with equipment installed in hundreds of plants in North America and abroad. We specialize in sand classification and dewatering, slurry transport, fine sand recovery, water clarification and sludge dewatering systems. These systems are designed to recover salable products while reducing operating costs by eliminating costly tailings ponds. We differentiate ourselves with unrivaled field installation and operation experience, accurate process flow diagrams and equipment sizing, and systems automation.

With manufacturing facilities in Washington, Texas, and Wisconsin, we differentiate ourselves from others by providing personal on-site service. We deliver Tier 1 quality equipment and engineered solutions in a timely manner. Please contact us anytime for your project and equipment needs.

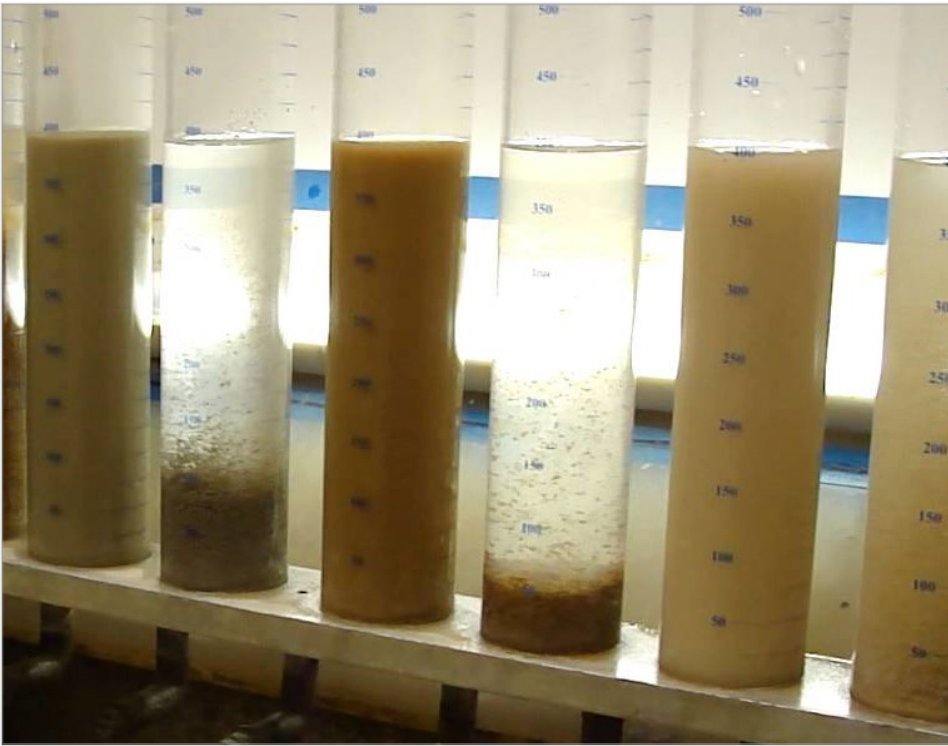
Benefits for you

- Dry polymer skids are plug and play
- Full onsite training and support
- Up-to-date automation and instrumentation
- Equipment audit and adjustment to help customize for your operation
- Treatability studies for environmental regulation and permitting
- Automated emulsion make-down systems



**Leaders in Sand Processing
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Field and Lab Services

Process Engineers provides technical services to clients with water treatment and sand processing applications across numerous markets. We provide highly trained and experienced technicians to help audit existing processes and to suggest specific improvements. Using our lab capabilities and on-site testing, we can help define unknown quantities in your process and ensure optimization through appropriate equipment and automation. We also provide personnel with years of operational experience to train your operators in both a classroom and field setting.

Many clients who discharge water off-site are subject to water quality requirements by local agencies and municipalities. Our team will provide quantifiable analysis and treatability studies to help you navigate this process. Let us earn your trust through our experience to help make your process as efficient as it can be.

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Benefits for you

- 30+ years of operational experience
- Process auditing and optimization
- Plant automation
- Water treatment solutions
- Product specifications
- Competitive consumable pricing
- Industry leading service
- Extensive lab and testing capability



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Mobile Processing

Process Engineers designs and builds custom mobile water treatment and sand processing plants utilizing trailer mounted equipment. Our pre-plumbed and pre-wired systems are fully customizable based on the desired process of any specification. Past fully automated systems include sand classification equipment (density separator, cyclone, dewatering screen, conveyor, etc), fines processing (clarifier thickener, polymer treatment, belt filter or plate press, etc), and polymer mixing and delivery (dry flocculant make down, emulsion dilution, coagulant addition, etc). Each system is fully tested prior to delivery and will be supported by our industry leading team, including operator training and process optimization.

Portability allows operations to move equipment seamlessly from site-to-site with minimal set-up and tear-down time. Let us help you eliminate the hassle and extra cost associated with trying to move permanently installed equipment, let Process Engineers help you take your show on the road!

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Benefits for you

- Plug and play operation
- Full automation and process capabilities
- Eliminate high equipment mobilization costs
- Available on site support and optimization

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Plate Presses

Plate and frame filter presses have the highest water capture rate among fines dewatering equipment. Our units feature double end feeding to minimize chamber fill time, a squeeze cycle with expandable membranes to add mechanical pressure to maximize water recovery. A central core blow to recycle un-pressed slurry back to the feed tank to prevent unwanted moisture on the discharge cakes. An automated wash cycle to clean fabrics is also available. Cycle times are extremely material dependent, let Process Engineers perform an in-depth analysis of your slurry in our test unit to estimate the processing capabilities for your full scale operation.

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Benefits for you

- Lowers operational cost through minimal chemistry
- Maximum water recovery
- Easily transported fine solid waste
- Full automation capability



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Tabor Sizing and Dewatering Screens

Process Engineers has partnered with Tabor, one of the leading manufacturers of vibrating screening solutions, to offer horizontal, incline, and dewatering screen options. With years of combined experience in design, installation, and operational experience, we can find the right solution for your screening needs.

The primary scalping screens are huck bolted machines and are available in widths up to 8' and lengths up to 20'. These screens come with multiple decks, have a linear motion, rugged side plates, massive body stiffeners, and a heavy duty support frame. They are used to remove over-sized material, and provide initial sizing of the material being fed to the sand processing plant. We have a head box to properly wet and spread the material as it comes on to the screen.

The dewatering screens feature a standard off-the-shelf motor and external gearbox for ease of maintenance, lower operational and replacement costs. They can be setup with a variety of different screen media to dewater sand down to 8% moisture in some cases.

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Benefits for you

- Cost effective
- Integrate into existing structures
- Variety of media and decking
- Huck bolted design
- Rubber lined feed boxes
- Liner high G-force TH drive
- Rugged deck support



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Belt Filter Press

Our belt filter press is three meters wide and can handle up to 25+ TPH of slurry. A typical application would be to 'press' excess water out of solids pumped from a clarifier thickener. The solids (usually -200 mesh) are settled in the clarifier with the use of polymers and then pumped to a belt filter press at a constant flow and density. After the solids are de-watered on the belt filter press a cake dryness of 55-65% can be expected, making the product conveyable, stackable, and truckable. Our belt press comes standard with pneumatic belt tensioning and tracking, a dual belt drive, and inclined gravity section for maximum de-watering.

Benefits for you

- High solids capture rate
- Most energy efficient
- Chemical cost optimization
- Continuous operation
- Capital and operational cost savings
- Dry cake solids for disposal
- In-house manufacturing

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Water Clarifiers

Process Engineers manufactures high capacity water clarifiers which separate fine particle solids (typically passing 200 mesh/74 micron) by adding a treatment polymer to the incoming slurry from a cyclone, screw classifier, sand classifier and/or storm water. The polymer attaches to the solids in the slurry causing them to agglomerate and gain enough mass to drop out of solution via gravity. The mud settles to the bottom of the tank at its terminal density and is raked to the center and then pumped out. As the solids settle out, a rising current of clean water is collected in an overflow weir (can be cleaner than 50 NTU depending on application). These systems recycle over 90% of the water in the system for re-use.

Process Engineers has manufactured several of the largest clarifiers in the sand processing industry - up to 100' diameter and 23,000 gpm.

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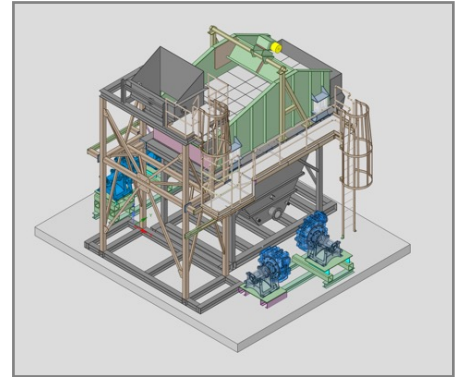
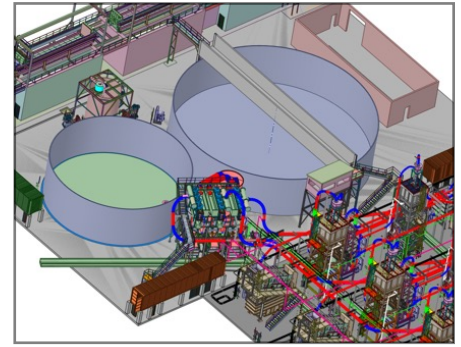
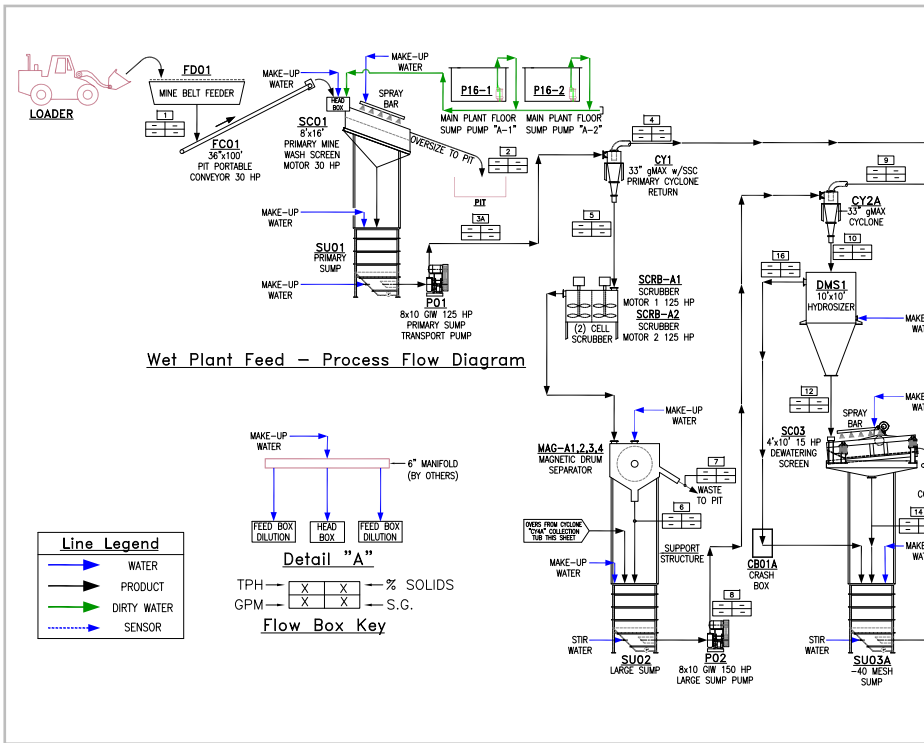
Benefits for you

- Eliminates tailings ponds
- Maximizes water recovery
- Closed loop system
- Automated chemistry addition
- Rake lift standard
- Heavy duty bridge
- Rake drive and rakes overbuilt
- Underflow line flush system



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Engineering Capabilities

With full 3D plant modeling capabilities, we can produce site plans, design transitions and piping, and produce a complete bill of materials for ease of installation. We also create complete drawing sets ready for fabrication that are stamped by a PE.

Our plant modeling systems allow us to create Process Flow Diagrams with accurate mass and water flow balances. We also produce complete Piping and Instrumentation Drawings with valve size and pipe size callouts.

We have mechanical, chemical, and mineral processing engineers on staff and have been in business for nearly 30 years, serving sand and gravel, frac sand, plastics recycling, oil refineries, pulp and paper, the food industry, and aquaculture businesses, which gives us a well rounded background and many experiences to draw from.

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Benefits for you

- Team of mechanical, chemical and mining engineers
- Stamped structural fabrication drawings
- Full 3D plant modeling
- Process Flow Diagrams with accurate mass and water flows
- Piping and Instrumentation Drawings
- Detailed polymer usage studies
- Lab services
- Plant optimization and automation



Hydraulic Mining

Hydraulic mining is the utilization of water from a monitor to mine sandy material from either a mine wall, or for the transport of loose sand from blasting to a pumping area.

Process Engineers

We integrate the controls for the monitor, the primary pump systems, booster stations (as required) and the correct pipe sizing to facilitate this mining method. We find that the slurry pipeline enhances the liberation of clay through vigorous scrubbing, which benefits the wash plant. This mining method uses no loaders or trucks to deliver the sand to the wash plant, thus minimizing labor and yellow iron cost. The water used for this method can be reclaimed from the wash plant water treatment system and re-used in the slurry transport loop.

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Benefits for you

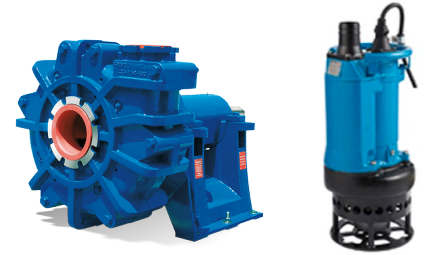
- Eliminates Yellow Iron (Loaders, Haul Trucks)
- Capable of handling of 150 -500 tons per hour of sand feed
- Eliminates Overland Conveyors
- Significantly Reduces Manpower
- Reduces mining costs by roughly \$2 per ton
- Increases Scrubbing which leads to lower turbidities
- Reduces Oversize Waste on Primary Screens
- Instrumentation to continually monitor the flow and density



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Pumps

We use a pipeline modeling program to accurately predict settling velocities based on the application specific sand gradation. This allows us to properly size the pipe to ensure adequate carrying velocities. These pipeline models allow us to accurately determine the amount of friction head lost in the system so that we can create a system head curve and properly size your water, slurry, or submersible pump.

For larger water pumps we typically use Peerless split case centrifugal pumps, which have a heavy duty dual bearing setup and high pumping efficiencies. For smaller water pumps we typically use Scot ANSI style. We can also offer multistage vertical turbine pumps, large and small.

Tsurumi offers a wide range of submersible dewatering and slurry pumps with built in agitators, as well as a line of trash pumps.

GIW has a complete line of heavy duty slurry pumps, both rubber lined and hard iron options, as well as expeller, glanded, and mechanical seal options. Replacement parts typically have short lead times.

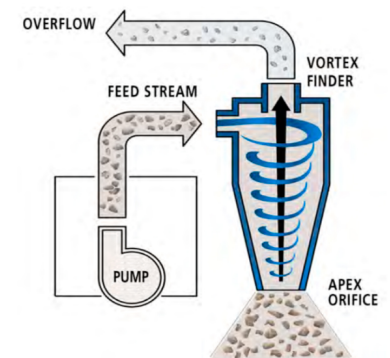
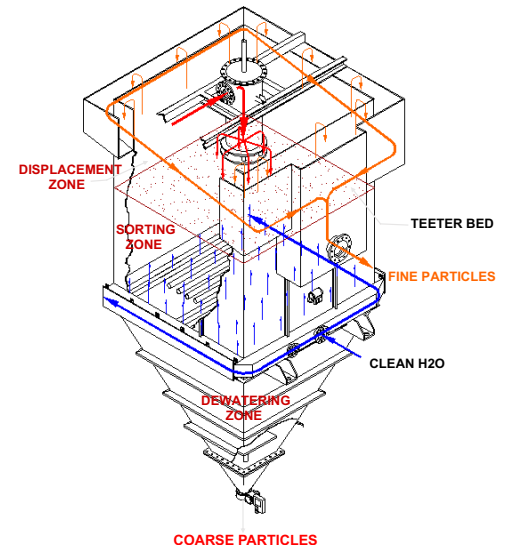
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Sand Recovery and Classification

Cyclones – Process Engineers provides cyclones manufactured by Krebs which come complete with metal housings, replaceable rubber liners, cyclo-stack sand dewatering boots and siphon controls. The sand is generally recovered back into a sand product or further processed and classified. The dirty overflow is typically fed to a high capacity water clarifier or pond.

Density Separators – Process Engineers provides density separator sand classifiers. Density separators are a very accurate way to classify sand and are able to make a very specific cut to maximize desirable sand products. They operate by using a rising current of water through a bed of sand. The cut point is changed by changing the rising current rate and/or density of the sorting zone.

Structural – Process Engineers designs and manufactures custom structural supports for cyclone and density separator systems. We also design rubber lined manifolds for material splitting to multiple units and bulk material handling hose for conveying sand slurry between pumps and cyclones.

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Benefits for you

- We use a modeling program to predict cyclone recoveries and properly size units for your application
- Efficient removal of clay
- Removal of non-product particles
- Maximize product yield