



SAFETY MANAGEMENT MANUAL

SOP/02 PORTABLE VANS

Originator:

Derek Bergeron

Approved By:

Timothy Twomey

1. PURPOSE

The purpose of this procedure is to establish standards for portable vans that are used on board Woods Hole Oceanographic Institution ships. It is intended that this procedure be used as a guideline for Masters accepting portable vans on our ships and as guidelines for WHOI ship users as what our expectation for van is.

2. RESPONSIBILITY

It is the responsibility of the Master of each WHOI ship receiving a portable van to ensure that the portable van does not present a safety hazard. It is the responsibility of the portable van supplier whether it is a science user or scientific support activity to provide portable vans that meet the included standards of safety.

It is the responsibility of the Marine Operations Coordinator and the SSSG Manager to inform and educate potential and scheduled scientific users of these policies.

3. GENERAL

Portable vans come in many sizes and flavors. Their uses are diversifying with the imagination of the science community that uses them. Largely, many of these vans are not subject to regulatory guidelines as they fall within the definition of "scientific equipment" as defined in 46 CFR 188.10-67.

Title 46 CFR Subpart 195.09 provides very general guidelines for scientific equipment and Subpart 195.11 applies to portable vans and tanks. It should be noted that both of these subparts are applicable to inspected Oceanographic Research Vessels. In this procedure guidelines will be directed toward both inspected vessels and uninspected vessels. Care must be taken to recognize that a van designed and used on uninspected vessels may not be allowed on inspected vessels.

It is important to note that within regulatory guidelines the Coast emphasizes the fact that portable vans are intended to include temporary structures which may be carried aboard a vessel for a limited period of time and which are not permanently attached to the vessel.

Where the term good "marine standards" is used, UL for marine service, IEEE-45 or the Coast Guard regulations are acceptable standards.



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4. ON COAST GUARD INSPECTED VESSELS

The Coast Guard regulations in Subpart 195.11 classify portable vans into four different categories. Portable vans are accommodation vans, power vans, vans for the use or storage of chemical stores, or scientific equipment vans. All but scientific equipment vans are subject to regulatory plan approval and inspection by the Coast Guard. For the exact regulatory definition for each of these vans refer to 46 CFR 195.11-10.

Accommodation, power and chemical stores vans are subject to plan approval for construction and reinspection by the Coast Guard at two-year intervals. In each of these types of van other regulations apply within Subchapter U (188 et seq.).

If an accommodation, power or chemical stores van is placed aboard an inspected vessel, the Master shall have documentation that the van has a current reinspection completed by the Coast Guard.

Scientific vans make up the majority of the vans found on WHOI vessels. These vans are not subject to design approval or inspection by the Coast Guard. However, it is WHOI's policy that those vans used for other than dead storage shall meet the same standards as for inspected accommodation vans except for the requirements directly related to the sleeping facilities.

5. ON VESSELS NOT INSPECTED BY THE COAST GUARD

Certain oceanographic research vessels are not subject to inspection by the Coast Guard. Therefore, portable vans placed aboard these ships are also not subject to design approval or inspection by the Coast Guard. However, it is WHOI's policy that vans on the uninspected OCEANUS must meet the standards for inspected vessels.

Appendix A is provided for all portable vans. Appendix B is provided for portable vans that would require Coast Guard plan approval and inspection on inspected ships but do not because the vans are only used on uninspected ships. Note that in each appendix the applicable Coast Guard regulations have been referenced where possible.

6. ACTION

The Master of a WHOI vessel receiving a van needs to confirm that a portable van requiring Coast Guard inspection is inspected. Any portable vans received that do not require inspection shall be examined for conformance with these guidelines.



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All Portable Vans

Design and Construction 46 CFR 195.11-10

(a) The design and material selection shall incorporate consideration of forces and environmental conditions to which the structure, attachments, and attachment points will be exposed.

(b) Steel, aluminum or other substantial material suitable for a marine environment may be used for construction of the basic van box.

(c) Accommodation vans are those intended to provide increased accommodation and related spaces of a temporary nature aboard a vessel. They shall, insofar as is reasonable and practicable, meet the applicable requirements of subchapter U for means of escape, arrangement, interior construction, and electrical installations.

(d) Power vans are those outfitted with electrical power generating machinery or batteries providing electrical power for other vans or to scientific equipment. They shall insofar as is reasonable and practicable meet the applicable requirements of this subchapter for pressure piping, electrical, fire extinguishing and ventilation systems.

(e) Vans for the use or storage of chemical stores as defined in §194.05-3 of subchapter U shall be constructed and outfitted in accordance with the applicable requirements of subchapter U.

(f) Vans containing scientific equipment are considered as within the definition of §188.10-67 subchapter U.

Marking and Labeling 46 CFR 195.11-20

(a) All vans shall be provided with a label plate stating light weight, gross weight, and power requirements where applicable.

(b) For vans subject to inspection label plates shall provide space for the date of initial inspection, the marine inspector's initials, and stamp. Space shall also be provided for the reinspection stamping.

Loading and Stowage 46 CFR 195.11-25

(a) Vans required to be inspected and bearing a current inspection stamp may be accepted for loading and stowage by the master of the vessel who shall insure that the van is in good condition.

(1) Vans containing scientific equipment and nonhazardous stores may be accepted by the master of the vessel subject to his inspection to determine that electrical and pressure connections are in good condition and adequate for the service intended.



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(b) The master shall insure that all vans are securely stowed and attached to the vessel to prevent shifting in a seaway. Portable vans to be occupied during the vessel's operation shall be securely attached to the vessel by welding, bolting, or equivalent means.

(c) Vans shall be located with due regard to access and to prevent recirculation of the discharge from the exhaust systems of the vessel.

(d) The loading of vans shall be in accordance with the stability requirements of the vessel.

(e) Prior to a vessel's departure, an entry shall be made in the official logbook for each portable van placed on board that such van and its stowage are in compliance with the applicable requirements

Safety-No one is to be on top of vans without fall protection at any time. Lift point connections need to be made from the respective corners via safe ladder – 2 person operation.



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Special Use Portable Vans

In each case these special use portable vans must meet the requirements of Appendix A. The vans applicable here are vans that are placed on uninspected vessels but would be inspected by the Coast Guard if placed on an inspected vessel.

Berthing Vans

Berthing vans are those intended to provide increased accommodation or related spaces of a temporary nature aboard a vessel.

1. Must have two means of escape. 190.10-5
2. Both means of escape must be free of locking devices or blocked which would render them inaccessible from the inside. 190.10-20
3. Must be ventilated by mechanical means. 190.15-15(b)
4. Must be adequately lighted, heated and air-conditioned. 190.20-5, 190.20-50
5. Must be divided into rooms with no one room may berth more than 4 persons. 190.20-20(b)
6. Each room must provide 30 square feet of deck area and a volume of 210 cubic feet for each person. 190.20-20(c)
7. No more than one berth may be placed above another and each berth must not be less than 27 inches wide and 75 inches long. 190.20-20(d)
8. A locker must be provided for each person. 190.20-20(e)
9. Each berth must have a light. 190.20-45
10. Construction should be of non-combustible materials where possible. 190.07-10(d)
11. Adequate life saving devices must be on board for the increased number of persons accommodated.

Chemical Store Vans

Vans used for the storage of chemical stores as defined in 194-05-3.

1. Installed equipment, such as shelves and cabinets, shall be constructed of incombustible materials. 194.20-1(a)
2. The access doors must bear the inscription "Chemical Storeroom." 194.20-1(b)
3. The deck shall be non-skid and resistant to chemical spills. 194.20-1(c)
4. All doors must open in the direction of escape. 194.20-1(f)
5. Must be equipped with mechanical ventilation capable of a complete change of air in not more than 4 minutes and must have non-sparking impellers. 194.20-5(a)
6. Exhaust must not be located within 6 feet of interior openings to the vessel. 194.20-5(a)(3)
7. Provisions must be provided so that the van will be ventilated before it is entered. An indicator shall be provided outside the van and the entrance shall be marked "Danger-Ventilate Before Entering." 194.20-5(b)
8. Fixed fire suppression systems shall be provided.



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Power Vans

Power vans are those outfitted with electrical power generating machinery or batteries providing electrical power for other vans or to scientific equipment.

1. Should meet the regulatory requirements for inspected vessels. 195.11-10(d)
2. Must be equipped with an exterior means to secure fuel supply within the van.
3. Must be equipped with fixed fire suppression system operable from outside the van.
4. The fixed fire suppression system must secure the engine and close all ventilation openings.
5. Must be equipped with adequate circuit breakers for the distribution system

APPENDIX C

Safety Inspection Check List for Shipboard Vans

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The attached checklist is intended for use by UNOLS Marine Superintendents and the Masters of vessels in the UNOLS fleet who need to determine if portable laboratory vans brought for use on their ships by Principle Investigators or other scientific personnel are reasonably safe. The placement and use of vans on research vessels is a complex issue involving many regulatory issues as well as common sense and an understanding of the shipboard environment. It is to be particularly noted that the United States Coast Guard and the American Bureau of Shipping regulate portable vans in various ways depending on the



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vans intended use and the registered tonnage of the vessel (i.e., a van acceptable for use on an “uninspected” vessel, such as the UNOLS “Intermediate” class vessels, may not be suited for a larger inspected vessel such as the UNOLS “Global” class.

Those responsible for inspecting vans as well as scientists planning to use vans should familiarize themselves with the “UNOLS Portable Scientific Vans Manual”

Table 1 in the referenced manual provides an outline of requirements for vans. As an example, a chemical storage, machinery or accommodation van, going on an inspected vessel must have a current USCG Inspection Certificate to be used on the vessel. In many cases, decisions about scientist-supplied vans will be less clear and more subject to judgment.

The attached checklist is intended as a guide. It is not intended to cover accommodation, chemical storage, power/machinery or explosives storage vans which all have specific requirements (see Table 1 in the referenced manual). It need not be used for vans brought on for storage use only. It is intended for laboratory vans of various types that will have scientific personnel working in them during the time the ship is at sea. The goal of the checklist is to reasonably determine if the van is safe for the personnel that will be using the van and that it will not pose an unreasonable hazard to the vessel and embarked personnel.

SEE PORTABLE VAN INSPECTION CHECKLISTS: RVSS Edition 10 – July 2015 Appendix C – 2

SEE TABLE 1 OF UNOLS Portable Scientific Vans Manual



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Safety Inspection Check List for Shipboard Laboratory Vans

Ship: _____ Date: _____ Inspected by: _____

Van Description: _____ Van Purpose: _____

PI or Owner: _____ Cruise(s): _____

A. EXTERIOR

Yes	No	
		Does the van appear structurally adequate for the intended use and location (wind, spray, vessel motion, "green water on deck")? See Table 1 in the referenced document for the UNOLS bulkhead stiffening requirements?
		Does the van appear to provide some level of fire boundary between the working space inside the van and the exterior? Will it be located a safe distance from the ship's structure? See Table 1 in the referenced document for the UNOLS Fire Boundary Requirements.
		Is the van constructed of steel, aluminum or other substantial material suitable for marine use?
		Are there suitable attachment points for securing to vessel?
		Is the exterior condition acceptable: holes, obvious structural damage, etc.?
		Are doors equipped with latches to prevent self-releasing from vessel motion?
		Are doors that will be left open during van use equipped with holdbacks?
		Do doors open outward (escape direction)?
		Are external doors and hatches "weather tight?" Are overhead escape hatches "watertight?"
		Is there a label stating the lightweight and gross (tare) weight?
		When applicable, is there a label stating power requirements?
		Are the hook up receptacles (power, water, etc) in good condition?

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B. INTERIOR

Yes No

Yes	No	
		Are there two means of egress that can be opened from both the interior and exterior of the van? (Container doors do not qualify.) (Does not apply to storage vans.)
		If overhead escape hatch, does it open? Test it.
		If fitted with an overhead escape hatch, does it have a unobstructed ladder, footholds, steps or other method for accessing the hatch? Is there a safe method to get down from the top of the van?
		Does the electrical system meet good commercial standards (conduit, GFCI protection, commercial lighting enclosures, grounding)?
		Is the electrical system equipped with adequate and accessible circuit breaker protection?
		Are any internal doors free of locking devices and unblocked (Exterior doors may be fitted with locking devices for security and shipping as long as they remain unlocked while in use)?
		Is there adequate ventilation for the intended purpose?
		Are there suitable fire extinguishers?
		Are there a first aid kit, eyewash, and emergency shower if applicable?
		Is there emergency lighting for egress in the event of a power failure?
		Is there provision for internal communication (intercom, general announcing system, general alarm)?

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TABLE 1 - Summary of Van Types and Requirements (Sub-chapter "U" vessels)

March 2002

Van Type	Normally Occupied or Experiments Conducted Within	Exterior Fire Rating (See Note 5)	Standard ISO Shipping Container Acceptable?	USCG Inspected	ABS Certified	Applicable CFR's and Regulations
Laboratory General Purpose Isotope Electronics Refrigerated Workshop	Yes (See Note 1)	Non-Combustible Materials (See Note 2)	Yes (with additional stiffening)	No	(See Note 4)	ABS High Speed Rules 46CFR 195.11 46CFR 190.10 46CFR 194.15 46CFR 188.10-11
Accommodations (Berthing)	Yes (See Note 1)	Non-Combustible Materials (See Note 2)	Yes (with additional stiffening)	Yes (See Note 3)	(See Note 4)	ABS High Speed Rules 46CFR 195.11 46CFR 190.10 46CFR 190.15 46CFR 190.20
Chemical Storage	No	A-0	Yes (with additional stiffening)	Yes (See Note 3)	(See Note 4)	46CFR 195.11 46CFR 194.20
Power/Machinery	No	A-0	Yes (with additional stiffening)	Yes (See Note 3)	(See Note 4)	46CFR 195.11
Explosive Storage	No	A-15	Possible (with additional stiffening/insulation) Formal Testing Required	No	(See Note 4)	46CFR 195.11 46CFR 194.10-15
General Storage	No	None	Yes	No	Yes	46CFR 195.11
Freezer/Refrigerator	No (Storage Only)	None	Yes	No	Yes	46CFR 195.11

Note 1: Bulkhead pressure in *ABS High Speed Rules/Side and All Deckhouse Structure* (1.5 psi for stiffeners, 2.0 psi for plate) has been applied by UNOLS as a minimum for all vans "normally occupied by personnel". Vans to be in a "Sheltered Location".

Note 2: "Non-Combustible" = Steel, Aluminum, or materials approved under 46CFR 164.009 (or equivalent).

Note 3: Certificate Posted. Inspect every 2-years.

Note 4: Once modified, container CSC plate must be re-certified. Custom-built vans may be "TOP LOAD ONLY" in lieu of CSC plate.

Note 5: Panel fire rating indicates class of structural fire protection for the exterior of van on its own (to the open deck).