

**ADVANCED CONTAINMENT SYSTEMS, INC**

**GENERAL SPECIFICATIONS**

**36' x 8' Mass Casualty Decontamination Trailer**

**# MCDTD368**

**1. GENERAL INFORMATION**

- 1.1 Fresh warm water requirements – approximately 28 gpm or 1680 gph
- 1.2 Fresh water inlet requirements one (1), 1-1/2” fire hose
- 1.3 On board concentrated decon solution capable of drawing out of a 5 gallon bucket.
- 1.4 Total BTU requirement for water heater (boiler) –1,014,000 BTUH absorbed
- 1.5 Diesel capacity on board to operate the water heaters and generator on full load for a minimum of 4 hours
- 1.6 The unit shall be pulled via a tractor with a 5<sup>th</sup> wheel.

**2. DIMENSIONS**

- 2.1 Length of decon/work area no less than 27’ – 0”
- 2.2 Width of body 8’ – 0”
- 2.3 Length of Gooseneck Section 104”
- 2.4 Length of body hull a minimum 36’ – 0”
- 2.5 Overall length not to exceed 37’ – 0”
- 2.6 Overall height 11’ – 6”
- 2.7 Ceiling height at least 7’ – 0”

**3. CHASSIS**

- 3.1 Main beams 12 x 22 steel wide flange beams.
- 3.2 Gooseneck section shall be constructed of 8 x 15 wide flange beams.
- 3.3 Cross members – 6 x 8# of structural steel channel.
- 3.4 Floor joists – 2 x 2 x 16 ga. steel tubing, 16” on center.
- 3.5 Side rails – 4 x 2 – 12 ga. galvanized steel angle.
- 3.6 Three (3) high speed 7000 # sprung axles with electric brakes shall be provided.
  - 3.6.1 Tires – Seven (7) LT235-85R-16 ‘G’ range mounted on steel wheels.
  - 3.6.2 Includes a spare tire and wheel shipped loose.
- 3.7 Landing Gear – 50,000 # capacity for the trailer, two speed, drop leg type.
- 3.8 Stabilizer jacks. – swivel type.
  - 3.9.1 Two (2), one mounted to each rear corner.
  - 3.9.2 Capacity shall be 7000 lbs each.
  - 3.9.3 Bubble levels mounted to each corner area.
- 3.9 Bumper – Rear
  - 3.9.1 Heavy duty steel step type.
  - 3.9.2 1’ – 0” deep x 8’ long
- 3.10 Hitch – 2” SAE king pin, for 5<sup>th</sup> wheel application.
  - 3.10.1 The kingpin placement shall be mounted 22”, back from the front of the trailer.
- 3.11 Rear steps.
  - 3.11.1 One (1) set at each rear door.
  - 3.11.2 Heavy duty fabricated 12 gauge steel fold down type.
  - 3.11.3 2 – step assembly.
  - 3.11.4 Includes an aluminum hand rail for steps.

3.11.5 All step surfaces, shall be coated with non-slip safety grip paint

3.12 Side door steps.

3.12.1 Heavy duty fabricated 12ga. steel telescopic.

3.12.2 Fold-out.

3.12.3 3- step assembly attached to main beam

3.12.4 Each stair tread is 36”L x 9”D.

3.12.5 All step surfaces, shall be coated with non-slip safety grip paint.

3.12.6 Includes fabricated fold out aluminum hand rails with three point attachment.

#### 4. BODY STRUCTURE

4.1 Floor system designed to eliminate wheel box.

4.2 All steel frame construction

4.3 Wall studs shall be 2 x 2 steel tubing 16 ga. minimum (16” o.c.).

4.4 Roof rafters shall be 2 x 2 steel tubing, 16 ga minimum (16” o.c.)

4.5 3/4 “ CDX tongue and groove plywood floor.

4.6 Seal Skin sprayed on rubber floor covered 1 ½” up the walls to provide a non-slip, very durable, seamless, chemical resistant, water proof floor.

4.6.1 Color: Gray.

4.7 Exterior siding.

4.7.1 Aluminum, smooth .060 thick **WHITE baked enamel finish.**

4.7.2 Sheets to be 49” wide for 1” overlap.

4.7.3 Attached to studs with aluminum fasteners.

4.7.4 Each sheet must be sealed.

- 4.8 Seamless Fiberglass Reinforced Plastic (FRP) .060.
  - 4.8.1 Laminated to 3/8" plywood on interior walls and ceiling with corner joints vinyl trimmed and sealed with a high quality silicone sealant to provide a waterproof, air tight interior.
- 4.9 Roof .040 thick seamless aluminum roof fastened to the perimeter aluminum top rail.
  - 4.9.1 All fasteners are located outside the trailer body.
- 4.10 Heavy duty extruded aluminum top rail installed around perimeter of roof.
- 4.11 R11 rigid foam insulation installed in all walls, floor and ceiling.
- 4.12 20 gauge belly pan, of galvanized steel covering bottom side of trailer.
- 4.13 Three (3), heavy duty, aluminum framed entry / exit doors.
  - 4.13.1 Two (2) rear and one (1) curb side.
  - 4.13.2 30" wide x 78" high with, aluminum exterior skins, FRP interior skins, continuous hinges, full perimeter seal and stainless steel door handles with dead bolts keyed alike with interior thumb latches.
  - 4.13.3 Hydraulic hold open door closers to restrain doors and to close automatically to aid in the negative pressure process.
  - 4.13.4 An aluminum drip rail installed over each door.
  - 4.13.5 The following lettering shall be provided.
  - 4.13.6 The two rear doors will be labeled as follows: 4" letters left door and right door will read "ENTRANCE" .
  - 4.13.7 The exit door will be on the curbside and have in 4" letters will read "EXIT".
- 4.14 Fifth wheel section shall have two (2) heavy duty aluminum vented framed doors (36" wide x 52" high) with fabricated galvanized steel panel inner cores, aluminum exterior skins, galvanized interior skins, continuous hinges, full perimeter neoprene bulb seal and stainless steel

door handles with dead bolts keyed alike.

4.14.1 Aluminum vents shall be installed adjacent to each door.

4.14.2 Walls and ceiling shall be covered with galvanized steel.

4.15 A double sound attenuation wall is installed between the generator compartment and the decon area.

## **5. BODY INTERIOR- DECON COMPARTMENTS**

5.1 Trailer includes two (2) longitudinal decon compartments.

5.1.1 Separated by a full length heavy duty divider curtain consisting of a vinyl material that will extend the full length of the decon area.

5.1.2 The curtain will be suspended from the ceiling with a heavy duty aluminum track and secured to the end walls with cinch straps.

5.1.3 The side curtain will be secured to the walls with footman loops and cinch straps.

5.1.4 The rear of the unit shall consist of two (2) contaminated areas which includes:

5.1.4.1 Stainless steel clothes chutes.

5.1.4.2 Two (2) flow through brushes for performing gross decon, with a 6' stainless steel metal flex hose with stainless steel quick disconnect (QD) fittings are included for this area.

5.1.4.3 Two (2) hand held shower wands for rinsing, with 6' stainless steel metal flex hoses with stainless steel QD's are also included

5.1.4.4 QD fittings to be inter changeable with QD fittings on the exterior QD outlets.

5.1.4.5 Each area to contain two (2) ball valves to isolate control of water and gross decon hand held shower wands, (1-fresh and 1-solution)

5.1.4.6 Privacy curtain inside entrance door.

5.1.4.7 A 2" epoxy coated dam will separate the gray water into two (2) respective decon areas.

- 5.1.5 The area ahead of the contaminated area shall be the decon solution application area.
  - 5.1.5.1 It shall consist of a vertical manifold that has 3 shower nozzles @ 1 GPM each.
  - 5.1.5.2 Will have 1 shower head nozzle @ 1 GPM in center of ceiling spraying straight down.
  - 5.1.5.3 Privacy curtain. and stainless steel trough drain
  - 5.1.5.4 A 2" epoxy coated dam will separate the gray water into two (2) respective decon areas.
  - 5.1.5.5 36" vertical stainless steel hand rail in each compartment.
- 5.1.6 The area ahead of the decon solution application area be the rinse area.
  - 5.1.6.1 It shall consist of a vertical manifold that has 3 shower nozzles @ 1 GPM each.
  - 5.1.6.2 Will have shower head nozzle @ 1 GPM in center of ceiling spraying straight down.
  - 5.1.6.3 Privacy curtain. and stainless steel trough drain
  - 5.1.6.4 A 2" epoxy coated dam will separate the gray water into two (2) respective decon areas.
  - 5.1.6.5. 36" stainless steel vertical hand rail in each compartment.
- 5.1.7 The 4<sup>th</sup> area which is in the front of the rinse area shall be the clean area, for drying off and dressing into clean clothing before leaving the site.
  - 5.1.7.1 A 24" long fold down aluminum bench will be provided in each clean area
- 5.1.8 Floor drain system consists of a stainless steel trough drain with stainless steel grating removable for easy cleaning.
- 5.1.9 An exit vestibule shall be located ahead of the clean area.
  - 5.1.9.1 Privacy curtain and stainless steel trough drain

5.1.10 One (1) storage area area, approximately 78" W x 72" H x 12" D, with four (4) adjustable shelves, shall be installed across the front of the vestibule.

5.1.10.1 Cargo nets shall cover front of storage area to secure material.

## **6. 120 / 240 AC ELECTRICAL SYSTEM**

6.1 System is powered by on board 12 KW diesel generator or by shore power. .

6.2 All AC electric functions are controlled by one (1), 100 amp load center with properly sized breakers.

6.2.1 Located in the front interior wall.

6.3 One (1) 125 amp sized manual transfer switch, NEMA 3R, transfer power from the generator or shore line power to AC load center.

6.3.1 Located under the gooseneck section in a compartment.

6.4 One (1) shore line power cord, 25' long will be attached to transfer switch for hook up to outside electrical supply.

6.4.1 Power cord shipped with no plug.t

6.5 Five (5) wet location type, 2 bulb, 2', 40 watt fluorescent light fixtures are included. (1 in each dirty area, solution area, final rinse area, clean area, and vestibule).

6.6 All wiring to be installed in strict accordance with NEC.

6.7 One (1) 60 watt enclosed porch light, by exit door.

6.7.1 Switch controlled from control panel.

6.8 Five (5) GFCI protected grounded duplex type wall receptacles installed as follows.

6.8.1 Two (2) interior in the vestibule.

6.8.2 Two (2) exterior, at the front of the trailer, one ea corner.

6.8.3 One (1) in the utility room.

6.8.4 All outlets shall have waterproof covers.

6.8.5 All outlets wired to the circuit breaker panel.

6.9 Three (3) emergency single exit lights, wired to the generator batteries, with a timer.

## **7. ELECTRICAL – OTHER**

7.1 12v DC Electrical

7.1.1 7 pole (Bargman) Trailer wiring circuit

7.1.2 Combination stop, tail, and rear directional lights LED lights installed at the rear of the trailer.

7.1.3 Clearance, marker, and LED ID lights installed in roof rail.

7.1.4 License plate bracket with light installed at the rear.

7.1.5 All wiring to be of proper size for amperage rating of lights. All wiring to be automotive stranded copper.

7.1.6 Main electrical cable to be 7-conductor trailer wire

7.1.7 All lighting to be in compliance with FMVSS lighting standards.

7.1.8 Three (3) deep cycle batteries rated at a minimum of 225 minutes at 25 amps. Are installed for the DC electrical system.

7.1.8.1 Model Trojan SCS225

7.1.8.2 A battery charger shall be supplied to augment the DC power needed to run the system.

7.1.8.3 External power connection for the battery charger, to allow charger to be connected to power when trailer generator is not operating.

7.1.8.4 Power connection to be located externally on the front of the trailer.

7.1.9 A 120V, 15 amp male power inlet receptacle is installed in a #091-3 Red weatherproof cover.



- 7.1.10 Current limiting relays prevent back flow from inlet receptacle to ant other electrical connections.
- 7.2 Whelen Scene Light Package consisting of five (5) #810CAOZR clear lens 8-32 degree halogen scene lights, surface mounted.
  - 7.2.1 Two (2) on each side of the trailer.
  - 7.2.2 One (1) mounted at the rear of trailer in between the doors.
  - 7.2.3 Lights are powered by deep cycle batteries and controlled by switches Located on the control panel.
  - 7.2.4 All scene light switches to be rocker type.
  - 7.2.5 All other low other voltage switches located within interior of trailer to also be rocker type.
- 7.3 Control Panel
  - 7.3.1 Enclosure shall be mounted in the vestibule room, in the interior front wall, at eye level.
  - 7.3.2 Enclosure shall have a NEMA rating of 3, 3R, 4, 4X, 12 & 13
  - 7.3.3 Enclosure is designed to meet the Joint Industrial Council (JIC) standards in the United States.
  - 7.3.4 Enclosure made from corrosion resistant hot compression molded fiberglass reinforced polyester.
  - 7.3.5 The enclosure includes four (4) stainless steel captive screws that secure the cover to the base by means of four (4) threaded brass inserts contained in the base.
  - 7.3.6 Size of box, OD dimensions, 15.3" x 13.3" x 6.7"
  - 7.3.7 Mounting plate shall be non-metallic
  - 7.3.8 Mounted on the face plate shall be:
    - 7.3.8.1 Generator switch
    - 7.3.8.2 Generator hour meter
    - 7.3.8.3 Generator fuel gauge,

- 7.3.8.4 Generator temperature gauge
  - 7.3.8.5 Generator oil pressure gauge
  - 7.3.8.6 Battery charging monitor
  - 7.3.8.7 Gray water tank level monitor
  - 7.3.8.8 Nine (9) 125 V illuminated round rocker switches
  - 7.3.8.9 Three (3) 12V illuminated round rocker switches
  - 7.3.8.10 All switches function labeled
- 7.4 Whelen Emergency Lighting Package consisting of:
- 7.4.1 Two (2) #70R00FRR, 700 Series Red LED flashing lights, surface mounted one each – high on each corner on the rear.
  - 7.4.2 Emergency LED's to be activated from a switch near the circuit breaker panel, or through the plug on the front of the trailer.

## **8. GENERATOR**

- 8.1 One (1) 12 KW Generator, to run all components of the trailer simultaneously.
  - 8.1.1 The generator shall produce 120-240v at 60 HZ.
  - 8.1.2 It shall be equipped with diesel fuel system, remote control, located on the front wall of the vestibule) and a minimum of 10 amp battery charger kit.
- 8.2 Generator will be located in the gooseneck section compartment.
  - 8.2.1 Aluminum louvers will be installed to provide adequate ventilation to the generator and boilers.
- 8.3 Fuel supply shall be a 50 gallon fuel tank.
  - 8.3.1 Fuel tank shall be located between the forward frame rails for protection.
  - 8.3.2 Fuel fill shall be at the front of the trailer.

8.3.3 Fuel cap shall have a secure chain.

## 9. **PLUMBING**

9.1 Two (2), diesel fired tankless boiler units to supply hot water, continuous water flow, 676,000 BTU's, absorbed, will be installed in the goose neck room next to the generator in same enclosure.

9.1.1 Two (2) electronic water temperature controllers with digital temperature readout will be installed to provide constant 80 to 85 degree tempered water throughout the unit. A desired temperature will be programmed in and all rinse and decon solution shower ports will provide the desired tempered water.

9.2 Gray water tank located under the trailer, 200 gallon polyethylene tank with a 1 ½" discharge ball valve includes a cam fitting..

9.2.1 Water is to be discharged through a supplied 1 1/2" hose x 20'.

9.2.2 There will be a discharge pump to enhance the flow of water into the holding tank.

9.2.2.1 Float and control switch allows pump to be operated manual or automatic.

9.3 City water inlet with pressure regulator installed at front of unit on street side.

9.3.1 Inlet fitting to be 1 ½" NPT female inlet fitting fire hose connection.

9.4 System shall be provided for concentrated decon solutions with desired percentage of dilution to be metered into shower system.

9.4.1 Concentrate is pumped out of a 5 gallon bucket, an adjustable metering distribution system to inject into the solution distribution heads.

9.4.2 Decon solution metering pump will be located in the utility room on the curb side of the trailer.

9.4.3 System should be driven by water volume not water pressure.

9.4.3.1 System will be non-electric.

- 9.5 Plumbing supply lines are high density, cross linked polyethylene tubing with brass swaged lock fittings.
  - 9.5.1 All drain lines are SCH. 40 PVC pipe.
- 9.6 All exterior plumbing and holding tank will be heat traced and insulated
- 9.7 Two (2) quick disconnect (QD) fittings located on road side rear.
  - 9.7.1 Each QD is controlled by a ball valve.
  - 9.7.2 One (1) fresh water and one (1) solution connection for external decon functions.
  - 9.7.3 QD's are for utilization of hand held showers.
  - 9.7.4 Holding clips located on rear of trailer to hold brushes and wands when connected to trailer but not being hand held in service.
  - 9.7.5 One (1) QD discharge will be plumbed to distribute decon solution.
- 9.8 One (1) blow down adapter to fit 1½" inlet fitting and adapted for Schrader air Chuck.
  - 9.8.1 Adapter is used when air is applied to blow down all water lines.
- 9.9 One (1) On-board pump shall be installed in the utility compartment, to introduce propylene glycol for winterizing the entire trailer.
  - 9.9.1 Pump shall be powered by the on-board batteries.
  - 9.9.2 It shall have a 6' suction hose and a 6' discharge hose with fire hose adapter to hook up to the main supply connection.

## **10. HVAC SYSTEM**

- 10.1 Two (2) roof mounted A/C units with heat strips are included.
  - 10.1 Both units mounted in the clean rooms
  - 10.2 13,500 BTU's of cooling, 5600 BTU's of heating.
- 10.2 One (1), all aluminum Hepa filtered 700 CFM negative pressure air unit, will be mounted on the front wall of the dirty room.
  - 10.2.1 Filter change from the inside the trailer.

10.2.2 Air Filtration is through a carbon filter.

10.2.3 Air Discharge is through rear wall of trailer.

## **11. PLUMBING FOR EXTERIOR BOOMS**

- 11.1 An exterior decon station will be installed on the curbside of the trailer.
- 11.2 The decon station will consist of two (2) stainless steel shower booms that swing out from the trailer to distribute decon solution and rinse water.
- 11.3 Each boom is equipped with three (3) nozzles attached with threaded fittings for easy interchangeability with other decon accessories.
- 11.4 The rear boom will be plumbed to distribute decon solution.
- 11.5 The front boom will be plumbed to distribute rinse water.
- 11.6 An adjustable metering system for concentrated decon solution with desired percentage of dilution supplying the interior decon stations will also meter solution into the solution booms.
- 11.7 Control valves will be mounted on the curb side of the trailer to operate each boom.
- 11.8 Water supply to exterior booms is provided by diesel fired tankless boiler units described in section 9. Constant water temperature is maintained by same electronic controller that controls interior water delivery.

## **12. AWNINGS**

- 12.1 One (1) 8' x 20' awning will be installed on the street side.
- 12.2 One (1) 8' x 20' awning will be installed on the curbside of the trailer.
  - 12.2.1 Awnings will be white in color.
  - 12.2.2 One (1) containment berm will be provided, approximately 8' x 18'
  - 12.2.3 Privacy curtains will be installed on 3 sides of curb side awning.
  - 12.2.4 Each curtain assembly to be constructed in 3 pieces (1pc full length side curtain, 1pc full width each end curtain).

12.2.5 Each piece of curtain assembly independently secured to pole frame so that end curtains can be removed while side curtain remains erected.

12.2.6 Velcro flaps on end curtains will cover onto side curtain to maximize privacy. Velcro straps to retain flaps in open position. Curtains are to constructed of 20 lb vinyl.

**13. MISCELLANEOUS**

13.1 Labeling: All control switches, faucets, valves, function indicators, etc. to be labeled with engraved vinyl self-adhesive signage. All load center breaker functions to be labeled for easy identification.

13.2 An operators manual will be included.

13.3 Conspicuity tape around the lower portion of the trailer.