

## Report of the Committee on

## Technical Rescue

**Leslie D. English**, *Chair*  
Wackenhut Services, Inc., AL [U]

**Donald C. Cooper**, *Secretary*  
Cuyahoga Falls Fire Department, OH [U] Rep. National Rescue Consultants

**Robert N. Aguiluz**, The Roco Corporation, LA [M]  
**Barbara A. Beers**, Seattle Fire Department, WA [E]  
**Joseph C. Burris**, North Carolina Department of Insurance, NC [E]  
**H. K. “Skip” Carr**, H. K. Carr & Associates Inc., NJ [SE]  
 Rep. International Society of Fire Service Instructors  
**James R. Engram**, Colorado Springs Fire Department, CO [U]  
**Steve Fleming**, Poudre Fire Authority, CO [U]  
**James A. Frank**, CMC Rescue, Inc., CA [M]  
**Tim Gallagher**, Bryan, TX [SE]  
**Carl Goodson**, Action Training Systems, Inc., WA [M]  
 Rep. International Fire Service Training Association  
**Ihor M. Holowczynsky**, Rescue Tech, Inc., Canada [SE]  
**Steve Hudson**, Pigeon Mountain Industries, Inc., GA [M]  
**Billy M. Lee, Jr.**, Champion International Paper Company, FL [U]  
**Robert J. Masonis, Sr.**, California Office of Emergency Services, CA [E]  
**Christopher J. Naum**, L.A. Emergency Management & Training, NY [SE]  
**John P. O’Connell**, Collapse Rescue Systems Inc., NY [SE]  
**Robert E. Rhea**, Fairfax County Fire and Rescue, VA [U]  
**Louis Robinson**, South Charleston Fire Department, WV [U]  
**Brian Rousseau**, State of New York, NY [E]  
**Chase N. Sargent**, Virginia Beach Fire Department, VA [E]  
**Robert P. Thornton**, City of Mobile Fire Department, AL [U]  
 Rep. University of South Alabama (CERT)  
**William J. Troup**, US Fire Administration, MD [SE]  
**William H. Weems**, Safe State Program, AL [SE]  
**Ernest R. (Richey) Wright**, Wright Rescue Solutions, Inc., FL [SE]

## Alternates

**Francis J. Brennan**, Seattle Fire Department, WA [E]  
 Alt. to Barbara A. Beers  
**Michael G. Brown**, Virginia Beach Fire Department, VA [U]  
 Alt. to Chase N. Sargent  
**Joseph M. Clark**, Houston Fire Department, TX [SE]  
 Alt. to Tim Gallagher  
**Fred J. Jackson**, Cuyahoga Falls Fire Department, OH [U]  
 Alt. to Donald C. Cooper  
**Jay McCallum**, Chicago Fire Department, IL [U]  
 Alt. to Robert P. Thornton  
**Loui McCurley (Clem)**, Pigeon Mountain Industries, Inc., CO [M]  
 Alt. to Steve Hudson

Staff Liaison: **Frank E. Florence**

**Committee Scope:** This Committee shall have primary responsibility for documents on technical search and rescue techniques, operations, and procedures to develop efficient, proper, and safe utilization of personnel and equipment.

*This list represents the membership at the time the Committee was balloted on the text of this edition. Since that time, changes in the membership may have occurred. A key to classifications is found at the front of this book.*

This portion of the Technical Committee Report of the Committee on **Technical Rescue** is presented for adoption.

This Report on Comments was prepared by the **Technical Committee on Technical Rescue**, and documents its action on the comments received on its Report on Proposals on NFPA 1670, **Standard on Operations and Training for Technical Rescue Incidents**, 1999 edition, as published in the Report on Proposals for the 2003 November Meeting.

This Report on Comments has been submitted to letter ballot of the **Technical Committee on Technical Rescue**, which consists of 25 voting members. The results of the balloting, after circulation of any negative votes, can be found in the report.

1670-1 Log #CC3  
( Chapter 3 )

**Final Action: Accept**

**Submitter:** Technical Committee on Technical Rescue

**Comment on Proposal No:** 1670-1

**Recommendation:** The Committee is adding a definition for Redundant Air Source to read:

Redundant Air System. An independent secondary underwater breathing system (i.e., a pony bottle with first and second stage or a pony bottle supplying a bailout block).

**Substantiation:** The Committee is adding this definition as the item is discussed in 9.4.6.3 (11).

**Committee Meeting Action: Accept**

**Number Eligible to Vote:** 25

**Ballot Results:** Affirmative: 14

**Vote Not Returned:** 11 AGUILUZ, ENGRAM, FLEMING, FRANK, LEE, NAUM, ROBINSON, ROUSSEAU, SARGENT, TROUP, WRIGHT

1670-2 Log #CC5

( 3.3.19 Confined Space )

**Final Action: Accept**

**Submitter:** Technical Committee on Technical Rescue

**Comment on Proposal No:** 1670-1

**Recommendation:** The Committee is revising the definition of Confined Space to read:

Confined Space 3.3.19\* A space that is large enough and so configured that a person can enter and perform assigned work, that has limited or restricted means for entry or exit. (e.g., tanks, vessels, silos, storage bins, hoppers, vaults, and pits), and that is not designed for continuous human occupancy.

**Substantiation:** The Committee is making this change to accept the preferred definition of this term.

**Committee Meeting Action: Accept**

**Number Eligible to Vote:** 25

**Ballot Results:** Affirmative: 14

**Vote Not Returned:** 11 AGUILUZ, ENGRAM, FLEMING, FRANK, LEE, NAUM, ROBINSON, ROUSSEAU, SARGENT, TROUP, WRIGHT

1670-3 Log #CC2

( 3.3.22 Cribbing )

**Final Action: Accept**

**Submitter:** Technical Committee on Technical Rescue

**Comment on Proposal No:** 1670-1

**Recommendation:** The Committee is revising the definition for Cribbing, 3.3.22 and deleting Annex item A3.3.22 to read: 3.3.22 Cribbing.

Short lengths of timber/composite materials, usually 101.60 mm x 101.60 mm (4 in. x 4 in.) and 457.20 mm x 609.60 mm (18 in. x 24 in.) long that are used in various configurations to stabilize loads in place or while load is moving.

**Substantiation:** The Committee is revising the definition to the preferred definition from NFPA 1006, Standard for Rescue Technician Professional Qualifications.

**Committee Meeting Action: Accept**

**Number Eligible to Vote:** 25

**Ballot Results:** Affirmative: 14

**Vote Not Returned:** 11 AGUILUZ, ENGRAM, FLEMING, FRANK, LEE, NAUM, ROBINSON, ROUSSEAU, SARGENT, TROUP, WRIGHT

1670-4 Log #CC4

( 4.5.5.1 )

**Final Action: Accept**

**Submitter:** Technical Committee on Technical Rescue

**Comment on Proposal No:** 1670-1

**Recommendation:** The Committee is revising 4.5.5.1 to read:

4.5.5.1 The authority having jurisdiction, as part of their hazard identification and risk assessment, shall determine the potential to respond to technical search and rescue incidents that might involve nuclear, biological, chemical agents, or weapons of mass destruction including those with the potential for secondary devices. These incidents can be caused by natural, accidental, or intentional means.

**Substantiation:** The Committee believes that this change clarifies the intent of the Committee on this section.

**Committee Meeting Action: Accept**

**Number Eligible to Vote:** 25

**Ballot Results:** Affirmative: 14

**Vote Not Returned:** 11 AGUILUZ, ENGRAM, FLEMING, FRANK, LEE, NAUM, ROBINSON, ROUSSEAU, SARGENT, TROUP, WRIGHT

1670-5 Log #1

( 5.3.2 (7.3.1.(2) ROP Draft )

**Final Action: Accept in Principle**

**Submitter:** Michael Dotson, Gulf Power Company

**Comment on Proposal No:** 1670-9

**Recommendation:** Delete the following text from 5-3.2:

“In addition, organizations operating at the operations level shall meet all requirements specified in Section 9-3.”

**Substantiation:** My business as in many others has a need for confined space rescue coverage that is of a frequent and recurring nature but is always in vessels such as tanks or boilers. We rarely ever enter trenches or for that matter would we utilize the same personnel to cover trench rescues. As a practical matter my organization in this location does not perform open excavations as a regular course of business. It would be time consuming and costly to add trench rescue to these rescuers, especially since the skills would never be practiced. I do however acknowledge the need for trench rescue personnel to need a knowledge of confined space rescue since most trenches meet the definition of a confined space. The converse however is far from true—Our confined spaces are never trenches.

**Committee Meeting Action: Accept in Principle**

**Committee Statement:** This change was made in the ROP draft. See Section 7.3.1.(2).

The text reads as follows:

7.3.1 Organizations operating at the operations level for confined space search and rescue incidents shall meet the requirements specified in Sections 7.2 and 7.3 and the following sections:

(1) Section 6.3 (operations level for rope rescue)

(2) Section 11.2 (awareness level for trench and excavation search and rescue)

**Number Eligible to Vote:** 25

**Ballot Results:** Affirmative: 14

**Vote Not Returned:** 11 AGUILUZ, ENGRAM, FLEMING, FRANK, LEE, NAUM, ROBINSON, ROUSSEAU, SARGENT, TROUP, WRIGHT

1670-6 Log #2

( 5.3.2 (7.3.1(2) ROP Draft )

**Final Action: Accept in Principle**

**Submitter:** Gregory Guthrie, Alabama Power Company

**Comment on Proposal No:** 1670-9

**Recommendation:** Delete the following sentence from 5-3.2:

“In addition, organizations operating at the operations level shall meet all requirements specified in Section 9-3.”

**Substantiation:** Agencies needing a confined space rescue capability need not necessarily be required to have a trench rescue capability. While nearly all trenches are confined spaces, all confined spaces are not trenches. There are many agencies that have confined spaces but no excavations and, therefore, have no need for trench rescue. The requirement for a trench rescue capability should be independently based on the required hazard analysis and risk assessment of that authority having jurisdiction (2-1.1). If not changed, the current requirement may place a financial hardship on those agencies needing a confined space rescue capability in the absence of excavations. This is mostly due to the cost of training and equipment required to maintain both capabilities. Agencies who have trenches within their jurisdiction should establish that need and acquire that capability. Those who do not, should not be required to do so.

**Committee Meeting Action: Accept in Principle**

Accept in Principle

**Committee Statement:** See the Committee action and statement on Comment 1670-5 (Log #1).

**Number Eligible to Vote:** 25

**Ballot Results:** Affirmative: 14

**Vote Not Returned:** 11 AGUILUZ, ENGRAM, FLEMING, FRANK, LEE, NAUM, ROBINSON, ROUSSEAU, SARGENT, TROUP, WRIGHT

1670-7 Log #4

( 6.3.3(g) (8.3.4(8) ROP Draft )

**Final Action: Accept in Principle**

**Submitter:** Carl Goodson, Action Training Systems, Inc

**Comment on Proposal No:** 1670-16

**Recommendation:** Add text to read as follows:

Procedures for performing extrication and disentanglement operations involving packaging, treating, and removing victims trapped in vehicles and/or machinery through the use of hand and power tools.

**Substantiation:** Current wording limits personnel in operations level organizations to using hand tools during extrication/disentanglement operations. Personnel in operations level organizations routinely use hydraulic, pneumatic, and electrical spreading, cutting, lifting and ram-type tools.

**Committee Meeting Action: Accept in Principle**

The Committee is revising 8.3.4 (8) to read:

Procedures for performing extrication and disentanglement operations involving packaging, treating, and removing victims trapped in vehicles and/or machinery through the use of hand and power tools.

**Committee Statement:** The Committee believes that this change will reflect current practice.

**Number Eligible to Vote:** 25

**Ballot Results:** Affirmative: 14

**Vote Not Returned:** 11 AGUILUZ, ENGRAM, FLEMING, FRANK, LEE, NAUM, ROBINSON, ROUSSEAU, SARGENT, TROUP, WRIGHT

1670-8 Log #CC1  
( A 8.3.4 (8) )

**Final Action: Accept**

**Submitter:** Technical Committee on Technical Rescue

**Comment on Proposal No:**1670-1

**Recommendation:** The Committee is creating an new Annex item A 8.3.4.(8) #15 to read:

(15) Proper and effective use of power tools such as,hydraulic, pneumatic, and electrical spreading, cutting, lifting and ram-type tools.

**Substantiation:** The Committee believes that this change is needed as a result of the Committee Action on Comment 1670- Log #4.

**Committee Meeting Action:** Accept

**Number Eligible to Vote:** 25

**Ballot Results:** Affirmative: 14

**Vote Not Returned:** 11 AGUILUZ, ENGRAM, FLEMING, FRANK, LEE, NAUM, ROBINSON, ROUSSEAU, SARGENT, TROUP, WRIGHT

1670-9 Log #CC6

( A.9.4.6.2(a), A.9.4.6.2(b) )

**Final Action: Accept**

**Submitter:** Technical Committee on Technical Rescue

**Comment on Proposal No:**1670-1

**Recommendation:** The Committee is adding Figures for Annex item A 9.4.6.2 Figures 9.4.6.2 (a) Watermanship/Skills Test and 9.4.6.2 (b) Basic Scuba Skills Evaluation. These Figures were left off the ROP Draft. (See Figures A.9.4.6.2(a) and A.9.4.6.2(b) on the following pages.)

**Substantiation:** The Committee is adding these Figures that were left off of the ROP Draft.

**Committee Meeting Action:** Accept

**Number Eligible to Vote:** 25

**Ballot Results:** Affirmative: 14

**Vote Not Returned:** 11 AGUILUZ, ENGRAM, FLEMING, FRANK, LEE, NAUM, ROBINSON, ROUSSEAU, SARGENT, TROUP, WRIGHT

1670-10 Log #3  
( Annex E )

**Final Action: Accept in Part**

**Submitter:** Jared Wicklund, Fire Engineering Books & Videos

**Comment on Proposal No:**1670-16

**Recommendation:** I am only e-mailing to recommend three titles to be considered as recommended reading for the 1670 standard and will be happy to send you review copies if you do not already have some. The titles are as follows:

Public Safety Diving by Walt “Butch” Hendricks and Andrea Zaferes, ISBN# 0-912212-94-2. Published in 2000 by Fire Engineering Books & Videos.

Ice Diving Operations by Walt “Butch” Hendricks and Andrea Zaferes, ISBN# 0-87814-843-4. Published in 2003 by Fire Engineering Books & Videos.

Surface Ice Rescue by Walt “Butch” Hendricks and Andrea Zaferes, ISBN# 0-912212-85-3. Published in 1999 by Fire Engineering Books & Videos

**Substantiation:** These titles are used by many professionals in the field that adhere to the 1670 Standard, and should be included as reference material as they are fully compliant with the existing standard. The authors are also active with NFPA standard development, and their books directly represent that fact.

**Committee Meeting Action:** Accept in Part

The Committee is Accepting in Part this Comment and adding to Annex K Surface Ice Rescue by Walt “Butch” Hendricks and Andrea Zaferes, ISBN# 0-912212-85-3. Published in 1999 by Fire Engineering Books & Videos

**Committee Statement:** The Committee believes that the other two references are in conflict the Section 9.4.6.3 and with the annex item A9.4.6.3 (10)

**Number Eligible to Vote:** 25

**Ballot Results:** Affirmative: 14

**Vote Not Returned:** 11 AGUILUZ, ENGRAM, FLEMING, FRANK, LEE, NAUM, ROBINSON, ROUSSEAU, SARGENT, TROUP, WRIGHT

## I.A.D.R.S. Annual Watermanship Test / Skills Test



### Annual Watermanship Evaluation Parameters

There are four exercises that evaluate stamina and comfort in the water, each rated by points. The diver must successfully complete all stations and score a minimum of 12 points to pass the test.

#### Stamina Exercise 1:      **500 yard Swim**

The diver must swim 500 yards without stopping using a forward stroke and without using any swim aids such as dive mask, swim goggles, fins, snorkel, or flotation device. Stopping or standing up in the shallow end of the pool at any point during this exercise will constitute a failure of this evaluation station.

<u>Time To Complete</u>	<u>Points Awarded</u>
Under 10 minutes	5
10 to 13 minutes	4
13 to 16 minutes	3
16 to 19 minutes	2
More than 19 minutes	1
Stopped or incomplete	Incomplete

#### Stamina Exercise 2:      **15 Minute Tread**

Using no swim aids and wearing only a swimsuit, the diver will stay afloat by treading water, drown-proofing, bobbing, or floating for 15 minutes, with hands only out of the water for the last 2 minutes.

<u>Performance Criteria</u>	<u>Points Awarded</u>
Performed satisfactorily	5
Stayed afloat, hands not out of water for 2 minutes	3
Used side or bottom for support at any time	1
Used side or bottom for support > twice	Incomplete

#### Stamina Exercise 3:      **800 yard Snorkel Swim**

Using a dive mask, fins, snorkel, and swimsuit (no BCD or other flotation aid) and swimming the entire time with the face in the water, the diver must swim nonstop for 800 yards. The diver must not use arms to swim at any time.

<u>Performance Criteria</u>	<u>Points Awarded</u>
Under 15 minutes	5
15 to 17 minutes	4
17 to 19 minutes	3
19 to 21 minutes	2
More than 21 minutes	1
Stopped at any time	Incomplete

#### Stamina Exercise 4:      **100 yard Inert Diver Rescue Tow**

Wearing full scuba equipment and breathing air, the diver must push or tow an inert diver wearing dive gear on the surface 100 yards nonstop without assistance.

<u>Performance Criteria</u>	<u>Points Awarded</u>
Under 2 minutes	5
2 to 3 minutes	4
3 to 4 minutes	3
4 to 5 minutes	2
More than 5 minutes	1
Stopped at any time:	Incomplete

Additional copies available at no charge via the International Association of Dive Rescue Specialists webpage. Visit [www.IADRS.org](http://www.IADRS.org)

Figure A.9.4.6.2(a)

## I.A.D.R.S. Annual Basic Scuba Skills Evaluation



Diver's Name: \_\_\_\_\_ Department: \_\_\_\_\_

Air Consumption: Start \_\_\_\_\_ psi / Finish \_\_\_\_\_ psi Time: Start \_\_\_\_\_ / Finish \_\_\_\_\_ / Total \_\_\_\_\_

Water Depth: \_\_\_\_\_ Pool / Open Water (circle one) Examiner: \_\_\_\_\_

Task grading: S = Satisfactory N = Needs Improvement (specify) N/A = Not Applicable (use for equipment only)

### Equipment Handling and Set-Up

- \_\_\_\_\_ - properly assembles equipment (basic gear / specialty gear)
- \_\_\_\_\_ - shows familiarity and comfort with equipment
- \_\_\_\_\_ - properly protects equipment (i.e. tank valve / regulator)
- \_\_\_\_\_ - review (line & hand signals / air consumption rates / buddy awareness / emergencies / diver log)

### Watermanship Skills

- \_\_\_\_\_ - 500 yard continuous forward stroke swim - no swim aids for time (refer to grading criteria)
- \_\_\_\_\_ - 15 minute tread / last 2 minutes with hands out of water (refer to grading criteria)
- \_\_\_\_\_ - 800 yard snorkel swim (refer to grading criteria)
- \_\_\_\_\_ - 100 yard inert diver rescue tow (refer to grading criteria)

### Skin Diving Skills

- \_\_\_\_\_ - mask clearing
- \_\_\_\_\_ - snorkel clearing (popping & expansion)
- \_\_\_\_\_ - snorkel without mask (led by partner, 1 lap)
- \_\_\_\_\_ - fin kicks (flutter / dolphin) one length each, using mask and snorkel
- \_\_\_\_\_ - in water surface dives (head first / feet first)

### SCUBA Diving Skills

- \_\_\_\_\_ - entries (giant stride / seated or controlled entry)
- \_\_\_\_\_ - neutral buoyancy control (oral / power) inflation
- \_\_\_\_\_ - dry suit buoyancy control and emergency procedures (i.e. hose disconnect or flooding)
- \_\_\_\_\_ - regulator clearing (blowing / purging) and retrieval
- \_\_\_\_\_ - regulator without mask (led by partner, 1 lap)
- \_\_\_\_\_ - full face mask (removal / switch to regulator / clearing full face mask / replace full face mask)
- \_\_\_\_\_ - descent procedures (signal / check time & air / raise inflator hose / feet first descent / clear ears)
- \_\_\_\_\_ - ascent procedures (signal / check time & depth / + buoyancy / raise inflator hose / ascend @ 20ft/min)
- \_\_\_\_\_ - air sharing at depth and during ascent
- \_\_\_\_\_ - buddy breathing at depth and during ascent
- \_\_\_\_\_ - emergency swimming ascent procedures (simulate out of air / signals / ascends / continuous exhaling / surfaces / inflates BC orally using bobbing technique)
- \_\_\_\_\_ - emergency buoyant ascent procedures (simulate out of air / signals / drops weights / ascends / continuous exhaling / surfaces / inflates BC orally using bobbing technique)
- \_\_\_\_\_ - weight belt (removal / replacement) on surface and bottom
- \_\_\_\_\_ - buoyancy control device (removal / replacement) on surface and bottom
- \_\_\_\_\_ - OPTIONS: Blackout Mask / Night Dive / Navigation / Confidence Obstacle Course

### Performance

Comments: \_\_\_\_\_  
 \_\_\_\_\_

### Equipment Care and Storage

- \_\_\_\_\_ - properly disassembles equipment
- \_\_\_\_\_ - cleans and restores equipment properly

Additional copies available at no charge via the International Association of Dive Rescue Specialists webpage. Visit [www.IADRS.org](http://www.IADRS.org)

Figure A.9.4.6.2(b)