

NOC # 318
SOP-GEN-007G Confined Space Entry

Revision #	Section(s)
Revision #14	See attached completely revised SOP

NOC # 319
SOP-BMC-2016C Confined Space Entry (BMC only)

Revision #	Section(s)
Revision #2	See attached revised SOP

Shannon Smith

From: Roger Fay <rogerfay@tdi-bi.com>
Sent: Wednesday, July 20, 2016 7:10 PM
To: Shannon Smith
Subject: Re: URGENT: SOP-GEN-007 Rev #15
Attachments: rf sign doc.jpg

You have no idea how busy. If the changes I saw you make are done and nothing changed except the numbering JH found then consider this the approval.

We are still "short" on required equipment. Gyre replied some time ago that they have steel life lines already and did not need the recent debacle with fall arrestors. BUT they have requested ventilators for some time now (to ventilate the spaces) and so far no action.

Also, no oxygen meters. So, while the revision of SOP is "Urgent", there are other elements missing which will keep this NC open and still to be completed.

Here's my signature, You can play with it on your stamp.

roger

On 7/20/2016 12:02 PM, Shannon Smith wrote:

Roger,

I cannot send to the fleet or submit to Pete T for final approval until I have your approval of this revision. I know you are busy on board, but please reply so I can move forward. Thanks!

Shannon

From: Shannon Smith [<mailto:shannonsmith@tdi-bi.com>]
Sent: Friday, July 15, 2016 3:50 PM
To: James; rogerfay@tdi-bi.com
Cc: petetatro@tdi-bi.com
Subject: SOP-GEN-007 Rev #15

James, Roger,

You will both be out of office Monday, but please review and reply with your comments, edits or approval. Bookmarks, hyperlinks and section numbers have been corrected.

Shannon

Shannon Smith
Assistant HSE Manager &
Vessel Systems Manager
TDI Brooks International
Office: 979-693-3446

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Revision/ Review Log

Revision Date	Approved by	Reviewed by	Revision Details/ Proposal Notes
11 January 2010 Revision #5	Dr. Jim Brooks	HSE Manager: Sue McDonald	
15 October 2010 Revision #6	Dr. Jim Brooks Dr. Bernie Bernard	HSE Manager: Russell Putt Capt. Pat Fallwell	Changed to electronic format
10 December 2010 Revision #7	Dr. Jim Brooks Dr. Bernie Bernard	Dr. Jim Brooks Dr. Bernie Bernard	New Special Permit forms- changes suggested by crews and new JSA form added
03 May 2012 Revision #8	Dr. Jim Brooks Dr. Bernie Bernard	Dr. Jim Brooks Capt. Pat Fallwell Dr. Roger Fay	All permits require two signatures to be valid.
06 February 2013 Revision #9	Dr. Jim Brooks	Dr. Jim Brooks Capt. Pat Fallwell Dr. Roger Fay	Entire SOP revised, old definitions removed, confined space permit deleted, entire SOP-GEN-007H deleted.
08 April 2014 Revision #10	Dr. Jim Brooks Mr. Pete Tatro	Dr. Jim Brooks Mr. Pete Tatro	Confined spaces identified on all TDI vessels
30 October 2014 Revision #11	Dr. Jim Brooks Mr. Pete Tatro	Dr. Jim Brooks Mr. Pete Tatro Dr. James Howell	Confined Space permits reintroduced, definitions clarified, non permit-required spaces identified

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18 December 2014 Revision #12	Dr. Jim Brooks Mr. Pete Tatro	Dr. Jim Brooks Mr. Pete Tatro Dr. James Howell Dr. Roger Fay	JSA's for non-permit confined space clarified
16 January 2015 Revision #13	Dr. Jim Brooks Mr. Pete Tatro	Dr. Jim Brooks Mr. Pete Tatro Charlie Emerson	GeoExplorer confined spaces corrected
18 July 2016 Revision #14	Dr. Jim Brooks Mr. Pete Tatro	Dr. Roger Fay Dr. James Howell	Rylan T and Brooks McCall references removed. Spaces re-evaluated with HAZID for SOLAS vessels. IMO definition of enclosed space added. Entry and rescue drills and training added. Entry/ Rescue team positions defined.

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1.0 Introduction

The purpose of this SOP is to address the protocols required for the entry of a permit-required confined and enclosed space on each **Vanuatu flagged vessel** operated by TDI-Brooks International.

2.0 Definitions

Confined spaces are potentially dangerous areas to work in due to associated hazards such as limited space for maneuvering, restricted entry/ exit, oxygen limited atmosphere or hazardous atmosphere. The OSHA definitions for confined space and permit required confined space are listed below.

Confined spaces are typically defined by meeting all of the following criteria:

- An area large enough for someone to bodily enter the space to perform work.
- An area that has limited or restricted means for entry or exit. Openings can be considered to limit entry or exit by either being small in size or difficult to access.
- The space is not designed for continuous employee occupancy. The space may be designed to only store products, enclose materials, equipment and processes. These types of spaces only require occasional employee entry for inspections, maintenance, or repair.

A **Permit-required confined space** has one or more of the following characteristics:

- Contains or has potential to contain a hazardous atmosphere;
- Contains material with the potential to engulf someone who enters the space;
- Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a downward sloping floor that tapers to a small cross section; and/ or
- Contains any other recognized serious safety or health hazards.

IMO Resolution A. 1050(27) 2.1 states that an **Enclosed Space** has one or more of the following characteristics:

- has limited openings for entry and exit
- has inadequate ventilation
- and is not designed for continuous worker occupation.

The **Authorized Person** signing the permit is the TDI-Brooks management representative responsible for ensuring that the permitting process and associated safety procedures to be followed meet or exceed the TDI-Brooks requirements.

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- At sea, the authorized person is both the bridge officer and the chief engineer (both must sign off on the permit).
- In shipyards, at the dock or in the absence of a chief engineer or bridge officer, the Authorized Person is Port Engineer.

3.0 Confined and Enclosed Space Hazards

Once an area has been identified as a confined or enclosed space, then the potential hazards associated with that space must be identified. These spaces may present one or more of the following hazards: oxygen deficient atmospheres, flammable atmospheres, toxic atmospheres and mechanical/physical hazards.

For this reason, any person entering a confined/ enclosed space must be trained in recognizing these hazards. **Personnel entering a confined/enclosed must have completed the Confined Space Training course on the Computer Based Training and TDI-Brooks Confined Space Entry and rescue training.**

4.0 Confined and Enclosed Spaces Register

4.1 Confined and Enclosed Spaces

A Hazard Analysis was conducted to evaluate the spaces of all vessels in the fleet to identify all confined and enclosed spaces on each vessel, and what requirements for entry are for each space. There are three categories of confined and/or enclosed spaces on our vessels.

Category 1 are confined spaces that **would be entered at sea only in an extreme emergency and then must follow emergency entry procedures (refer to section 5.2 of this SOP)**. The entrances to these spaces shall be clearly marked with signage or painted to indicate “Confined Space- No Entry” (The exception is the engine room in case of fire/smoke/CO2 activation, the engine room will not be marked as “Confined Space-No Entry”).

Category 2 confined/enclosed spaces may be entered at sea with an appropriate permit, atmospheric testing and forced air ventilation (see section 5.3 of this SOP).

Category 3 confined/enclosed spaces may be entered at sea without a permit due to lack of atmospheric risk on entry (see section 5.4 of this SOP). The table below lists all categories of confined spaces for each vessel.

R/V GeoExplorer		
SPACE	CATEGORY 1	REQUIREMENT FOR ENTRY
Forepeak ballast tank	1	SOP-GEN-007G sec. 5.2.1
Aft peak ballast tank	1	SOP-GEN-007G sec. 5.2.1
#2 port and starboard ballast tanks	1	SOP-GEN-007G sec. 5.2.1
#3 port and starboard ballast tanks	1	SOP-GEN-007G sec. 5.2.1

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#1 port and starboard fuel oil tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#2 port and starboard fuel oil tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#3 port and starboard fuel oil tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#4 port and starboard fuel oil tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Lube oil tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Hydraulic oil tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Dirty oil tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Oily water tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Drill water tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Potable water tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Day tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Eng Room Smoke Filled or CO2 discharged	<u>1</u>	SOP-GEN-007G sec. 5.2.1
SPACE	CATEGORY 2	REQUIREMENT FOR ENTRY
Chain locker	<u>2</u>	SOP-GEN-007G sec. 5.2.2
Rope locker	<u>2</u>	SOP-GEN-007G sec. 5.2.2
SPACE	CATEGORY 3	REQUIREMENT FOR ENTRY
Steering compartment	<u>3</u>	SOP-GEN-007G sec. 5.2.3
Bilge below deckplates	<u>3</u>	SOP-GEN-007G sec. 5.2.3
Bowthruster room	<u>3</u>	SOP-GEN-007G sec. 5.2.3

R/V Gyre		
SPACE	CATEGORY 1	REQUIREMENT FOR ENTRY
Forepeak ballast tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#1 centerline ballast tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#2 port and starboard ballast tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#3 port and starboard ballast tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#4 port and starboard ballast tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#5 centerline ballast tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#6 port and starboard ballast tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#2 port and starboard fuel oil tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#3 port and starboard fuel oil tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#4 port and starboard fuel oil tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Day tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Aft peak fuel tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#7 port and starboard fuel oil tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Lube oil tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Hydraulic oil tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Dirty oil tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Potable water tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Eng Room Smoke Filled or CO2 discharged	<u>1</u>	SOP-GEN-007G sec. 5.2.1
SPACE	CATEGORY 2	REQUIREMENT FOR ENTRY
Chain locker	<u>2</u>	SOP-GEN-007G sec. 5.2.2
Rope locker	<u>2</u>	SOP-GEN-007G sec. 5.2.2
Bowthruster compartment	<u>2</u>	SOP-GEN-007G sec. 5.2.2
SPACE	CATEGORY 3	REQUIREMENT FOR ENTRY
Steering room	<u>3</u>	SOP-GEN-007G sec. 5.2.3
Bilge below deckplates	<u>3</u>	SOP-GEN-007G sec. 5.2.3
Starboard exhaust passage	<u>3</u>	SOP-GEN-007G sec. 5.2.3

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R/V Proteus		
SPACE	CATEGORY 1	REQUIREMENT FOR ENTRY
#1 centerline ballast tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#2 centerline ballast tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#12 port and starboard ballast tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#13 centerline ballast tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#6 port and starboard fuel oil tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#7 port and starboard fuel oil tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#8 port and starboard fuel oil tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#9 fuel oil day tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
#11 port fuel tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Lube oil tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Dirty oil tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Dirty bilge water tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Potable water tanks	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Grey water tank	<u>1</u>	SOP-GEN-007G sec. 5.2.1
Eng Room Smoke Filled or CO2 discharged	<u>1</u>	SOP-GEN-007G sec. 5.2.1
SPACE	CATEGORY 2	REQUIREMENT FOR ENTRY
#5 starboard converted mud tank	<u>2</u>	SOP-GEN-007G sec. 5.2.2
Chain locker	<u>2</u>	SOP-GEN-007G sec. 5.2.2
Rope locker	<u>2</u>	SOP-GEN-007G sec. 5.2.2
SPACE	CATEGORY 3	REQUIREMENT FOR ENTRY
Rudder compartment	<u>3</u>	SOP-GEN-007G sec. 5.2.3
Bilge below deckplates	<u>3</u>	SOP-GEN-007G sec. 5.2.3
Port a/c room	<u>3</u>	SOP-GEN-007G sec. 5.2.3
Starboard MSD room	<u>3</u>	SOP-GEN-007G sec. 5.2.3
#5 port tank (workout/storage room)	<u>3</u>	SOP-GEN-007G sec. 5.2.3
Transducer trunk (Chirp seachest)	<u>3</u>	SOP-GEN-007G sec. 5.2.3
Bowthruster room	<u>3</u>	SOP-GEN-007G sec. 5.2.3

5.0 Confined/Enclosed Space Entry Procedures

Procedures for entry into a confined/enclosed space will depend on the category of the confined/enclosed space, the conditions under which the entry is to be made, and where the entry is to be made (at sea, dockside or shipyard). The following describe the procedures for all possible confined/enclosed space entry scenarios on TDI-Brooks International SOLAS vessels.

5.1 Entry Procedure at Dockside (Not operational)

Before anyone may enter a **permit-required** confined space on a TDI-Brooks vessel at a shipyard or dockside at a repair facility, the appropriate regulations of 29 CFR 1915 will apply. That is, the space must be tested, certified, and posted safe for entry by a Marine Chemist or the shipyard's authorized person. Then, entry by TDI Brooks personnel will follow the requirements for Permit entry (CSE permit with integrated JSA, trained and certified supervisor, entrants and attendant).

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Permit Required confined spaces include a risk analysis as a JSA integrated into the permit. The Confined Space Permit template, with instructions, can be found on the TDI Ships Pages under TDI Forms. The confined space permit must be approved and signed by both Chief Engineer and the Bridge Officer, or if neither are present, the Port Engineer may approve and sign the permit.

If both employees and contractors will be entering the space, both parties shall participate in the JSA and it will signed by all participants.

5.2 Entry Procedures at Sea (Operational)

SOLAS regulations XI-1/7 and III/19.3.6.2.3 are applicable to vessel operations at sea and not in shipyard situations as covered previously. The following procedures address entry into the three categories of our confined spaces.

5.2.1 Emergency Entry Procedure (Category 1 Spaces)

Emergency situations such fires, flooding and gear damage/ failure in enclosed spaces may require an immediate response at sea. In situations where there is timely entry is critical to the safety of life or the vessel and the atmosphere is assumed to be hazardous, any entry deemed necessary to respond to the emergency will follow the requirements of **USCG 46 CFR 148.86 (b)**.

“(b) In an emergency, a confined space may be entered by a trained person wearing self-contained breathing apparatus (SCBA), suitable protective clothing (PPE) as necessary, and a wire rop safety line tended by a trained person outside the hold or in an adjacent space. Emergency entry into a confined space must be supervised by a responsible person as defined in 148.3 of this part.”

An emergency entry into a permit required confined space requires four people:

1. Supervisor- A responsible person (trained in confined space entry and rescue) must supervise the entry and maintain communications with the bridge.
2. Entrant- must be trained in confined space entry and rescue, be trained in the use of an SCBA, wear an SCBA and a wire rope lifeline attached to him/ her and wear appropriate protective clothing and other applicable PPE.
3. Attendant/ Line Tender- must be trained in confined space entry and rescue, must remain outside the confined space to monitor the entrant, and have agreed on some means of communication with the entrant.

[Can be as simple as one tug on the line means “Are you ok?” and two tugs back mean “yes”.]

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4. Stand by Rescuer-must remain outside the confined space with a harness, lifeline, full SCBA gear, and any other equipment identified in the JSA that may be needed in a rescue event.

5.2.2 Regular Permit Required Entry Procedure (Category 2 Spaces)

Operational considerations require that we may occasionally enter Category 2 confined or enclosed spaces while at sea.

To enter these spaces, a **confined space permit with integrated JSA is required, as well as atmospheric O2 testing both prior and during the confined space entry.** All personnel involved in the confined space entry must participate in the development and review of the JSA for the permit, and sign off on it. Personnel required for a regular permit confined space entry include:

1. Supervisor- a responsible person (trained in confined space entry and rescue) must supervise the entry and maintain communications with the bridge.
2. Entrant- must be trained in confined space entry and rescue, wear a harness with lifeline attached to him/her and wear appropriate ppe to enter the space.
3. Attendant/ line tender-must remain outside the confined space to monitor the entrant; have agreed on some means of communication with the entrant; and monitor the O2 level before and during the entry.
4. Stand by Rescuer-must remain outside the confined space with a harness, lifeline, full SCBA gear, and any other equipment identified in the JSA that may be needed in a rescue event.

5.2.3 Non-Permit Required Entry Procedure (Category 3 Spaces)

These spaces, while meeting some of the criteria of confined/enclosed spaces, do not present an atmospheric hazard. Therefore a permit is not required to enter these spaces. However, prior to entry to perform any task, the bridge should be notified of the entry and an attendant should be posted outside the space to monitor the entrant. If the work to be performed in the confined/enclosed space **alters the atmosphere (i.e. painting, welding, grinding), then a confined space entry permit and integrated JSA must be filled out, and all steps outlined in Section 5.2.2 of this SOP must be followed.**

6.0 Required Training

All persons participating in confined space entry, rescue and in the required monthly drills must have completed the computer based training course "Confined Space Entry" as a general familiarization of the hazards of confined space.

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In addition, they must have received the TDI Brooks confined space training course. This training is based on the more stringent OSHA requirements for Confined Space, will be given by a TDI Brooks Supervisor authorized to train and certificates will be maintained on the crewing module.

7.0 Monthly Drills

Monthly confined space drills will include all the content prescribed in SOLAS Regulation III/19 (stated below). Drills will rotate to include all the actual types and categories of confined spaces on the vessel. For categories 2 & 3, atmospheric testing as required and rescue from the space will be performed. For Category 1 spaces (emergency entry) procedures including the use of the retractable lifelines and SCBA will be followed up to the point of entry without actually entering Category 1 spaces. **NO Category 1 space will be entered as part of the drills.**

SOLAS Chapter III Regulation 19 3.6 "Enclosed space entry and rescue drills" specifies what is to be covered in the drills.

- 3.6.1 Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization.
- 3.6.2 Each enclosed space entry and rescue drill shall include:
- .1 checking and use of personal protective equipment required for entry;
 - .2 checking and use of communication equipment and procedures;
 - .3 checking and use of instruments for measuring the atmosphere in enclosed spaces;
 - .4 checking and use of rescue equipment and procedures; and
 - .5 instructions in first aid and resuscitation techniques."

Vanuatu Fleet/ Safety Letter 092413.GEN states that Vanuatu requires enclosed space entry drills monthly and that these drills include the following training:

1. Identification of the hazards likely to be faced during entry into enclosed spaces;
2. Recognition of the signs of adverse health effects caused by exposure to hazards during entry; and
3. Knowledge of personal protective equipment required for entry.

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8.0 Reference

OSHA 29 CFR 1915 Subpart B “Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment”

IMO Resolution A.1050(27) Revised Recommendations for Entering Enclosed Spaces Aboard Ships

SOLAS III Regulation 19 Section 3.3 Enclosed space drills required every 2 months:

“Crew members with enclosed space entry or rescue responsibilities shall participate in an enclosed space entry and rescue drill to be held on board the ship at least once every two months.”

Vanuatu Fleet/ Safety Letter 092413.GEN- Enclosed space drills and training required monthly

SOLAS III Regulation 19 Section 3.6

46 CFR 148.86

USCG MSIB 005-16-1

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Revision/ Review Log

Revision Date	Approved by	Reviewed by	Revision Details/ Proposal Notes
16 February 2016 Revision #1	Dr. Jim Brooks Pete Tatro	Dr. Roger Fay Dr. James Howell	Confined space entry procedures created specific to the Brooks McCall
18 July 2016 Revision #2	Dr. Jim Brooks Pete Tatro	Dr. Roger Fay Dr. James Howell	Stand by rescuer position added to team and minor wording changes made. Rearranged for smoother flow. Corrections to spaces.

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1.0 Introduction

The purpose of this SOP is to describe company procedures for entry into permit-required confined spaces on the Brooks McCall.

The regulations governing confined spaces and entry on a US Flag Uninspected Research Vessel are different than those required of a SOLAS vessel. There are no routine or at sea activities or crew qualified inspections or servicing that require crew entry into the confined spaces on the Brooks McCall.

Since the vessel carries no equipment or individuals qualified to measure the atmosphere, the company policy for confined space entry is consistent with 46 CFR 148.86 (a) – **it is prohibited at sea except in an emergency.**

In an emergency and consistent with the Master's authority including not to be constrained by the Company, ship owner, or charterer from making decisions that are in his professional judgment necessary for the safe operation of the vessel, 46 CFR 148.86 (b) is the controlling regulation and procedure.

2.0 Definitions

Responsible person (46 CFR 148.3) means a knowledgeable person who the master of a vessel or owner or operator makes responsible for all decisions relating to his or her specific task.

Trained Person (46 CFR 148.48(a)) means a person having received documented training in the use of SCBA (for instance STCW VI/1 or VI/3), and at minimum having completed the Confined Space Training course on the Computer Based Training.

Wire rope safety line is the safety line from outside the confined space and attached to the entrant.

Line tender/ Attendant means the person assigned to tend the safety line from outside the confined space and monitor the entrant. STCW VI/1 or VI/3 would qualify as appropriate training.

3.0 References

29 CFR 1915 - Subpart B - Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment

46 CFR 148.86

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“§148.86 Confined space entry.

(a) **Except in an emergency**, no person may enter a confined space unless that space has been tested to ensure there is sufficient oxygen to support life. If the oxygen content is below 19.5 percent, the space must be ventilated and retested before entry.

(b) **In an emergency**, a confined space may be entered by a trained person wearing self-contained breathing apparatus (SCBA), suitable protective clothing (PPE) as necessary, and a wire rope safety line tended by a trained person outside the hold or in an adjacent space. Emergency entry into a confined space must be supervised by a responsible person as defined in §148.3 of this part.”

4.0 Permit-Required Confined Spaces Register

A HAZID has been conducted and confirmed the following are the only permit-required confined spaces on the Brooks McCall. The entrances to these spaces shall be clearly marked with signage or painted to indicate **“Confined Space- No Entry”**.

Lube oil tank, hydraulic oil tank, dirty oil tank, potable water tanks, black water (sewage) tank, and all void spaces. In addition:


BALLAST TANKS	FUEL OIL	Chain Locker (in Forepeak)
Forepeak	# 1 port and stbd	
# 1 port and stbd	# 2 port and stbd	
# 2 port, center and stbd	# 3 port and stbd	
# 3 port and stbd	# 4 port and stbd	

Entry into these spaces, except in an emergency, IS PROHIBITED.

4.1 Entry at Shipyard, Dockside or Repair Facilities

Once an area identified as a confined space area is designated for possible entry, then the potential hazards associated with that space must be identified. Confined space hazards may be categorized as oxygen deficient atmospheres, flammable atmospheres, toxic atmospheres and mechanical/physical hazards.

For this reason, any person with a potential need to enter a confined space under permit issued conditions must be trained in recognizing these hazards. At a minimum, they must have completed the Confined Space Training course on the Computer Based Training. All relevant TDI-Brooks employees, i.e. ship’s crew and survey party are required to complete this training.

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Entries into permit required confined spaces in a shipyard or repair facility will be done under the control and authority of **The Contractor/ Facility's** safety program consistent with the requirements of 29 CFR 1915.

Before anyone may enter a permit-required confined space, a certified Marine Chemist or equivalently authorized person from the repair facility must have tested the atmosphere and posted a certificate at the outside of the space stating it is safe for entry. All entrants will inspect the certificate before entering to ensure it is still current and valid. Actual entrants will be limited to only those who meet the requirements of 29 CFR 1915.12 (d) and (e).

4.2 Emergency Entry Procedure

Emergency entry must follow the requirements of 46 CFR 148.86 (b) and requires **four** people trained in confined space entry to fill the following roles:

Supervisor- A Responsible Person must supervise the entry and maintain communications with the bridge.

The **Entrant** must:

- be trained in the use of an SCBA
- wear an SCBA and a wire rope lifeline attached to him/ her
- wear appropriate protective clothing and other applicable PPE.

The **Attendant/ Line Tender** must:

- remain outside the confined space to monitor the entrant
- have agreed on some means of communication with the entrant.

[Can be as simple as one tug on the line means "Are you ok?" and two tugs back mean "yes".]

The **Stand by Rescuer** must:

- remain outside the confined space with full SCBA gear ready to quickly put on the gear and enter the space to assist the entrant.

5.0 Non-Permit Required Confined Spaces

The bilges below the deckplates and the bowthruster room are non-permit required spaces.

6.0 Training and Drills

All persons participating in emergency confined space entry or rescue drills must have completed the computer based training course as a general familiarization of the hazards of confined space.

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The drill scenarios serve as additional training, since this is where we can learn the most about potential complications.

In these drills, all the steps of the process – from planning the emergency scenario to setting up rescue equipment to wearing the appropriate PPE, retractable lifelines and SCBA gear – will be followed **up to the point of entry without actually entering the space.**