PAN AMERICA ENVIRONMENTAL, INC.

VEW

Vehicle Equipment Washwater Treatment Systems 1 - 50 GPM

The VEW Series treatment systems are designed to treat washwater generated by vehicle and equipment wash facilities where water needs treatment prior to discharge to sewer.

The VEW systems are designed for treatment of water generated by vehicle and equipment wash racks or facilities. System configuration can be customized depending on the project needs. The VEW systems are designed to remove oils, fuels, suspended solids, organics and other contaminants. Where removal of high loadings of suspended solids, dissolved minerals and metals are required additional treatment or washpad design may be needed.

Any of our treatment products can be combined to design the needed configuration for any flow rate and contaminant type(s).

Options can be provided to complete the system design, such as, GAC filtration, bag or sand filtration, chemical treatment, pH adjustment, metals precipitation/filtration and any of the technologies in our product lineup.

Customization & modifications to fit your project needs are offered. Typical performance is 10 ppm and 5 ppm or less, 30 micron oil droplet.

Technologies Provided:

- OS oil water separator
- Effluent pumpout
- Effluent solids filter
- AQAM organoclay filter
- Bacterial treatment
- Sealed/gasketed cover
- Coated steel system skid
- Nema 4 pump controls
- High performance
- Compact, simple design

Typical applications:

- Car/truck wash facilities
- Forklift wash pads
- DAF/Clarifier pre/post treatment
- Power plant water treatment
- Refinery process water
- Aircraft wash racks
- Military wash racks
- Tank farm leakage treatment
- Vehicle washwater treatment
- R.O. Filter pre-treatment
- Oil spill recovery
- Trench water treatment
- Bilge water treatment
- Hydraulic fluid tank de-watering

950 N. Rand Rd., Ste 120 Wauconda, IL 60084 USA 847.487.9166 Fax: 847.487.9218 panam@panamenv.com www.panamenv.com

The Purpose

VEW
Vehicle Washwater
Treatment Systems

The VEW systems are designed for treatment of wash water generated by vehicle and equipment wash facilities. These systems can be used where wash water is generated from washing cars, trucks, tank wash, trains, aircraft, watercraft, military equipment, heavy equipment, forklifts and others.

VEWs Can Remove

- Oils
- Gasoline
- Diesel fuel
- Jet fuels
- Hydraulic oils
- VOCs
- BTEX products
- TSS (solids)
- Organics
- BOD
- COD
- TPH
- Lube oils
- Odor
- DNAPL/LNAPL
- Bilge water
- Bunker

Single Pass Treatment

Single pass treatment refers to treating the wastewater and then discharging to sewer (local POTW) or other point of discharge.

Typical Discharge Points:
- Local sewer system
- Storm sewer
- Septic system
- Surface waters
- Ground surface

Recycle Treatment Discussion

"Recycling" can mean many things and the wash water treatment equipment market defines it in many ways and to differing degrees.

The VEW systems can be used as a single pass and discharge system or as a recycle system depending on the project needs. The VEWs are designed to remove oils, fuels, suspended solids and other contaminants as detailed in this brochure. Where rigorous removal of dissolved minerals and metals are required additional treatment may be needed.
As with all recycle systems the materials that are separated must be removed from the system and disposed of according to local and state guidelines (consult the local POTW authority or state EPA guidelines).

Water loss will be experienced due to evaporation and overspray in the wash area due to atomization. Water replacement will be required in your storage tank to accommodate water losses. Ultimately, the entire water volume in the recycle system will have to be disposed of and completely replaced as the water cannot be reused indefinitely. As the initial water volume is used dissolved materials may accumulate such as: metals, minerals, soaps, waxes and other soluble contaminants.

PAE recommends the use of quick break detergents to limit or stop the passage of chemically induced, stable oil-in-water emulsions requiring more treatment than that provided by the VEW systems. Being that most soaps and waxes are absorbed by the water the VEW may remove only a small fraction of these soaps and waxes. To some degree quick break soaps may combine with the oils they remove and may exit the system when you dispose of the separated oils and fuels. PAE recommends the use of our GAC carbon filter for removal of dissolved VOCs, light pesticide loads, solvents and other organics in projects where your clientele or business might expect to find these materials.

This brochure cannot cover all aspects of recycling due to the complex nature of water, contaminants and technologies available but should give you the basic details.

Recycling with the VEW systems consists of using physical separation processes with biological treatment for proper treatment. Without the biological treatment component you would need a lot of other equipment to complete the recycle system, which would greatly increase system and operational costs. The bacteria injection system allows recycling at a greatly reduced cost and is usually sufficient for your purposes.

Biological Treatment, Odors and Biological Growth

Treatment and storage systems containing waste water and treated water can encourage growth of bacteria which can lead to odor, bio-growth and ultimately septic conditions. With the addition of our EnBio bacterial injection system bacteria not only consume petroleum products but also reduce or eliminate the odors created by them and other contaminants in the system.

Performance

The VEW washwater treatment systems are designed to produce an effluent concentration of 10 mg/l or less of oil droplets 30 micron and larger of non-emulsified, free and dispersed oils at the influent. By virtue of our Flopak coalescing media and tank design readily settleable solids are also removed. All filterable solids are removed down to 15-micron particle sizing. Removal of free and trace hydrocarbons, dispersed oils, sheens (VEW-A), slightly soluble chlorinated hydrocarbons and high molecular weight organics is also removed.

950 N. Rand Rd., Ste 120
Wauconda, IL 60084 USA
847.487.9166 Fax: 847.487.9218
www.panamenv.com
panam@panamenv.com

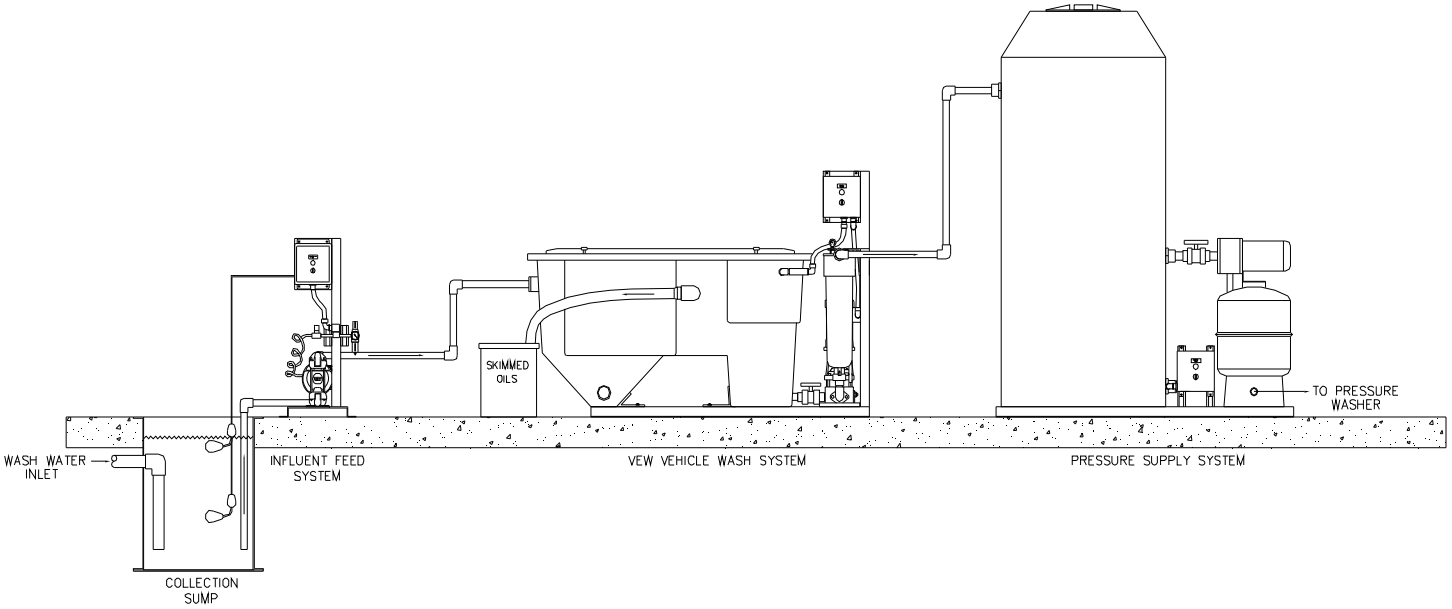
Pan America Environmental, Inc.

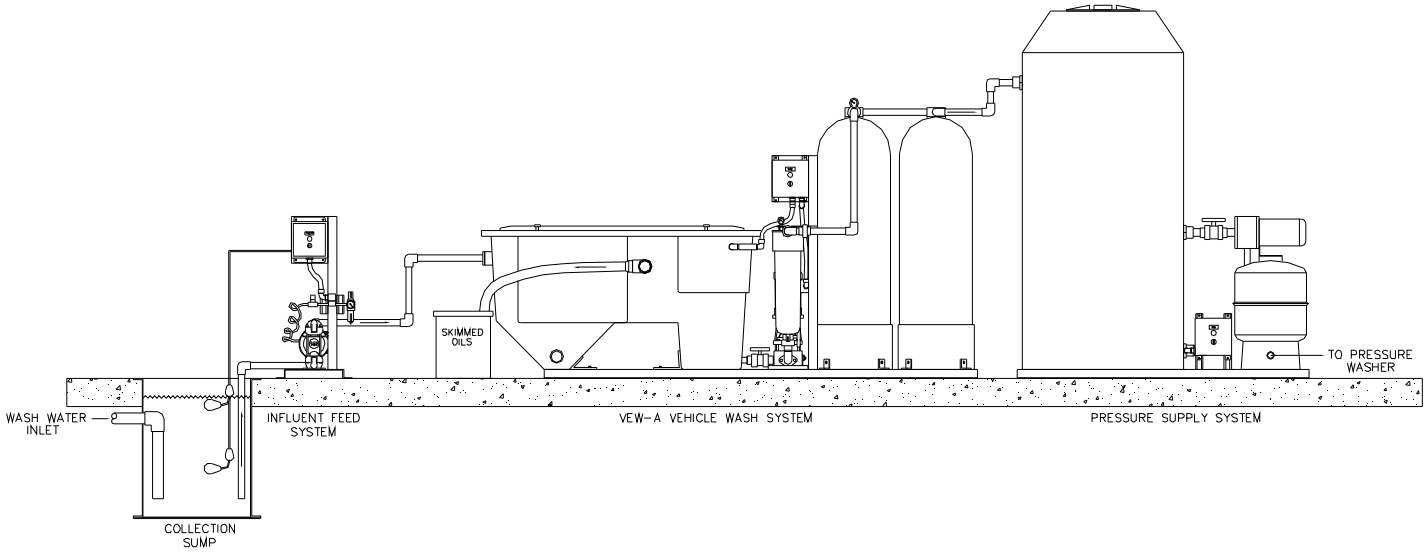
The Concept

The VEW is a group of modules that can be selected and combined to build an entire treatment solution or the individual modules can be used if you have the other components. Many options can also be added to round out a total system design.

VEW

Vehicle Washwater Treatment Systems





The VEW Modules

- **IFS**
  Influent Feed system (to feed wastewater to the VEW treatment system)
- **VEW**
  Treatment system
- **VEW-A**
  Treatment system with AQAM polishing filter
- **PSM**
  Pressurization Supply Module (to store treated water and supply it on demand, under pressure back to the pressure washer).
- **EnBio**
  EnBio Injection Biological treatment

Popular options:

- Collection sump
- Oil collection tank

See page 14 for more options

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The Modular Technologies

VEW
Vehicle Washwater Treatment Systems

The VEW

- Oil Water Separator
- Solids filtration
- Effluent pumpout system
- Nema 4 manual/automatic controls

The VEW-A

- Oil Water Separator
- Solids filtration
- Effluent pumpout system
- AQAM polishing filter
- Nema 4 manual/automatic controls

The PSM

- Clean water storage tank
- Pressurization transfer pump
- Pressurized supply tank

The IFS (Influent Feed System)

- AOD pump (air operated diaphragm pump)
- Air preparation & control assembly
- Level switches
- Nema 4 manual/automatic controls

EnBio Biological Treatment System

To complete the recycle system capability bacterial injection for biological treatment is recommended. This system consists of a chemical metering pump, automatic controls and the EnBio bacterial liquid. When provided this system is integrated into the VEW skid & electrical systems.

Biological Treatment Defined

Bacterial digestion is the process of bacteria, consuming organic matter. Enzymes act to break the organic matter into water soluble nutrients, which the bacteria then digest. Using complex chemical reactions, the bacteria metabolize the organic waste down to water and carbon dioxide (the final metabolic waste products), providing the bacteria with energy for growth and reproduction. Organic waste is consumed by the bacteria, used as nutrients by the bacteria and is no longer present to produce odors, sludge, pollution, or biological growth.

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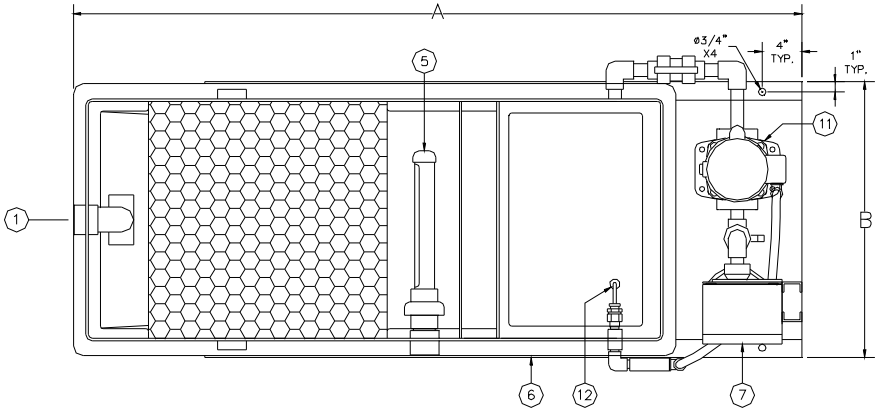
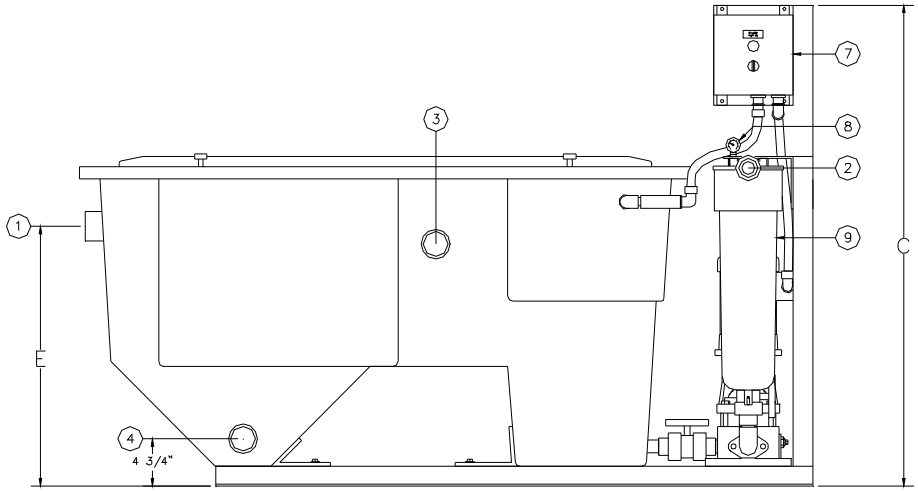
VEW

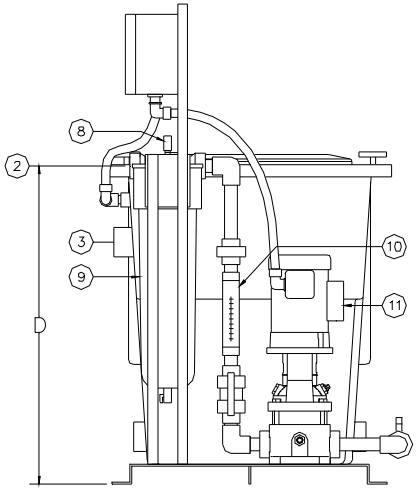
Models VEW-2, 4 & 8



TOP VIEW



SIDE VIEW



EFFLUENT END VIEW

Models	Dimensions					Fitting Sizes			Weights (lbs)			Flow
	A	B	C	D	E	Inlet	Outlet	Oil	Sludge	Empty	Oper.	Sludge	GPM
VEW2	6'-1"	2'-4"	4'-0"	2'-8"	2'-2"	2"	1 1/2"	2"	2"	310	703	7 gal.	0-5
VEW4	6'-1"	2'-4"	4'-0"	2'-8"	2'-2"	2"	1 1/2"	2"	2"	335	1200	16	0-10
VEW8	6'-10"	2'-4"	4'-0"	2'-8"	3'-2"	2"	1 1/2"	2"	2"	405	2045	16	0-20

Item	QTY	Description	Item	QTY	Description	Item	QTY	Description	Item	QTY	Description	Item	QTY	Description
1	1	Inlet	4	2	Sludge Outlet	7	1	Control Panel	10	1	Flowmeter	13	1	Skid
2	1	Outlet	5	1	Oil Skimmer	8	1	Pressure Gauge	11	1	Effluent Pump	14		
3	1	Oil Outlet	6	1	Separator	9	1	Bag Filter	12	1	Level Switch	15		

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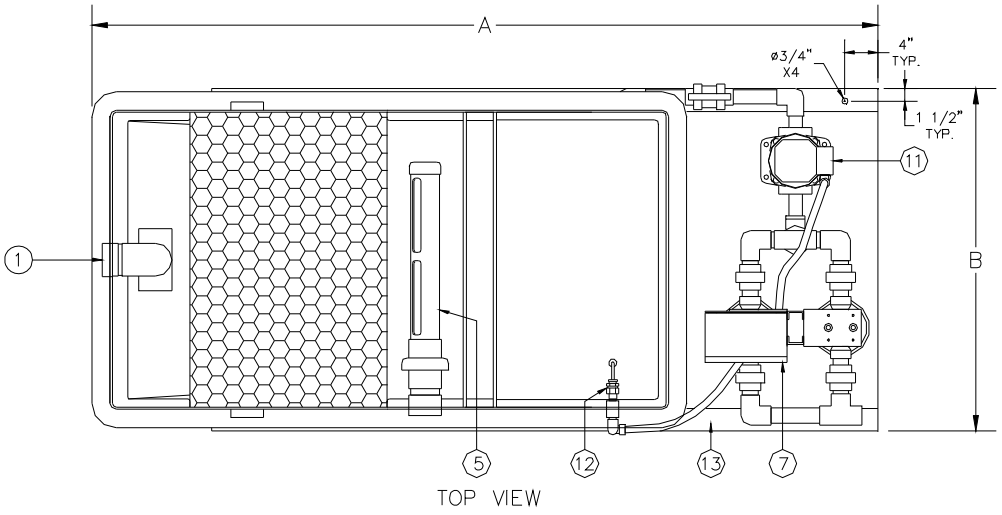
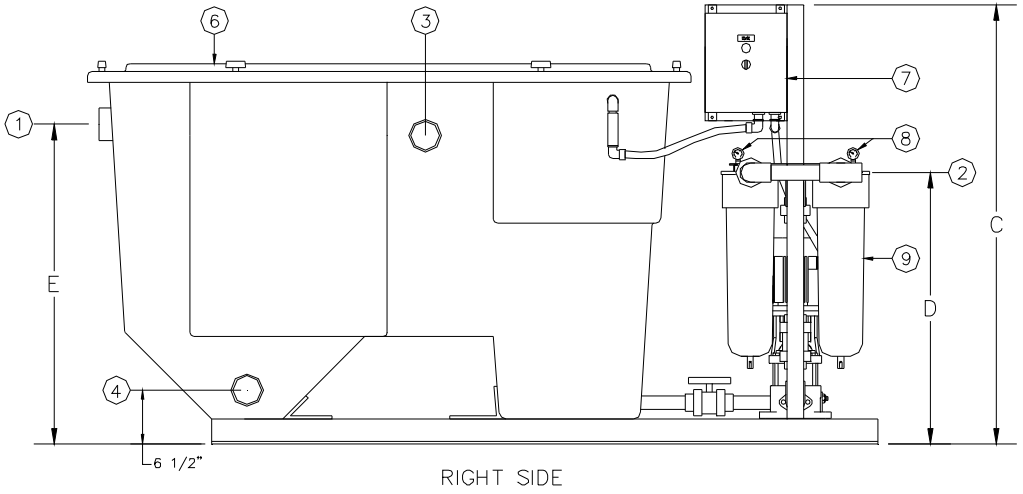
PAN AMERICA ENVIRONMENTAL, INC.

VEW

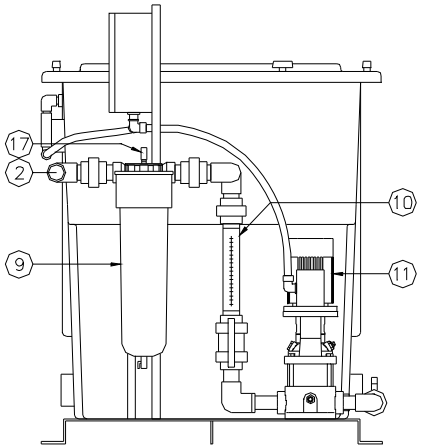
Models VEW-12 & 16



TOP VIEW



RIGHT SIDE



EFFLUENT END VIEW

VEW shown with additional controls for other modules & options.

Models	Dimensions					Fitting Sizes			Weights (lbs)			Flow	
	A	B	C	D	E	Inlet	Outlet	Oil	Sludge	Empty	Oper.	Sludge	GPM
VEW12	8'-0"	3'-5"	4'-5"	2'-9"	3'-3"	3"	1-1/2"	3"	3"	751	3216	25	0-35
VEW16	8'-0"	4'-5"	4'-5"	2'-9"	3'-3"	3"	1-1/2"	3"	3"	900	5200	37	0-50

Item	QTY	Description	Item	QTY	Description	Item	QTY	Description	Item	QTY	Description	Item	QTY	Description
1	1	Inlet	4	2	Sludge Outlet	7	1	Control Panel	10	1	Flowmeter	13	1	Skid
2	1	Outlet	5	1	Oil Skimmer	8	1	Pressure Gauge	11	1	Effluent Pump	14		
3	1	Oil Outlet	6	1	Separator	9	1	Bag Filter	12	1	Level Switch	15		

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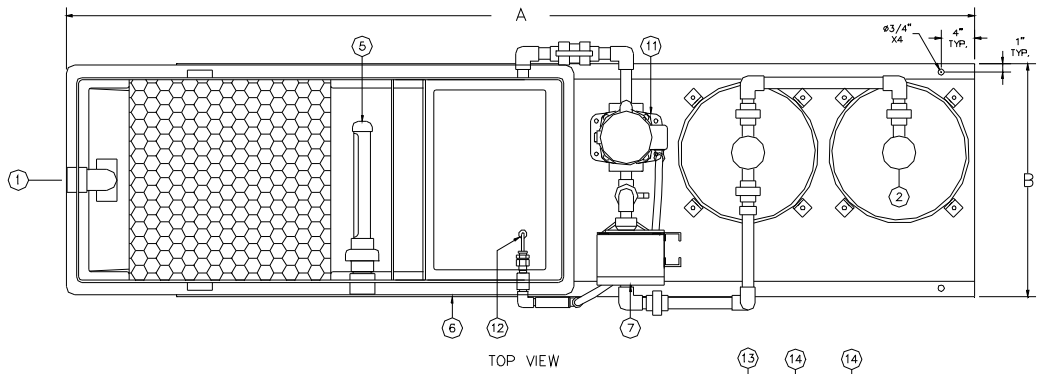
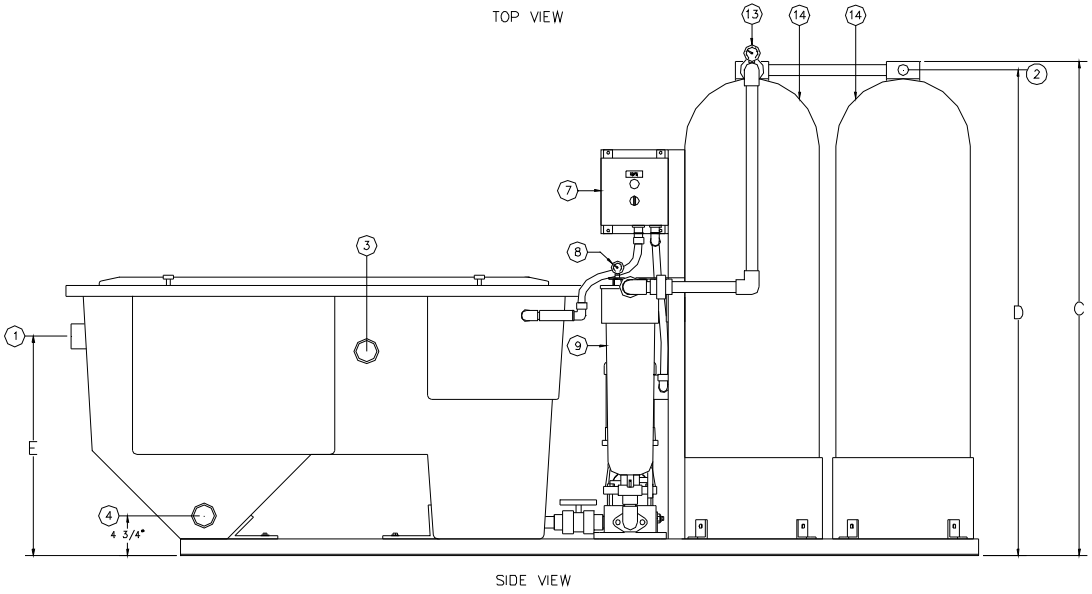
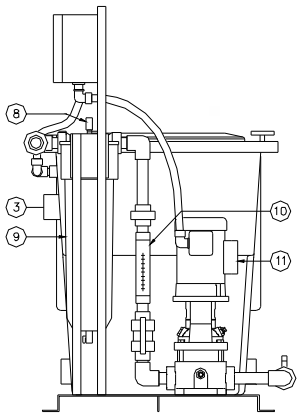
VEW-A

Models VEW-2A & 4A






EFFLUENT END VIEW
AQAM FILTERS REMOVED
FOR CLARITY

Models	Dimensions					Fitting Sizes			Weights (lbs)			Flow
	A	B	C	D	E	Inlet	Outlet	Oil	Sludge	Empty	Oper.	Sludge	GPM
VEW2A	9'-0"	2'-4"	4'-0"	3'-1"	2'-2"	2"	1"	2"	2"	622	805	7	0-5
VEW4A	9'-0"	2'-4"	4'-10"	4'-9"	2'-2"	2"	1"	2"	2"	812	2000	16	0-10
VEW8A	9'-6"	3'-0"	6'-10"	6"	3'-2"	2"	1-1/4"	2"	2"	1750	4020	16	0-20

Item	QTY	Description	Item	QTY	Description	Item	QTY	Description	Item	QTY	Description	Item	QTY	Description
1	1	Inlet	4	2	Sludge Outlet	7	1	Control Panel	10	1	Flowmeter	13	1	Pressure Gauge
2	1	Outlet	5	1	Oil Skimmer	8	1	Pressure Gauge	11	1	Effluent Pump	14	1-2	AQAM Filter
3	1	Oil Outlet	6	1	Separator	9	1	Bag Filter	12	1	Level Switch	15		

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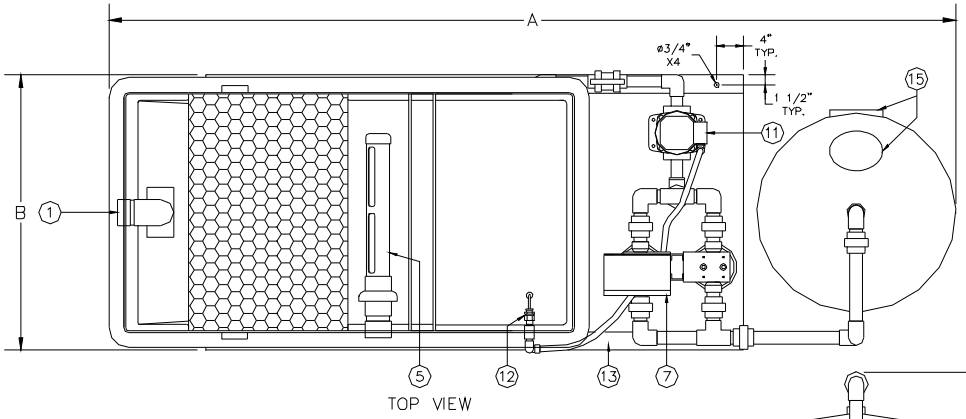
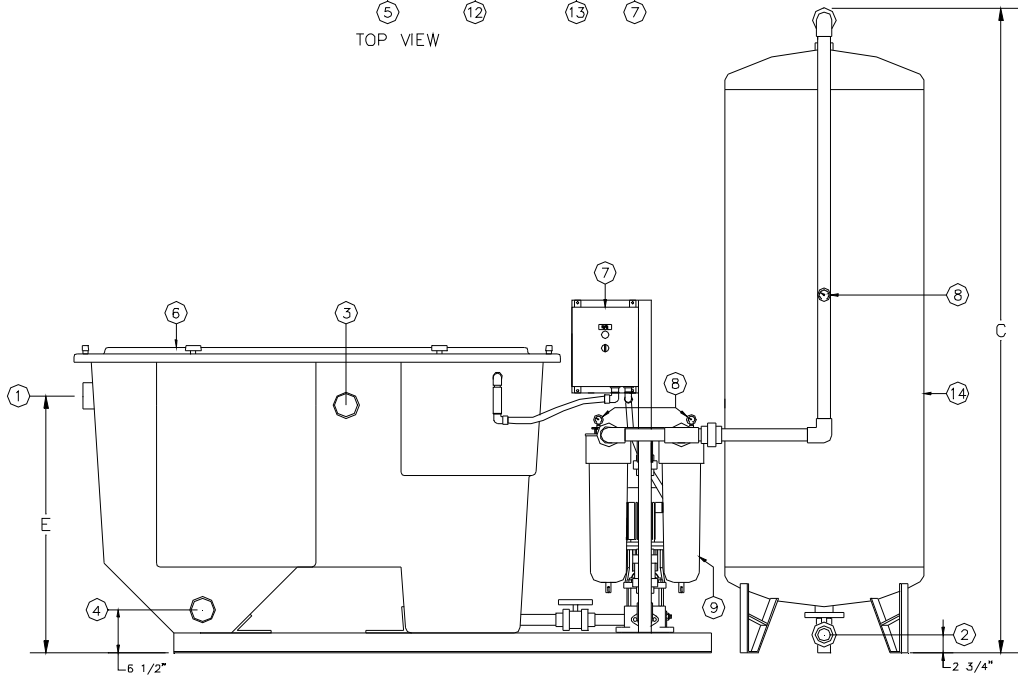
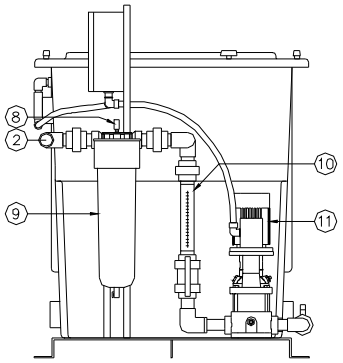
PAN AMERICA ENVIRONMENTAL, INC.

VEW-A

Models VEW-8A, 12A & 16A






EFFLUENT END VIEW
AQAM FILTER REMOVED
FOR CLARITY

VEW shown with additional controls for other modules & options.

Models	Dimensions					Fitting Sizes			Weights (lbs)			Flow
	A	B	C	D	E	Inlet	Outlet	Oil	Sludge	Empty	Oper.	Sludge	GPM
VEW12A	11'-2"	3'-5"	7'-4"	3"	2'-2"	3"	1-1/2"	3"	3"	2506	5630	25	0-35
VEW16A	11'-2"	4'-5"	8'-4"	3"	2'-2"	3"	2"	3"	3"	3200	7500	37	0-50

Item	QTY	Description	Item	QTY	Description	Item	QTY	Description	Item	QTY	Description	Item	QTY	Description
1	1	Inlet	4	2	Sludge Out	7	1	Control Panel	10	1	Flowmeter	13	1	Pressure Gauge
2	1	Outlet	5	1	Oil Skimmer	8	1	Pressure Gauge	11	1	Effluent Pump	14	1-2	AQAM Filter
3	1	Oil Outlet	6	1	Separator	9	1	Bag Filter	12	1	Level Switch	15		

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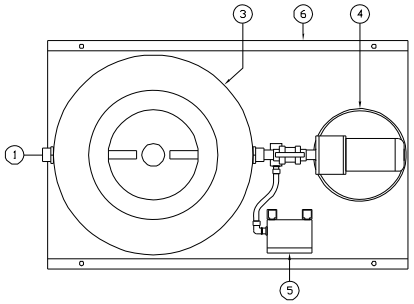
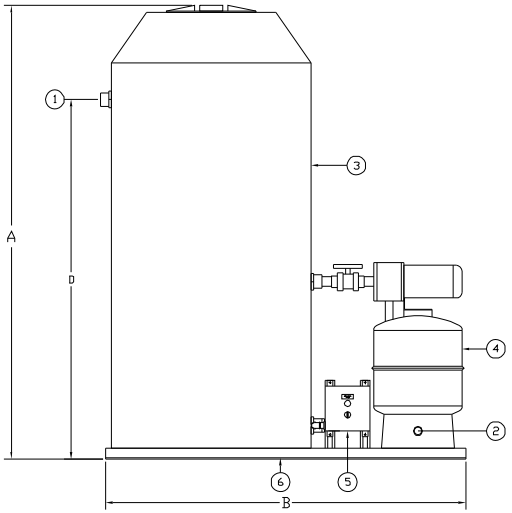
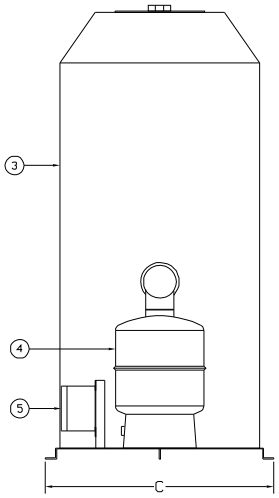
Pressurized Supply Module (PSM)







Model	Dimensions A	B	C	Tank Gallons	Pump GPM	Pump PSI	Voltage VAC	Weight
PSM-150	4'-9"	4'-11"	3'-0"	150	5-10	30-50	115V	225 lbs.
PSM-300	6'-9"	5'-4"	3'-5"	300	10-25	30-50	115V	280
PSM-500	6'-3"	6'-4"	4'-5"	500	25-50	30-50	115V	325

Item	QTY	Description	Item	QTY	Description
1	1	Inlet	4	1	Pump
2	1	Outlet	5	1	Control Panel
3	1	Clean Tank	6	1	Skid

PSM

Pressurization Supply Module

The Pressurized Supply Module (PSM) is provided to collect the clean water from the VEW effluent and transfer it under pressure to a point of reuse, further treatment or discharge.

The system is designed to be located after the VEW system and plumbed into the VEW discharge. The PSM pump automatically starts and stops based on demand from a pressure washer . If the water level in the clean water tank drops too low for operation a low level control system stops the pump from operating until the water level rises to protect the pump.

The system is provided mounted on a forkliftable, coated steel skid and consists of:

- Clean water tank w/clean water fill fitting & valve
- Pump system
- Hydro-pneumatic tank
- Pressure switch
- Low level pump shutdown controls
- Coated carbon steel skid
- Pump suction plumbing

Popular Options:

Storage Tank Sizing

The PSM storage tank can be any size you need. We can combine the PSM skid with a larger tank. We have provided the most popular tank volumes in the models shown in this literature.

Automatic Fresh Water Fill

An electric valve with water level float switches in tank combined with electrical controls allows auto filling of the clean tank with fresh water upon a low water condition.

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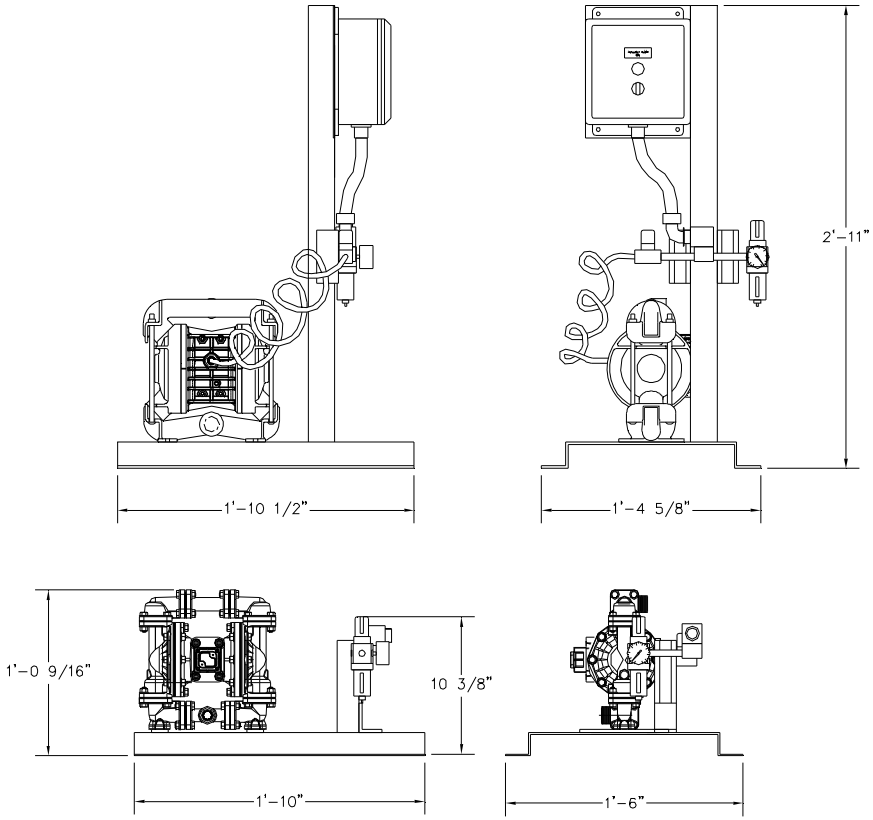
IFS

Influent Feed Systems



The Influent Feed System (IFS) is provided to transfer the wash water from the collection sump to the inlet of the VEW treatment system.

The IFS system consists of the following:

- Air operated double diaphragm pump (AOD) aluminum housing with Buna-N diaphragms and check valves.
- Air preparation & control assembly: filter/regulator, needle valve, air solenoid valve
- Nema 4 controls with manual & automatic operation. Automatic on/off is based on water level in collection sump.
- High/low level float switches for automatic operation.
- Coated A-36 carbon steel skid base.

The use of an AOD pump is to provide a low-shear pump design to prevent mechanical emulsification of oils and fuels during the pumping process.

Pump Detail

This pump has a maximum suction lift of 15' and its discharge pressure is its maximum pressure input of 125 psi minus 20 psi for mechanical losses or a maximum discharge pressure of approximately 105 psi.

The input air pressure setting via the regulator is variable as is the air flow CFM by setting the needle valve. The CFM & pressure inputs determine the GPM flow rate. You can operate the pump at lower flow & pressure settings to place lower demand on the supply compressor as high discharge heads are typically not encountered between the collection sump and the VEW inlet.

Combined Controls

When the IFS is combined with the VEW its electrical controls are integrated into the VEW control panel and a high water level float switch in the oil water separator stops the IFS from operating until the high water condition stops.

When combined with the VEW controls the pump skid is not provided with a control panel.

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Car wash systems and washwater treatment systems are typically not designed to remove washwater odors. Through the decomposition of accummulated contaminants in the water and existing bacteria as well as certain chemicals, odorous gases can be created. The EnBio product eliminates odors by out competing naturally occurring bacteria, consuming the food source and forcing their die off so that those bacteria cannot cause odors.

Bacterial digestion is the process of bacteria, consuming organic matter. Enzymes act to break the organic matter into water soluble nutrients, which the bacteria then digest. Using complex chemical reactions, the bacteria metabolize the organic waste down to water and carbon dioxide (the final metabolic waste products), providing the bacteria with energy for growth and reproduction. Organic waste is consumed by the bacteria, used as nutrients by the bacteria and is no longer present to produce odors, sludge, pollution, or biological growth.

EnBio is a combination of all natural bacteria, enzymes with micro and macronutrients. EnBio bacteria/enzyme blends are targeted to the food sources typically found in an industrial wastewater stream and treatment system.

EnBio bacteria cling to the containers they are injected into and they propagate at an extreme speed, doubling their number every 15-20 minutes. They become dispersed throughout the entire system eating non-stop 24 hrs/day which means coalescing media stays cleaner, filter bags (reducing bag changes), valves, sight glasses, flow meter sensors, pump heads, piping and other devices in the piping system stay cleaner and don't plug. Wherever the water goes the bugs (bacteria) go too and continue to eat the contaminants.

Dosing
Liquid can be manually or automatically dosed into the treatment system with our fully adjustable dosing system which gives you a very fine adjustable, 100:1 turn down rate.

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The daily EnBio concentration added is 20 ounces per 500 to 1,500 gallon system per day. You will set the dosing system per the IOM instructions to continuously dose throughout the day, seven days per week. EnBio is available in 1 (4 per case minimum), 5 and 55 gallon volumes.

EnBio bacteria and enzymes are chosen for their ability to selectively consume targeted contaminants such as fuels, oils, solids and sludge. We select only facultative strains of bacteria that function and flourish in aerobic (with oxygen) or anaerobic (oxygen depleted) environments. Our bacteria are most effective in an aerobic state working 5-7 times faster.
Other factors important to a bacteria's existance are high and low pH, chemical shock and temperature as well as sufficient food source. EnBio bacteria flourish best the closer to the neutral pH of 7 the water is. They are resistant to disinfectants like chlorine up to 150 PPM.

EnBio bacteria consume contaminants such as organic matter, oils, grease, other petroleum products like heavy and light fuels (DNAPL/LNAPL) and soluble solvents.

The bacteria propagate within sump bottom solids reducing the sludge load, freeing oils and grease and digesting them. Using EnBio often makes the sludge removal process non-hazardous, eliminating waste hauling fees.

Where septic leach fields are plugged or throughput is reduced due to petroleum & sludge fouling EnBio can be used to digest the sludge and clean the leach field.

EnBio

Bacterial Treatment

EnBio Specifications:

Temperature range:	40°-145° F
PH range:	5.2 to 9.5
Cell Count:	More than 50 million colonies per m/L, 189,070,000,000 per gallon.
Anaerobic compatibility:	EnBio can live in anaerobic conditions as It contains strains of facultative bacteria which can live and function normally in anaerobic conditions.
Chemicals that shock bacteria:	Disinfectants, (bleach, old-style windshield washer fluid with high IPA, quats, etc.), caustics, acids, oxidizers, ozone, hydrogen peroxide.
Volumes available:	5 gal., 55 gal drum, 4 X 1 gal. Case, 6 X 1 gal. Case
Dosage:	**20 oz per 500-**1500 gallons per day
Contaminants removed:	Fuel oils Bilge oils/fuels, bunker Gasoline BTEX Diesel fuel/kerosene JP Motor oils Crude oils Soluble solvents Coal tar Sludge BOC COD TSS

Electrical Control

Electrical Controls

The standard control logic provided with each module is as follows:

IFS

- Manual on/off
- Automatic on/off based on water level in the collection sump
- When used with VEW a High-High level switch in the ows effluent chamber will stop pump operation until high condition passes.

VEW & VEW-A

- Manual on/off
- Automatic on/off based on water level in the ows effluent chamber
- High-high alarm & IFS pump off when IFS is combined with VEW.

PSM

- Pressure pump automatic on/off based on pressure switch setting (30-50 psi)
- Low pressure (30), pump on, high pressure (50) pump off.
- Low water level in the clean water tank stops pressure pump operation until water level rises.

EnBio

- Manual on/off
- Automatic on/off tied into on/off of the IFS or VEW effluent pump
- Alternate (optional) controls provide field settable timers to make injection periods independant of the VEW controls.

Controls Details

The following voltages and amp loads are subject to change.

System Electrical Requirements

	Amps	HP	Electrical power
VEW-2	11	1/3	115V/1ph/60Hz
VEW-4	15	½	115V/1ph/60Hz
VEW-8	24	1.0	115V/1ph/60Hz
VEW-12	10	1.5	230V/3ph/60Hz
VEW-16	10	1.5	230V/3ph/60Hz

*Voltage and amp load is based on the VEW system only without any of the options added to the system.

Additional Amp loads

Module added	Amps added
IFS	1
EnBio	1
PSM150	8
PSM300	10
PSM500	10
PSM Auto fill	1

Controls Standards

Our control systems are designed and built per the following standards:

- UL-508 - Nema
- NEC - NFPA 70
- All components UL listed.

Enclosures

We provide Nema 4 & Nema 4X enclosures

Customization

PAE can provide a wide variety of customization to fit the system to the application and/or facility.

950 N. Rand Rd., Ste 120
Wauconda, IL 60084 USA
847.487.9166 Fax: 847.487.9218
www.panamenv.com
panam@panamenv.com

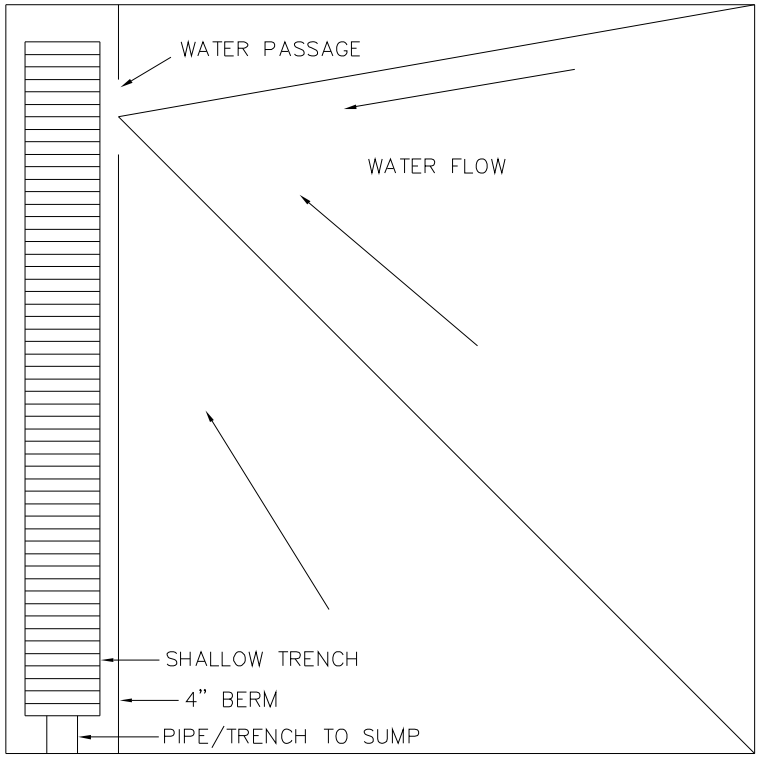
Pan America Environmental, Inc.

Wash Pad

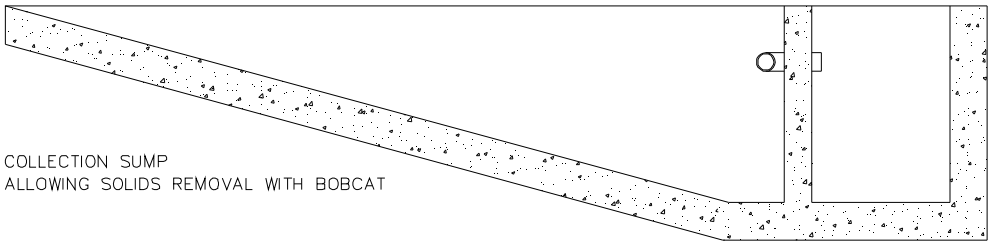
Washpad Designs

Washpad Systems

The designs below are typical layouts and are recommended to properly pretreat washwater prior to passing through a VEW system.



TOP VIEW OF PAD



COLLECTION SUMP
ALLOWING SOLIDS REMOVAL WITH BOBCAT

Washpad and sump system design is an entire subject matter in and of itself and we unable cover all aspects in this brochure.

The washpad is an important part of your wash & treatment facility as solids will usually be a large part of the treatment process. The more solids you can reduce at the washpad/sump the less you have to remove at the treatment system.

The washpad, collection troughs and collection sumps are an integral part of the treatment system and provide the following pretreatment operations:

- Reduction of heavy solids load at washpad.
- Settles solids in the collection sump(s)
- Assists self-breaking detergents to break emulsions prior to the VEW system.
- Provides a working water volume for recycling.

When designing keep the following rules of thumb in mind:

- The bigger the better (make room for equipment, operator movement and vehicle size
- Eliminate rainwater runoff from the pad
- Locate drain/trough along pad side or end opposite from the wash area to allow solids to stay on the washpad surface, thereby reducing accumulation in the drain/trough/sump system.
- Pitch pad drainage to drain/trough
- Don't use an aggressive pitch on pad or tough, help the solids stay on the pad and in the trough, fast moving water moves solids. An 1/8" per foot drop may be sufficient to limit water velocity.

The washpad should provide a controlled runoff design with pad pitch toward the trough or drain, which will encourage proper draining of the pad.

The most common designs are shown on this page. Larger and/or heavy equipment wash racks often use a sump design that allows for high solids concentrations and ease of solids removal as in a sump with a ramp design.

Collection Sump design is important as it begins your treatment process by providing a place for bulk solids to drop out prior to finer treatment by the VEW system.
Probably THE most popular sump design is the triple or double basin that provides multiple chambers to increase the settlement of solids and also provides a final sump point where pumpout of the water to the VEW system is performed.

Be Aware: that large water collection tanks and chambers also pose an odor creation issue due to the solids settlinig out and accummulating. Be sure to use our **EnBio** treatment system to eliminate this problem.

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Wauconda, IL 60084 USA
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www.panamenv.com

panam@panamenv.com

PAN AMERICA ENVIRONMENTAL, INC.

VEW System Options Descriptions

Collection Sump An FRP collection sump with steel or FRP cover, hatch, vent and fittings can be provided. Diameters of 24”, 30”, 36”, 48”, 60”, 72”, 96” and 120” can be provided and different depths can be provided to provide the volume and elevations required by the project.

Sludge Pumpout System Air operated, diaphragm pump with air controls & Nema 4 control panel, auto on/off timer, base mounted, 115V/1ph/60Hz power req'd. Progressive cavity pump system also available. 1 - 100 GPM.

Oil Pumpout System Air operated, diaphragm pump with air controls, level switches & Nema 4 control panel, base mounted, 115V/1ph/60Hz power req'd., external oil drum & transfer piping. Gear pump is available as an alternative. 1 - 100 GPM

Freeze Protection Immersion heaters mounted through tank wall. Each heater has an independent thermocouple well, 0-100 deg. F thermostat and Nema 1 (or optional Nema 4) housing. 230/460V/3ph/60Hz power req'd.

Oil Sight Glass Two automatic, brass valves with tempered sight glass and protection rods mounted in oil reservoir. If glass is broken check ball stops outflow from reservoir.

External Sight / Level Glass An externally mounted clear PVC sight tube is provided with multi-point level switch for indication or pump control of oil or water. Switch is removable for cleaning and inspection.

Elevation Stand & Platforms Epoxy coated steel stand or legs to elevate system to desired level. Standard deck height is 30". Full platforms & walkways with ladders or stairways can be designed where required or desired.

High Temperature Design Flopak coalescing media and any piping is constructed of a combination of CPVC &/or polypropylene (or other materials) for temperature resistance up to 180° F.

Alternate Media Construction Standard Flopak media is PVC. HPVC, polypropylene, glass-coupled polypropylene and 304/316 stainless media is available. Contact PAE to determine proper media type for your application. Media plate spacing is available in 1/2", 3/4" & 1.2".

External Storage/Feed Tanks A wide variety of tank volumes can be supplied for your water, product and sludge holding needs. Flat bottom and cone bottom designs constructed in polyethylene, fiberglass, steel & stainless steel can be provided.

AQAM Filter Systems AQAM (Alkyl Quaternary Ammonium Montmorillonite) filter systems can be provided to remove trace hydrocarbons, sheens, DNAPLs, slightly soluble chlorinated hydrocarbons and high molecular weight organics from the separator effluent. Contact Pan America to determine proper filtration needs for your application.
Can be used to protect and increase GAC lifespan.

Carbon Filtration Systems (GAC) GAC carbon filters can be provided to remove contaminants after the separator. Contact Pan America to determine proper system needs for your application.

Emulsion Cracking Systems Emulsion cracking systems can be provided to remove oil-in-water emulsions prior to the separator. Contact Pan America to determine proper system needs for your application.

pH Adjustment Systems pH adjustment systems can be provided to maintain pH levels prior to or after the separator. Contact Pan America to determine proper system needs for your application.

System Containerization OS separators with any options can be installed in a 20 or 40’ shipping container(s) to simplify system provision and field implementation. System would include the complete mounting, piping and wiring of the system in one or more container as required by the project.

Trailer Mounting System can be mounted on a trailer for system mobilization. Trailer design generally includes corner leveling jacks, bubble levels, toolbox, electric or hydraulic brakes, piping and wiring of options.

Field Skid Mounting System can be mounted to a mobile skid with leveling for quick field mobilization.

Vent Scrubber Separator vapors can be extracted and scrubbed prior to discharge to atmosphere to remove VOC content.

Level Sensors Level sensors can be provided to detect water and oil/fuels. One or more sensor points can be provided to perform various functions such as high level, low level, pump on/off based on liquid levels and level detection for DCS controls or other functions based on your needs.

Class 1 Div 1 & 2 Systems can be designed for use in a class 1 div 1 or 2 environment. Controls, components and wiring are changed to meet the needs of these environments. Intrinsically safe relays are also used for level sensors.

Oil Monitor An oil detection system can be provided to monitor effluent oil content and provide various actions based on the oil alarm setpoint. Actions might include: audible/visual alarm, redirection of influent or effluent via actuated valve, shutdown of influent pump or your custom action.

EnBio Biotreatment A bacteria injection system is provided to meter bacteria that will provide the following benefit:

- Trace/emulsified oil/fuels, BTEX, kerosene reduction by breakdown of petroleum products
- Extends AQAM filter life by reducing oil load
- Reduce or eliminate odors associated with oils & fuels
- May also reduce your BOD concentration

Dosing

The bacteria/enzyme blend is added at 20 oz or less per 1500 gallons for the first week and then is reduced after the first week.

Equipment:

- Chemical metering injection pump mounted to VEW skid, wired to system control panel and plumbed into VEW plumbing
- Manual and automatic controls in the system control panel.
- 10 gallon container of initial enzyme supply

In automatic mode the pump will operate based on the on/off of the system.

Bulletin: CAR WASH RECYCLE SYSTEM 2013

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