

# *Capabilities*



## ***WaterSmart Environmental, Inc.***

Designers and Manufacturers of Control  
Equipment for Water Purification Applications

**Specialists in Water and  
Wastewater Treatment**

**“WE FIND SOLUTIONS”**

## About the Company

WaterSmart Environmental, Inc (WSE) is a multi-product manufacturer of water and wastewater treatment equipment. Its Energy & Power Management Division designs and provides energy management control systems. Both operate on a global basis. The company has recently introduced an innovative waste-to-energy process that will permit municipalities to dispose of far greater quantities of liquid and solid wastes while producing significant quantities of biogas. The biogas can then be converted to electrical energy or further purified and sold as pipeline quality natural gas. Other special processes and products include producing potable water from polluted lakes and rivers, high performance oil/water separators, laundry, car, and truck wastewater treatment and water reuse recycling systems, silica cleaning machines for nuclear power plants, and control systems providing 30% or higher energy reduction for large office buildings, malls and hospitals.

The company has long made a practice of providing engineering literature and technical data aimed as much towards general education in the fields of water and wastewater treatment as specific marketing of our products. This results in a customer that better understands the solutions being proposed. The objective is to educate rather than obfuscate.

## Mission Statement

Our steadfast mission is to design reliable, cost-effective, and simple-to-operate water & wastewater treatment equipment; then to build that equipment to *perform as represented and as required for each and every project*. The company is unequivocally dedicated to provide the very best treatment technology available with maximum benefit to its customers as well as the environment.



*800 GPM Combination Gravity Separator/DAF Separator in Seismic Zone 4 epoxy painted steel construction loaded for shipment to the Department of Water and Power, City of Los Angeles, California.*

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# Experience

**T**he company was initially formed in August of 1984 to manufacture water and wastewater treatment equipment. Engineering disciplines include chemical, mechanical, electrical, instrumentation, and controls.

In the last few years, WSE has expanded its capabilities by building skid mounted aqueous waste treatment plants for EPA Superfund and PRP sites. In this context, the company performs treatability testing followed by the design, manufacturing, assembly, and finally the testing of the

completed plant before shipment. The company has also developed water recycling treatment systems for laundromats, laundries, car wash facilities, and maintenance plants. Lastly, combination physical/chemical bioremediation plants have been designed for fuel service stations and EPA Superfund spill sites.

The engineers and scientists at WaterSmart Environmental have many years of problem-solving experience. If you have a treatment need we may already have a solution.

## Treatment Systems for:

- ◆ Aerobic Digestion
- ◆ Coagulation and Flocculation
- ◆ Commercial Water Conditioning
- ◆ Controls and Instrumentation
- ◆ Dissolved Air Flotation
- ◆ Hydrogen Sulfide, Carbon Dioxide, Methane, and Radon Gas Removals
- ◆ Iron & Manganese Removal
- ◆ Oil/Water/Solids Separation
- ◆ Organics Removal
- ◆ Potable Water Production
- ◆ Process Water Treatment
- ◆ Tannery Wastewater Treatment
- ◆ Textile Mill Wastewater Treatment
- ◆ Two-Phase Anaerobic Digestion
- ◆ Specialty Applications

**300 GPM Complete Physical/  
Chemical Treatment System**  
A 1990 EPA Superfund Project  
at the Old Inger Site in Geismer,  
Louisiana.



## Treatment Expertise for:

### Activated Carbon (A/C) Adsorption Featuring:

Granular A/C Units  
Liquid and Vapor Phase  
Treatment  
Powdered A/C Units

### Aerators and Air Strippers:

Aeration  
Dissolved Gas Removal  
Dissolved VOC Stripping

### Biogas Generation From:

Agricultural Wastes  
Animal Wastes  
Industrial Aqueous Wastes  
Municipal Wastewater  
Treatment  
Types O & 1 Solid Wastes

### Chemical Feed Systems

### Computerized Controls & Instrumentation:

Local and Remote  
Monitoring and Control

### Complete Skid Mounted Treatment Plants:

Car/Truck Wash  
Industrial Pretreatment  
Laundry Wastewater  
Treatment/Recycle  
Maintenance Wastewater  
Treatment/Recycle  
Metal Finishing Complete  
Treatment  
Potable Water Plants  
Superfund Site Aqueous  
Waste Treatment

### Ion Exchange Purification:

Demineralization  
Nitrate Removals  
Softening

### Membrane Treatment Plants

Potable Water Plants  
Selective Ion Separation  
Silica Removal at Nuclear  
Power Plants

### Multi-Media Filtration Featuring:

Iron, Manganese, and Solids  
Removal  
Single and Multi-cell Gravity  
Filters  
Single and Multi-cell  
Pressure Filters

### Packaged Biological Treatment Plants

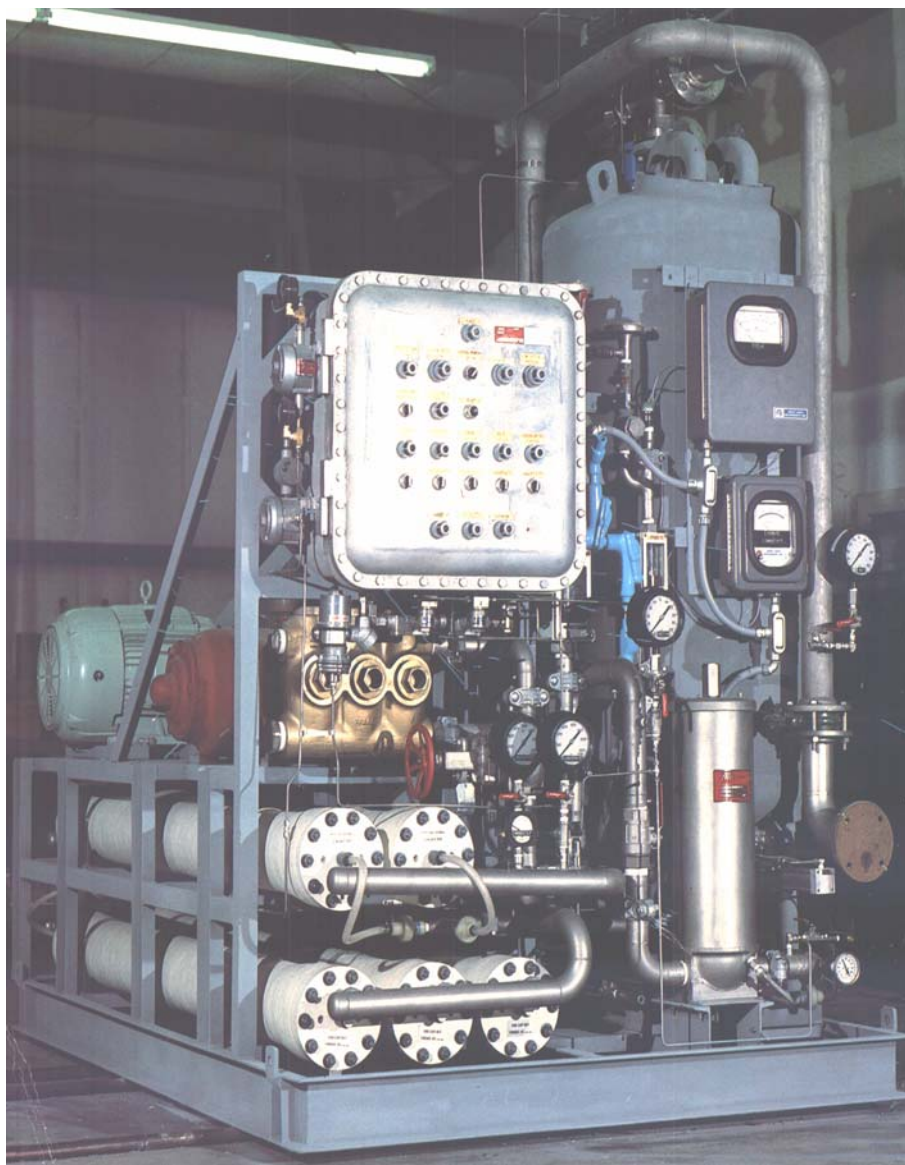
Industrial Pretreatment  
Leachate Treatment  
Sanitary Wastes

### Physical/Chemical Treatment Plants

Potable Water  
Process Water  
Wastewater

### Water Purifiers

Commercial  
Residential



*80 GPM Factory Skid-Mounted  
Complete Desalination Plant.*

*A custom built control panel for a Skid Assembled Aqueous Waste Treatment Plant.*

## Application Engineering

Design Recommendations  
Equipment Layout Drawings  
Laboratory testing  
Pilot plants  
Treatability Studies



## Equipment Manufacturing

### Controls & Instrumentation

Automatic control panels  
Remote monitoring/control

### Equipment Fabrication

Components Fabrication  
Skid mounted systems  
Quality Assurance Testing

### Process Design

Physical/chemical  
Aerobic  
Anaerobic

## Municipal Water Treatment

Chemical feed systems  
Complete instrumentation and controls  
Ion exchange softening  
Iron and manganese removal  
Sludge dewatering  
Radioactivity removal

Packaged sanitary wastewater treatment plants  
Large-size shop-built lamella plate separators  
Large-size shop-built dual media gravity and pressure filters  
Skid assembled plants, prepiped, prewired, and tested prior to shipment

## Industrial Water Treatment

Aqueous waste treatment plants for toxic waste sites (sold and leased)  
Chemical feed systems  
Complete instrumentation and controls  
Fixed growth aerobic biological treatment  
Fixed growth two-phase thermophilic anaerobic biological treatment  
Inclined plate separators for oil/water separation, solids/liquid separation, and dissolved air flotation  
Physical/chemical packaged treatment plants

Pretreatment plants to lower sewer surcharges  
Process water packaged treatment plants  
Powdered and granular activated carbon treatment plants  
Reverse osmosis membrane treatment systems  
Skid assembled plants, prepiped, prewired, and tested prior to shipment  
Sludge dewatering

# Products

## Treatment Equipment Includes:

- ◆ Aerators
- ◆ Air Strippers
- ◆ Batch Treatment Systems
- ◆ Chemical Feed Systems
- ◆ Dissolved Air Flotation Equipment
- ◆ Electrical Controls and Instrumentation
- ◆ Gaseous Odor Control Equipment
- ◆ Granular Activated Carbon Contactors
- ◆ Inclined Plate Separators
- ◆ Iron Removal Plants
- ◆ Ion Exchangers
- ◆ Liquid and Solid Waste-to-Energy Equipment
- ◆ Media Filters
- ◆ Packaged Biological Treatment Plants
- ◆ Packaged Physical/Chemical Treatment Plants
- ◆ Reverse Osmosis Units
- ◆ Skid Mounted and Assembled Treatment Systems
- ◆ Sludge Digesters
- ◆ Two-Stage Powdered Activated Carbon Treatment
- ◆ Vapor Phase Activated Carbon Adsorbers

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**AquaRound™ zero discharge wastewater treatment/water recycling plants.** Features 100% water recycling. Reduces purchased water costs up to 85%; eliminates sewer charges; allows environmentally safe, and inexpensive sludge disposal.

◆ **AquaRound II™** for laundromat wastewater. 4 sizes available from 7,000 to 100,000 gallons per day capacity. *WSE Publication No. 1194*

◆ **AquaRound III™** for commercial laundry wastewater. 7 sizes are available from 15,000 to 250,000 gallons per day capacity. *WSE Publication No. 1294*

◆ **AquaRound IV™** for airplane, bus, car, equipment, train, and truck wash facilities. 7 sizes are available from 10,000 to 100,000 gallons per day capacity. *WSE*

*AquaRound II™*



## ContamAway™

### High Performance Aqueous Waste Treatment Plants

Designed to remove free oils/fuels, gross settleable solids, fine suspended solids, and mechanically emulsified oils. Entirely enclosed design eliminates all vapor emissions making air monitoring unnecessary. All units are factory assembled, prepiped, prewired, and fully tested prior to shipment insuring complete quality control and greatly simplified site installation and startup. Routine plant operation is automatic and failsafe. Standard maintenance is a simple two-step process. ContamAways I, II, and II Plus products are available in a size range of 5 to 100 GPM capacity models to match your wastewater treatment needs.

- ◆ **ContamAway I™** for runoff, residuals and wastewaters that are detergent free. *WSE Publication No. 993*
- ◆ **ContamAway II™** additionally treats decon water, detergent based tank and equipment washwaters, ground dewatering liquids, and contaminated site groundwater. *WSE Publication No. 894*
- ◆ **ContamAway II Plus™** allows the user to recycle the treated water. *WSE Publication No. 994*
- ◆ **ContamAway II Plus™ Mini Series** All the features of the regular ContamAway II Plus™ but in a compact (5 GPM), extremely space-efficient and economical design. *WSE Publication No. 196*

## RipTide™

**Pulse Blender/Static Mixer** The RipTide™ makes use of hydraulic shear rather than mixer hardware elements to blend coagulants and flocculants with water. The product's design prevents plugging, improves mixing action, and reduces pressure drop. It can be used in either a vertical or horizontal position and easily accommodates all treatment chemicals and feeder devices. *WSE Publication No. 498*



*Two side-by-side 15 GPM ContamAway II™ plants built for the 1993 Airport Clean-Up project at Andrews AFB in Maryland.*

## FilterFresh™

### Potable Water Production Plant

Compact, skid-mounted package plants designed to produce potable water from brackish and polluted lakes and rivers. Small but powerful, FilterFresh plants get their punch from the OPCT™ Process—our revolutionary new physical/chemical treatment process. *WSE Publication No. 1195*

## Mob-to-Demob™

### Small Flow, Multi-purpose, Factory Packaged Aqueous Waste Treatment Plants.

Features the capabilities and technology of the ContamAway II Plus™ unit with an additional sump and high pressure spray system for use in decontamination activities. Available in 5, 15, and 25 GPM models. *WSE Publication No. 1094*

## DeOiler™

**Coalescing Filter Cartridge** The DeOiler™ is designed to remove oily contaminants from air compressor condensates. It also has the ability to accept condensates from receiver tanks, intercoolers, aftercoolers, dryers, filters, drip legs—anywhere the oily contaminated water is under pressure. *WSE Publication No. 794*

## RainDrain™

### Perimeter Trench Dual Media Filtration System and RainDrain Plus™ with Phosphorus Removal.

A combination sedimentation/dual media filter for treating stormwater runoff. Designed to remove free oils and sediments to 10 microns in size plus reduce dissolved organics and heavy metals. *WSE Publication No. 2195 Rain-Drain™ or No. 298 (RainDrain Plus™)*

## SkimAway™

**Adjustable Floating Oil Skimmer** designed to gravity transfer free oil from one vessel to another. Its oil weir may be adjusted to oils of different specific gravities in order to achieve optimum performance. Six sizes are available from one inch to eight inch diameter discharge piping. *WSE Publication No. 296*

## UltraPaq™

**Packaged Wastewater Treatment Plants.** Features complete on-site treatment and sludge disposal for sanitary wastewaters. Quiet, automatic, odorless operation and compact size make it ideal for a wide range of applications. *WSE Publication No. 1695*

*AquaRound III™ Skid mounted treatment plants such as the AquaRound are entirely factory-built. All piping, wiring, and controls are completed and thoroughly tested prior to shipment. A plant can be installed and in operation within hours of arriving on site.*

### **ADFT™**

#### **Airport Deicing Fluid Treatment and Recovery System**

Effectively removes all types of deicing fluids from stormwater and allows the deicing fluid to be recycled. The treated water may then be safely discharged to the environment. The system operates year-round as an oil/water/solids separator. The deicing fluid treatment *subsystem* is used only during the winter season. *WSE Publication No. 295*

### **PuriQuad™**

**Packaged Physical/Chemical Treatment Plant.** The versatile PuriQuad can be used for process and potable water production or wastewater treatment. The four-step process—mixing, flocculation, clarification, and filtration—uses cutting-edge technologies to pare plant size and costs to the minimum without sacrificing results. In addition, all treatment modes are carried out *under system pressure*, making plant operation and maintenance simple and easy. Available in ten capacities from 100 to 1,200 GPM. *WSE Publication No. 598*



### **EXPRESS™—EXPedited Remediation Site Strategy Simultaneous Ground and Groundwater Remediation.**

Total site remediation time is reduced from as much as twenty years to two years or less. This order-of-magnitude improvement is made possible by a continuous flushing of the contaminated soil at the same time aquifer cleaning is taking place. The Express™ Process recirculates the treated aquifer extract which is then used to leach additional contaminants from the soil. While soil scrubbing is occurring biological reduction of the contaminates is also achieved. All of these reactions combine to rapidly clean both the tainted soil as well as the contaminated plume beneath. Removal of the soil is generally unnecessary as leaching is done in-situ. *WSE Publication No. 1495*

### **PuriSep™**

**Differential Gravity Inclined Plate Separator** The PuriSep™ features the use of fiberglass inclined corrugated coalescing plates. These plates enhance the coalescence of particles and their subsequent separation from the flow stream. The cross flow hydraulic path achieves equal efficiency in removing discrete particles with either rise or settling rates without favoring one type over the other. This unique separation ability makes the PuriSep™ an ideal choice to treat raw water containing both scum and sludge particles.

The PuriSep™ may be used as a solids separator or as an oil/water separator. It may be used as a secondary clarifier for fixed growth biological treatment plants. They may also be used to dramatically increase the capacity and performance of existing clarifiers and API basins, and may be used with dissolved air flotation and flocculation treatment. No other separator system is as versatile as the PuriSep™. Single vessel capacities to 8,000 GPM are available and shipped completely shop-built. *WSE Publication No. 395*

*SkimAway™ Floating Oil Skimmer Model 101-B with 2-inch diameter discharge piping.*

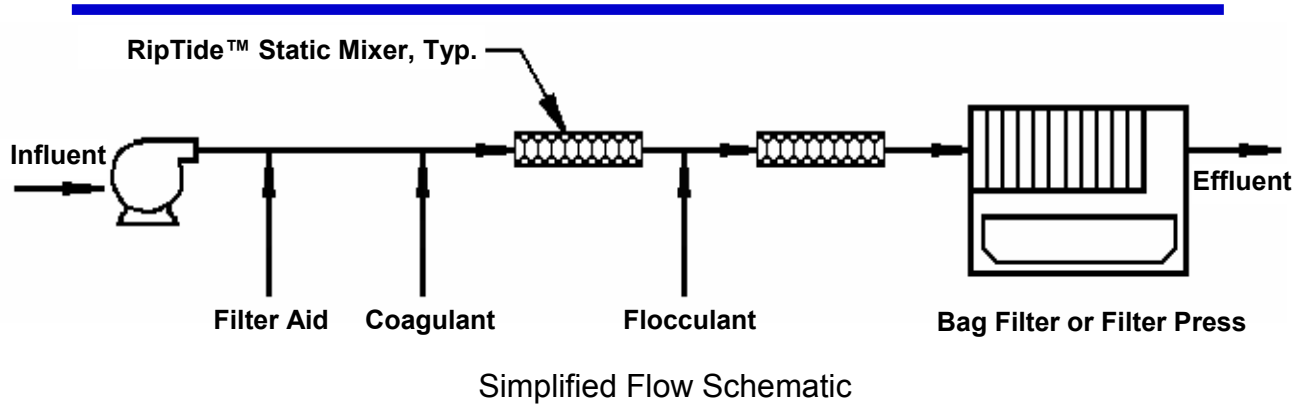
*Introducing a breakthrough in physical/chemical treatment.*

# OPCT™ Process

(Patent Pending)

*Optimized Physical/Chemical Treatment  
Cost Effective and Process Simple*

For Treatment of Potable and Process Waters ♦ Landfill Leachates and Contaminated Groundwater ♦ Hydroblast Waters ♦ Contaminated Stormwater



## Contaminants Removed

- ♦ Alkalinity
- ♦ Dissolved Organics
- ♦ Emulsified Oils
- ♦ Hardness
- ♦ Heavy Metals
- ♦ Iron and Manganese
- ♦ Suspended Solids
- ♦ Turbidity

## The OPCT™ Process Replaces

Clarifiers • Plate Separators • Flash Mix and Flocculation Tanks • Air Strippers • Media Filters and Associated Backwash Equipment • Sludge Thickeners

**OPCT™ Process  
Licensing  
Now Available!**



Request WSE Publication No. 995

***WaterSmart unveils the future of waste-to-energy technology***

# **OAT™ Process**

U.S. Patent No. 5,630,942

***Optimized Anaerobic Treatment***  
***featuring***

***Automated Process Controls and Operation***

For treatment of high or low strength Organic Wastewaters with the potential to convert the produced biogas to energy.

## **Treatable Wastes Include:**

- ◆ Agricultural Wastes: Cornhusks, Grain Hulls, Stalks, etc.
- ◆ Animal Wastes: Cattle, Sheep, Pigs, Poultry, etc.
- ◆ Cardboard
- ◆ Landfill Leachate
- ◆ Organic Chemicals
- ◆ Sanitary Wastewater
- ◆ Sawdust
- ◆ Sewage Sludge
- ◆ Waste Paper

## **Who Can Profit?**

- ◆ Breweries And Distilleries
- ◆ Chemical Manufacturers
- ◆ Ethanol Producers
- ◆ Food & Dairy Processors
- ◆ Gluten Plants
- ◆ Landfills
- ◆ Livestock Feed Lots
- ◆ Municipalities
- ◆ Paper And Pulp Mills
- ◆ Pharmaceutical Plants
- ◆ Sugar Factories

## **Make Your Wastewater Treatment Pay For Itself!**

Complete Retrofit Designs Available

Produced biogas can be ◆ converted to electrical energy ◆ used as fuel for natural gas powered vehicles, equipment, heavy machinery, boilers, HVAC ◆ further purified and sold as pipeline quality natural gas.



Request WSE Publication No. 1895

# Services

## Engineering

- ◆ Application Engineering
- ◆ Budget Pricing
- ◆ Design Recommendations
- ◆ Energy Audits
- ◆ Engineering Design
- ◆ Equipment Layout Drawings
- ◆ Operation & Maintenance Manuals
- ◆ Remote Plant Monitoring
- ◆ Specification Preparation

*Senior Drafter using AutoCAD® software to create a new project drawing.*

*AutoCAD is a registered trademark of Autodesk, Inc.*



## Seminars

- ◆ Aerobic Treatment
- ◆ Anaerobic Treatment
- ◆ Oil/Water/Solids Separation
- ◆ Physical/Chemical Treatment
- ◆ Simultaneous Ground and Groundwater Remediation
- ◆ Waste-to-Energy

## In The Field

- ◆ Operator Training
- ◆ Pilot Plant Testing
- ◆ Project Site Trouble Shooting and Repair
- ◆ Plant Start-Up
- ◆ Technical Assistance During Plant Installation



*Laboratory Technician performing analytical testing.*

**"Theory Guides-  
Experimentation Decides"**

## Laboratory

Analytical and Treatability Tests include:

- ◆ Biochemical Oxygen Demand
- ◆ Chemical Oxygen Demand
- ◆ Alkalinity
- ◆ Conductivity
- ◆ Heavy Metals
- ◆ Jar Tests
- ◆ pH
- ◆ Suspended Solids
- ◆ Total Dissolved Solids
- ◆ Total Solids

## Education

WSE offers variety of technical publications to assist consulting engineers, contractors, researchers, teachers, and end-users. To request these or any of our many other publications please refer to the inside back cover.

- ◆ A Historical Review of Oil/Water Separator Designs (No. 394)
- ◆ Advanced Aqueous Waste Treatment Concepts (No. 693)
- ◆ Cost-Effective Energy Savings (No. 1595)
- ◆ Particle/Liquid Separation Design Manual and Tutorial (No. 796)
- ◆ Equipment Maintenance Wastewater Treatment (No. 194)
- ◆ Selecting an Energy Management System and Contractor (No. 1795)
- ◆ Silica Contamination Removal at Nuclear PWR Plants (No. 380)
- ◆ Simultaneous Ground and Ground Water Remediation (No. 1495)
- ◆ The Removal of PCBs from Aqueous Waste Streams (No. 593)
- ◆ The Rotating Biological Surface Process (No. 595)

# Typical Installations

## **ContamAway™** Specialized Oil/Water Separators

### **ContamAway I™**

#### **Six 25 GPM Plants Model CA1-25**

Owner: Mountain Home AFB,  
Idaho  
Engineer: WaterSmart  
Environmental, Inc.  
Installation Date: 1993

#### **15 GPM Plant Model CA1-15**

Owner: PRP Refinery Site  
Contractor: Severson  
Environmental Services  
Engineer: WaterSmart  
Environmental, Inc.  
Installation Date: 1992

### **ContamAway II™**

#### **Two 15 GPM Plants Model CA2-15**

Owner: Andrews AFB, Maryland  
Contractor: Rust Remedial  
Services

Engineer: Halliburton NUS  
Installation Date: 1993

#### **25 GPM Plant Model CA2-25**

Owner: Edwards AFB, California  
Contractor: Valenzuela Eng., Inc.  
Engineer: U.S. Army Corps of  
Engineers  
Installation Date: 1994

#### **25 GPM Model CA2-25**

Owner: Edwards AFB, California  
Contractor: Chapman Mechanical  
Engineer: U.S. Army Corps of  
Engineers  
Installation Date: 1994

#### **25 GPM Model CA2-25**

Owner: Edwards AFB, California  
Contractor: Valenzuela Eng., Inc.  
Engineer: U.S. Army Corps of  
Engineers  
Installation Date: 1995

#### **Four 50 GPM Model CA2-50**

Owner: Edwards AFB, California  
Contractor: Aman Environmental  
Engineer: U.S. Army Corps of  
Engineers  
Installation Date: 1995

#### **15 GPM Plant Model CA2-15**

Owner: Edwards AFB, California  
Contractor: HPS Plumbing  
Services, Inc.  
Installation Date: 1996

#### **25 GPM Plant Model CA2-25**

Owner: Naval Construction Bat-  
talion Center, Gulfport, MS  
Contractor: Sumrall's  
Construction Company, Inc.  
Installation Date: 1996

#### **15 GPM Plant Model CA2-15**

Owner: Naval Air Station,  
Jacksonville, FL  
Contractor: Universal Technical  
Resource Services, Inc..  
Installation Date: 1998

### **ContamAway II Plus™**

#### **15 GPM Model CA2P-15**

Location: North Rescue Station,  
Charleston, SC  
Contractor: Hill Construction  
Corporation  
Engineer: US Navy  
Installation Date: 1995



*Skid Mounted 40,000-GPD Aqua-Round IV™ Truckwash Treatment And Water Recycling System With "Spot Free" Final Rinse.*

Part of a sophisticated Reverse Osmosis Treatment System for removing dissolved silica from spent fuel pools and refueling water storage tanks at Farley Nuclear Plant. For more information on this type of application request WSE

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### **AquaRound™ Waste-water Treatment & Recycle**

#### **AquaRound II™ Model AR2-520** (Laundromat Treatment & Recycle)

Owner: Hess Laundry  
Engineer: WaterSmart Environmental, Inc.  
Installation Date: 1989

#### **AquaRound IV™ Model AR4-30** (Car/Truck Wash Treatment and Recycle)

Owner: Hannaford Bros. Co.  
Engineers: Clough, Harbour & Associates and St. Onge, Ruff & Associates, Inc.  
Installation Date: 1994

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### **Mob-to-Demob™**

#### **25 GPM Model MTD-25 Physical/Chemical Treatment**

Project Name: Glen Ridge Radium Sites, Montclair/West Orange & Montclair, NJ  
Contractor: Severson Environmental Services  
Engineer: WaterSmart Environmental, Inc.  
Installation/Use Date: 1992

#### **15 GPM Mob-to-Demob™ Model MTD-15 Spray Wash Treatment & Reuse System**

Owner: Severson Environmental Services  
Application PRP Site  
Engineer: WaterSmart Environmental, Inc.  
Installation Date: 1992

#### **15 GPM Mob-to-Demob™ Model MT-15 Spray Wash Treatment & Reuse System**

Owner: Severson Environmental Services



Application: API Separator Basin Decommissioning  
Engineer: WaterSmart Environmental, Inc.  
Installation Date: 1992

#### **15 GPM Mob-to-Demob™ Model MTD-15 Spray Wash Treatment & Reuse System**

Owner: Edwards AFB, California  
Contractor: Valenzuela Eng., Inc.  
Engineer: U.S. Army Corps of Engineers  
Installation Date: 1995

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### **UltraPaq™ Packaged Biological Treatment Plants**

#### **15,000 GPD UltraPaq**

Owner: Glenwood Village Mobile Park,  
Warrenton, Oregon  
Engineer: Handforth and Larson  
Installation Date: 1987

#### **10,000 GPD UltraPaq**

Owner: Midway Mobile Home Park, Astoria, Oregon  
Engineer: WaterSmart Environmental, Inc.  
Installation Date: 1988

## Separators

### 650 GPM Combination CorruFloc™ Flocculator/DAF Separator;

Owner: U.S. Navy, Fleet Training Center, Norfolk, Virginia;  
Engineer: Lockwood Greene Engineers, Inc.  
Installation Date: 1982

### 150 GPM Combination Separator/DAF Separator

Owner: Mid-America Lamb Processing, Inc., Paulina, Iowa  
Engineer: WaterSmart Environmental, Inc.  
Installation Date: 1981

### 335 GPM Solids Separator

Owner: Pine Bluff Arsenal, Pine Bluff, Arkansas  
Engineer: Arsenal Plant Engineering Department  
Installation Date: 1983

### 600 GPM Oil/Water Separator

Owners: 3M Company, St. Paul, Minnesota  
Engineer: 3M Engineering  
Installation Date: 1986

### Two 150 GPM Stormwater Separators and one 3,000 GPM Stormwater Separator

Owner: Ft. Lewis, Washington  
Engineer: The Benham Group  
Installation Date: 1987

### 675 GPM Stormwater Separator

Owner: Ft. Lewis, Washington  
Engineer: HNTB  
Installation Date: 1987

### Ten Stormwater Separators from 600 to 1,400 GPM

Owner: The Boeing Company, Seattle, Washington  
Engineer: Boeing Engineering Department  
Installation Date: 1987

### 150 GPM Solids Separator for Metal Hydroxides

Purchaser: Canonie Environmental Services Corp., Claremont, CA  
Engineer: Canonie Environmental Services Corp.  
Installation Date: 1987

### 800 GPM Combination Separator/DAF Separator

Owner: City of Los Angeles, Dept. of Power and Light  
Engineer: Department of Power and Light  
Installation Date: 1988

### Two 100 GPM Oil/Water Separators

Owner: U.S. Naval Air Station, Lemoore, CA  
Engineer: LSA, Inc.  
Installation Date: 1988

### Two 2,500 GPM Oil/Water

### Separators

Owner: U.S. Government/Adak, Alaska  
Engineer: U.S. Army Corps of Engineers  
Installation Date: 1989

### 550 GPM Oil/Water Separator

Owner: U.S. Government, Big Hill, Texas  
Engineer: Walk-Haydel & Associates  
Installation Date: 1989

### 1,500 GPM Oil/Water Separator

Owner: Boeing Company, Seattle, Washington  
Engineer: Boeing Company  
Installation Date: 1989

### 2,000 GPM Oil/Water Separator

Owner: City of Honolulu, Hawaii  
Engineer: Kramer, Chin & Mayo  
Installation Date: 1990

### Two 15 GPM Oil/Water Separators

Owner: Ft. Lewis, Washington  
Engineer: U.S. Army Corps of Engineers  
Installation Date: 1989

### 150 GPM Oil/Solids/Water Separator

Owner: King Command Meats, Seattle, Washington  
Installation Date: 1990

### 200 GPM Oil/Water Separator

Owner: Whitbey Island Naval Air Station, Pacific Ocean  
Installation Date: 1990

### 1,500 GPM Oil/Solids/Water Separator

Owner: Seattle City Light, Seattle, Washington  
Installation Date: 1991

### Two 80 GPM Solids/Liquid

*Oil/Water Separator Modules for the Naval Air Station in Adak, Alaska. At the time of installation these were the largest inclined plate separators in the world.*





### Separators

Owner: PPG Industries, Lake Charles, Louisiana  
Installation Date: 1992

### 2,000 GPM Oil/Solids/Water Separator

Owner: Manchester Airport, New Hampshire  
Engineer: Hoyle, Tanner & Associates  
Installation Date: 1993

### 1,700 GPM Oil/Solids/Water Separator

Owner: U.S. Navy Refuel Station, North Carolina  
Engineer: Robert and Company  
Installation Date: 1993

### 2,200 GPM Oil/Solids/Water Separator

Owner: Brazos Electric Power Cooperative, Texas  
Engineer: Tippett and Gee  
Installation Date: 1993

### 300 GPM PuriSep™ Oil/Water Separator

Owner: Naval Station Everett, Washinton  
Contractor: PIPE, Inc.  
Installation Date: 1995

### 50 GPM PuriSep™ Oil/Water Separator

Owner: US Army Reserve Center, Birmingham, Alabama  
Contractor: EB Construction Corp.  
Installation Date: 1995

### 400 GPM PuriSep™ Oil/Water Separator

Owner: Puget Sound Naval Shipyard, Bremerton, WA  
Contractor: Fletcher Wright Const.  
Installation Date: 1995

### 200 GPM PuriSep™ Oil/Water Separator

Owner: Naval Air Weapons Station, China Lake, CA  
Contractor: HPS Plumbing Services, Inc.  
Installation Date: 1995

### 2,500 GPM PuriSep™ Oil/Water Separator

Owner: Defense Fuel Support Point, Charleston, SC  
Contractor: Robert O. Collins Co.  
Installation Date: 1996

### 120 GPM PuriSep™ Oil/Water Separator

Owner: Nellis AFB, Nevada  
Contractor: Dames and Moore, Inc.  
Installation Date: 1997

### Two 275 GPM PuriSep™ Oil/Water Separators

Owner: US Navy, Ceiba, Puerto Rico  
Contractor: Industrial Mechanical Corporation  
Installation Date: 1997

15,000 GPD UltraPac™ Packaged Biological Treatment Plant at a Warrenton, Oregon mobil home park. This was the first known treatment plant ever to use a fixed growth aerobic digester incorporating **biological oxidation of sludge to extinction**. As a result, no sludge disposal has been necessary—even after 10 years of continuous operation!

## Industrial Treatment Systems

### 120 GPM Hydroxide Treatment System

Owner: Titus Products Division, Philips Industries, Ponca City, OK  
Engineer: WaterSmart Environmental, Inc.  
Installation Date: 1987

### 400 GPM Complex Oil/Water/Solids Separation Package Plant

Owner: Yukong, Ltd., Korea  
Engineer: Lummus Crest, Inc.  
Installation Date: 1988

### 150 GPM Pilot Separator Plant

Owner: BASF - Chemicals Division  
Engineer: WaterSmart Environmental, Inc.  
Installation Date: 1989

### 15 GPM PVA Latex Treatment Plant

Owner: Borg Textile Corporation  
Engineer: WaterSmart Environmental, Inc.

## OPCT™ Process

150 GPM Physical/chemical treatment to remove dissolved organics, aluminum, and ammonia nitrogen.

Owner: (confidential) Marietta, Ohio

Contractor: Four Seasons Environmental

Engineer: WaterSmart Environmental, Inc.

Installation Date: 1996

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## Potable Water Plants

### 900 GPM Iron Filter with Chemical Feed, Instrumentation, and Controls

Owner: Scotts Valley County Water District, Scotts Valley, CA

Engineer: George S. Nolte &

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## Reverse Osmosis/ Ultrafiltration

### Silica Removal/Boron Reclamation Treatment

Owner: Farley Nuclear Plant

Engineer: WaterSmart Environmental, Inc.

Outage Date: 1992

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## EPA Superfund Projects

### 160 GPM Complete Physical/Chemical Treatment System

Completely Shop Built and Assembled

Project Name: Metaltec/Aerosystems Site

Contractor: Sevenson Environmental Services

Engineer: Camp Dresser & McKee, Inc.

Major Equipment:

Two Physical/Chemical PuriQuad™ Plants  
One Air Stripper  
Two Activated Carbon Contactors  
Chemical Feeders  
Controls

Installation Date: 1988

### 100 GPM Physical/Chemical Treatment System

Completely Shop Built and Assembled

Project Name: Rhinehart Tire Fire

Contractor: OHM Corporation

Engineer: U.S. Army Corps of Engineers

Major Equipment:

One Physical/Chemical PuriQuad™ Plant

Two Activated Carbon Contactors  
Chemical Feeders  
Controls

Installation Date: 1990

### 300 GPM Physical/Chemical Treatment System

Completely Shop Built and Assembled

Project Name: Old Inger Site

Contractor: Westinghouse

Engineer: I.T. Corporation

Major Equipment:

One Physical/Chemical PuriQuad™ Plant  
Two Activated Carbon Contactors  
Chemical Feeders  
Controls

Installation Date: 1990

### 50 GPM Physical/Chemical Treatment System

Completely Shop Built and Assembled

Project Name: Bayou Bonfouca

Contractor: ENRAC Division, Chemical Waste Mgmt.

Engineer: CH2M Hill

Major Equipment:

Two Physical/Chemical PuriQuad™ Plants  
Two Activated Carbon Contactors  
Controls

Installation Date: 1990

### 100 GPM Physical/Chemical Treatment System

Existing Plant Modification

Project Name: Love Canal

Contractor: Sevenson

Environmental Services

Engineer: WaterSmart

Environmental, Inc.

Major Equipment:

Physical/Chemical PuriQuad™ Plant  
Chemical Feeders

Installation Date: 1989

### 50 GPM Physical/Chemical/Biological Treatment System -

Completely Shop Built

Project Name: Syncon Resins Site

Contractor: OHM Corporation

Engineer: Ebasco Services, Inc.

Major Equipment:

Physical/Chemical Plant

Oil/Water Separator

Two-Stage Air Stripping

Vapor Phase GAC Air

Treatment

Multi-Media Filtration

Filter Press Dewatering

Computer Monitored PLC

Control System

Multi-stage Aqueous Phase GAC Liquid

Treatment

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## PRP Projects

### 50 GPM Physical/Chemical Treatment System

Existing Plant Modification

Project Name: Confidential

Contractor: Sevenson

Environmental Services

Major Equipment:

One Physical/Chemical

PuriQuad™ Plant

Granular Activated Carbon

Contactors

Installation Date: 1990

### 150 GPM Trailer Mounted Ion Exchange Treatment System to Remove Radioactivity From Stormwater Discharge

Project Name: Department of Energy, Feed Materials

Production Center, Hamilton

County, Fernald, Ohio

Contractor: The Rust Engineering Company

Engineer: The Ralph M. Parsons Company

Major Equipment:

Ion Exchangers

Transfer Pumps

Controls and Instrumentation

Mobile Trailer

Installation Date: 1991 (Project terminated for convenience by DOE after completion of engineering.)



# Request Additional Information

Thank you for your interest in our treatment technologies. To request additional literature simply photocopy this page, mark desired WSE Publication selections, and then mail or fax to WSE with your return address. You may also contact us by phone or email with your request, or visit our webpage. We look forward to helping you find cost-effective and practical answers to your water and wastewater treatment requirements.

- | No.                          | Title   | No.                          | Title  | No.                           | Title   |
|------------------------------|---|------------------------------|--|-------------------------------|---|
| <input type="checkbox"/> 191 | Standard Conditions of Sale   | <input type="checkbox"/> 498 | RipTide™ Pulse Blender/Static Mixer                                      | <input type="checkbox"/> 995  | OPCT™ - Optimized Physical/Chemical Treatment                                   |
| <input type="checkbox"/> 194 | Equipment Maintenance Wastewater Treatment: Commercial Yards, Garages, and Repair Facilities                                | <input type="checkbox"/> 593 | The Removal of PCBs From Aqueous Waste Streams                           | <input type="checkbox"/> 996  | Schedule of Typical Performance Results: Challenge Oil/Water Separation Testing |
| <input type="checkbox"/> 195 | AquaRound IV™ Car/Truck Wastewater Treatment and Water Reuse System   | <input type="checkbox"/> 594 | Ansorb™ Adsorbent for Arsenic, Hexavalent Chromium, and Selenium Removal | <input type="checkbox"/> 998  | ABT™ - Aerobic Biological Treatment Process                                     |
| <input type="checkbox"/> 196 | ContamAway II Plus™ Mini Series   | <input type="checkbox"/> 595 | Take a New Look at the RBS Process                                       | <input type="checkbox"/> 1094 | Mob-to-Demob™ High Performance Aqueous Waste Treatment System                   |
| <input type="checkbox"/> 198 | Capabilities Bulletin   | <input type="checkbox"/> 598 | PuriQuad™ Physical/Chemical Treatment Plant                              | <input type="checkbox"/> 1194 | AquaRound II™ Laundromat Wastewater Treatment and Water Recycling System        |
| <input type="checkbox"/> 291 | Rental and Lease Agreement  | <input type="checkbox"/> 693 | Advanced Aqueous Waste Treatment Concepts                                | <input type="checkbox"/> 1195 | FilterFresh™ Potable Water Production Plant                                     |
| <input type="checkbox"/> 294 | Stormwater Runoff and Wash-down Treatment: Automotive Dealership/Service Stations   | <input type="checkbox"/> 694 | OrganoSorb™  | <input type="checkbox"/> 1196 | ContamAway II Plus™ Mini Series with Spot Free Rinse                            |
| <input type="checkbox"/> 295 | Airport Deicing Fluid Treatment and Recovery System   | <input type="checkbox"/> 695 | The Biological Approach To The Rotating Disc Process                     | <input type="checkbox"/> 1294 | AquaRound III™ Laundry Wastewater Treatment and Water Recycling System          |
| <input type="checkbox"/> 296 | SkimAway™ Floating Oil Skimmer  | <input type="checkbox"/> 791 | Quality Assurance Program Plan   | <input type="checkbox"/> 1495 | EXPRESS™ Simultaneous Ground and Groundwater Remediation                        |
| <input type="checkbox"/> 298 | RainDrain Plus™ Perimeter Trench Dual Media Filtration System + Phosphorus Removal  | <input type="checkbox"/> 794 | DeOiler™ Coalescing Filter Cartridge                                     | <input type="checkbox"/> 1595 | Cost-Effective Energy Savings   |
| <input type="checkbox"/> 380 | Silica Contamination Removal from Spent Fuel Pools and Refueling Water Storage Tanks at Nuclear PWR Power Generation Plants | <input type="checkbox"/> 796 | Design Manual and Tutorial   | <input type="checkbox"/> 1695 | UltraPac™ Packaged Wastewater Treatment Plants                                  |
| <input type="checkbox"/> 394 | A Historical Review of Oil/Water Separator Designs  | <input type="checkbox"/> 894 | ContamAway II Plus™ Aqueous Waste Treatment and Water Recycling System   | <input type="checkbox"/> 1795 | Selecting an Energy Management System and Contractor                            |
| <input type="checkbox"/> 395 | PuriSep™ Differential Gravity Separators  | <input type="checkbox"/> 895 | Plate Separation - Budding Conventional Technology?                      | <input type="checkbox"/> 1895 | OAT™ - Optimized Anaerobic Treatment Process                                    |
| <input type="checkbox"/> 494 | Stormwater Runoff and Wash-down Treatment: Automotive Wrecking/Salvage Yards  | <input type="checkbox"/> 898 | Fundamentals of Water and Wastewater Treatment                           | <input type="checkbox"/> 2195 | RainDrain™ Perimeter Trench Dual Media Filtration System                        |
|                              |   | <input type="checkbox"/> 993 | ContamAway I™ High Performance Aqueous Waste Treatment System            |                               |   |
|                              |   | <input type="checkbox"/> 994 | ContamAway II™ High Performance Aqueous Waste Treatment System           |                               |   |

**WaterSmart Environmental, Inc.**

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