



Surface Water Package Treatment Plant The MIOX P-3 Unit

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San Dimas Technology and Development Center (SDTDC) has been working with the MIOX Corporation to develop a small surface water package treatment plant. This package plant, the MIOX P-3 unit, was designed for small Forest Service campgrounds. It will work with solar, generator, or grid electricity. Water can be supplied by gravity or pump, see Figure 1.

The unit filters and disinfects the water. It monitors and records turbidity and chlorine residual, and will shut the water off if the turbidity or chlorine measurements are outside of safe limits. It will also shut down if the water pressure drops, or if the filter needs to be changed. It will shut down and drain if freezing weather is expected. The unit can be set to trigger an alarm if operator attention is needed.



Figure 1.—The MIOX P-3 installed at Priest Lake campground, Idaho.



The requirements for installing a P-3 water treatment plant are an inlet water pressure of at least 40-pounds per square inch (276 kPa), higher is O.K.; a flow rate of at least 8 gallons per minute (0.5 L/s) 16 gallons per minute (1 L/s) is preferred; and a storage tank for chlorine contact time. A collection tank may be used before the unit if the source water flow rate is too slow. A pump can be installed to increase the water pressure. The pump controls can be integrated into the P-3 controller.

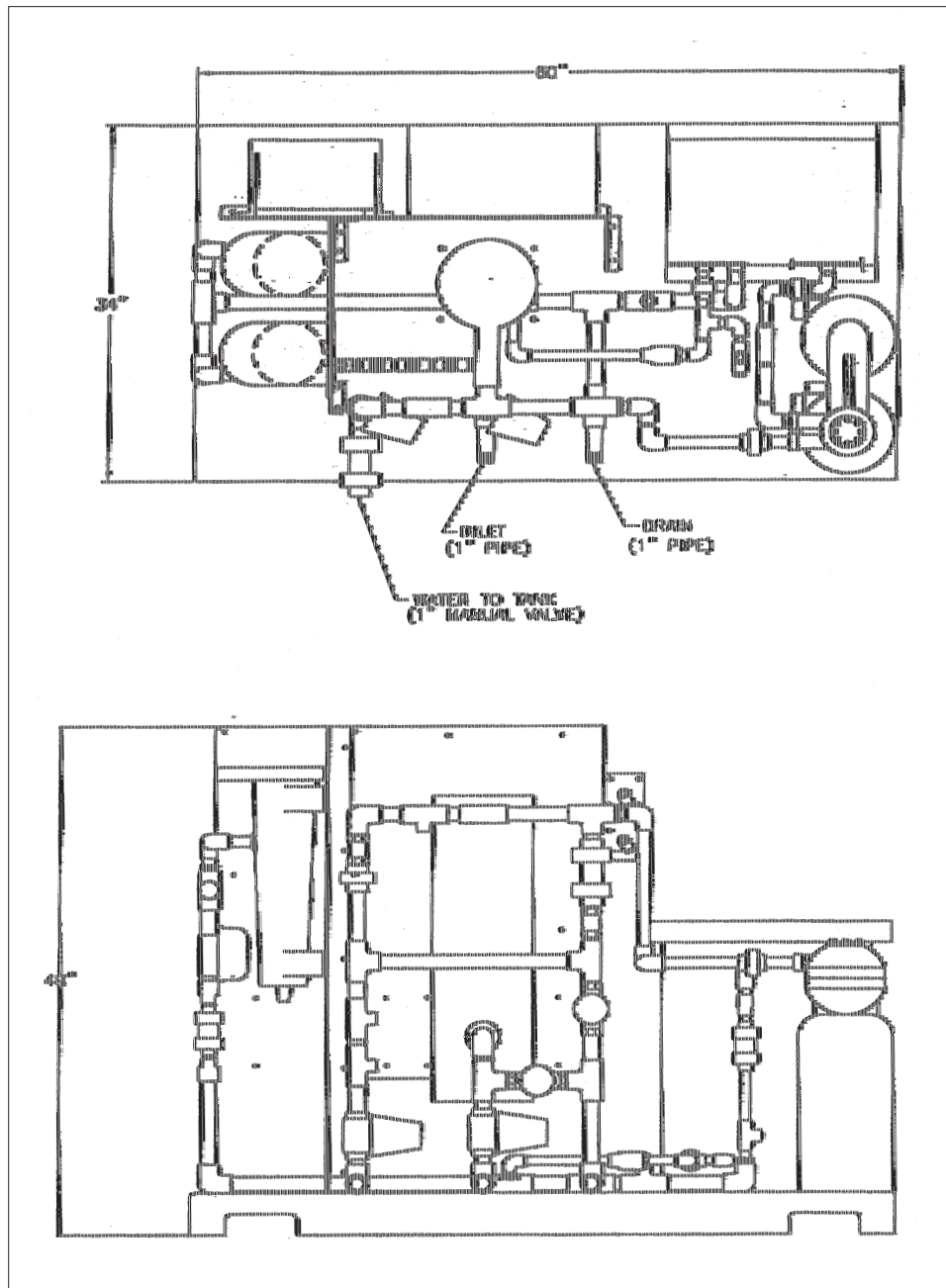


Figure 5.—P-3 system lay-out.

Figure 5 is a schematic diagram of the P-3 system lay-out.

For more information, contact Brenda Land, Dave Erlenbach, or Dexter Meadows at San Dimas Technology and Development Center, (909) 599-1267.



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The P-3 will fit in the bed of a pick-up truck. Handles are attached to the skid to make lifting easier. It weighs about 200 pounds (90 kg) and can be lifted and moved by four people. See Figure 2.



Figure 2.—Delivery to Priest Lake campground.

The P-3 needs to be protected from the weather and vandalism. A building six feet by eight feet (150 mm by 200 mm) or larger can be used. A doorway 36 inches (0.9 m) wide is necessary to get the unit inside.

A water storage tank is required for chlorine contact time. This installation also has pressure tanks installed for the distribution system. See Figure 3.



Figure 3.—Building at Priest Lake.

The photovoltaic module, controller, and batteries are included with a P-3 ordered for solar powered installations. See Figure 4.



Figure 4.—Solar package for P-3 system.

San Dimas Technology and Development Center plans to install fourteen P-3 systems during 1998 as beta test units. The first unit was installed in late April. SDTDC will collect operational data from these installations to ensure ease of operation, system reliability, and operational cost.

Preliminary test results look promising, and SDTDC anticipates the MIOX Corporation will market the unit in 1999. San Dimas will write an indefinite quantities contract in 1999 if there is enough interest within the Forest Service. The cost will be between \$22,000 and \$25,000.