

**NOSAC**  
**Diving Subcommittee**  
**46 CFR 197 Sub Part B**  
**General Revision Recommendations**  
**April 18, 2008**

**Introduction**

On April 16, 2007 the Diving Sub-Committee of NOSAC was requested to review and present recommendations with respect to 46 CFR 197, Sub Part B, Commercial Diving Operators paying special attention to the USCG Headquarters proposed Draft Revision. These regulations were written in 1977 with this being the first formal review by NOSAC. This review was performed by industry professionals experienced in diving operations as well as routine offshore oil industry practice. These recommendations represent large and independent oil producers, diving contractors, and diving trade organizations such as ADCI (Association of Diving Contractors International) and IMCA (International Marine Contractors Association) with work operations in the Gulf of Mexico as well as other OCS areas.

**General Comments and Recommendations**

As a forward to specific notation and recommendations, the diving sub-committee offers the following general observations:

- 46 CFR 197 Sub Part B was developed in 1977 with industry but current Recommended Practices such as those presented by IMCA and ADCI, representing companies actively involved in diving operations and safety have progressed well beyond this initial input for the writing of the regulation. These RP's should be considered in the development of revised regulations. However, 46 CFR 197 Subpart B should remain the standard for the OCS as a USCG developed document.
- Innovation in diving safety is paramount especially from a pro-active standpoint as opposed to a reactive one. However, being overly prescriptive in the regulatory standard will suppress this innovation and could work to the detriment of diving safety.
- Drug usage, either legal or illegal, and the overall testing of individual use have a wide variance of acceptance and compliance either by company or lawful standards. The Department of Transportation has already successfully implemented standards that have been accepted by various industries as a working minimum standard for use and testing. This standard should be seriously considered with respect to addressing Drug/Alcohol usage in this rewrite.

- Clarity in defining commercial versus recreational diving in offshore operations should be enhanced. Determination as to when recreational diving has evolved into commercial diving should be developed.
- Diving operations have become more specialized in today's offshore environment. Mixed gas and saturation diving safety are distinctly different as well as diving from dynamically positioned versus moored/live boating vessels. Each operation should be reviewed individually as opposed to being recognized as a different level of operations.
- Audits would be of great benefit but they should be developed, implemented, and performed by industry in order to ensure full considerations of the operation in that geographical area.
- Training and its frequency should not be limited to just experience or classroom instruction but a balanced combination of both as prescribed by Industry Recommended Practices.
- It is recommended that SCUBA not be recognized as an Offshore Commercial Diving application.
- Bell diving should be clarified to reflect "Wet Bell" Diving where referenced.
- This cooperative effort between the USCG and Industry should not be concluded with the presentation of these recommendations by NOSAC.

### **Conclusion**

As noted above, this recommendation should not be the end of the cooperative effort to revise 46 CFR 197 Subpart B between USCG and Industry. Since 1977, offshore commercial diving operations have changed dramatically. Efforts to conform more to current recommended procedures and operations as they are reviewed and presented by organizations like ADCI and IMCA on behalf of industry should be seriously considered. Specific recommendations by this NOSAC subcommittee have been attached to this General Recommendation with respect to USCG recommended changes but should be reviewed again by a task force led by the Coast Guard with Industry to insure that regulations are tailored to the newer shelf and deep water diving operations as they exist today and as they are evolving world wide. It is imperative, however, that these efforts be focused on the OCS with the major emphasis on the Gulf of Mexico and its geographical working environment.

NOSAC - Diving Subcommittee Recommendations  
**Title 46 CFR 197 Subpart B - Commercial Diving Operations**  
 (June 12, 2007 USCG Draft)

General Provision	Recommended as Worded	Remove Modify Add			Comments
		Remove	Modify	Add	
200 Existing	X				
201 Added	X				
202 Existing	X				
203 Existing	X				
204 Existing			X		See Footnote 1
205 Added			X		
206 Added			X		
207 Added	X				
208 Added		X			It is recognized that auditing of Diving Contractor compliance should be a requirement addressed in the new standards, however it is the consensus of the NOSAC diving committee that auditing of Diving Contractor's to ensure they are in compliance with the new USCG regulations should be left to qualified auditors that are already doing compliance auditing on a world wide basis and that there isn't a need to create a verification industry as one already exists. Other than stating, what are the minimum qualifications for various levels of auditing, as in 192.210, the format as set out in technical trade organizations as Recommended Practices can provide the basic structure for defining a person qualified to audit compliance with the USCG Standards. It should also be noted that any effort to include auditing in this standard should be a part of an Appendix and not part of the standard itself.
209 Added		X			
210 Added		X			
211 Added		X			
212 Added		X			
213 Added		X			
214 Added		X			
215 Added		X			
216 Existing		X			
217 Existing	X				
218 Existing			X		Other elements of auditing should be covered in a requirement for all Contractor's to have a Safety Management System (SMS) in place which outlines all the required audits and describes how the Contractor will address all safety requirements for diving safety and all auditing requirements could be the introductory chapter of their Diving Safety Manual.
<b>Personnel Physical Standards</b>					
250 Added					Omit Para. ( b ), renumber ( c ) to ( b ), and omit "and a Coast Guard Recognized Standard (CGRS)" in ( d ).  Add "by the diving contractor" in ( a ) and after "person-in-charge" add "as defined above"  Omit the word "initial" in ( b ). Completely rewrite after USCG/Industry review Add "Medical" to Certification and Verification. Omit "Employer"
251 Added	X				
252 Added	X				
253 Added	X				
254 Added	X				
<b>Personnel Qualifications</b>					
300 Added					Omit ( b ) and ( c ). Who determines "lacking"? See Footnote 2
301 Added	X				
302 Added	X				



**Title 46 CFR 197 Subpart B - Commercial Diving Operations**  
(June 12, 2007 USCG Draft)

	Recommended as Worded	Remove	Modify	Add	Comments
303	Added			X	Omit "undertake a minimum of 24 hours of" and "and conduct not less than twelve dives of which at least six are surface-supplied air". Modify to read "shall participate in a continuing education of documented training or instruction on topics relevant to their employment".
304	Added			X	Omit "undertake a minimum of 24 hours of" and "and conduct not less than twelve dives of which at least six are surface-supplied mixed-gas". Modify to read "shall participate in a continuing education of documented training or instruction on topics relevant to their employment".
305	Added			X	Omit "undertake a minimum of 24 hours of" and "and conduct not less than twelve dives of which at least three are diving bell or saturation". Modify to read "shall participate in a continuing education of documented training or instruction on topics relevant to their employment".
306	Added			X	Replace ( a ) ( b ) ( c ) and ( d ) (iii) with "Annually each individual employed as a Diving Supervisor - Surface-Supplied Air Diving - Surface-Supplied Mixed-Gas Diving Supervisor - Bell/Saturation Diving Supervisor, regardless of date of initial employment in the industry, shall participate in a continuing education of documented training or instruction on topics relevant to their employment".
307	Added			X	Replace ( a ) (iii) with "Annually each individual employed as a Life Support Technician, regardless of date of initial employment in the industry, shall participate in a continuing education of documented training or instruction on topics relevant to their employment".
<b>Equipment Provision</b>					
350 Was 300		X			Omit ( b ) ( d ) ( e ) ( f ) ( h ) ( i ) ( j ) ( k - all ) ( l ) and ( m - all )
351 Added			X		Omit ( c ) already included in 456 In ( c ) omit "mixed-gas dives"
360 Was 310			X		
362 Was 312			X		
364 Was 314			X		
368 Was 318			X		
370 Was 320			X		In ( a ) ( 1 ) end statement after "outfitted divers": In ( b ) ( 1 ) end statement after "fully outfitted divers". Omit ( b ) ( 4 ) ( i )
372 Was 322			X		
374 Was 324			X		
376 Was 326			X		
378 Was 328			X		
380 Was 330			X		Add "( 3 ) A designated attachment point" In ( a ) add "and cleaned" after "designed". Replace in ( d ) ( 14 ) "25%" with "23%". Replace in ( d ) ( 15 ) "2" with "1"
382 Was 332			X		
384 Was 334			X		
386 Was 336			X		
388 Was 338			X		
390 Was 340			X		
392 Was 342			X		
394 Was 344			X		
396 Was 346			X		
398 Added				X	Under ( a ) add "and ASME Code" Omit ( 2 ) Change ( h ) ( ii ) to "10" ppm CO <sub>2</sub>
399 Added				X	Remove ( a ) ; remove ( b ) Rename to "Underwater Water and Burning Operation"; delete ( a ) ( c ) ( d ) ( e ) ( f ) ( g ) and ( h ) Rename to "Underwater High Pressure Water Blasting Operation"; delete ( a ) ( c ) ( d ) ( e ) ( f ) ( g ) and ( h )

# Title 46 CFR 197 Subpart B - Commercial Diving Operations

(June 12, 2007 USCG Draft)

Operations Provision	Applicability	Responsibilities of the Person-In-Charge.	Responsibilities of the Diving Supervisor.	Dive Procedures.	Operations Manual.	Operational Staffing	Emergency Rescue Drills.	Performing Comm. Diving Ops. under the Influence of Alcohol or a Dangerous Drug.	Specific Diving Mode Procedures Provision	SCUBA Diving	Surface-Supplied Air Diving.	Surface-Supplied Mixed-Gas Diving.	Liveboating.	Dynamic Positioned (DP) Vessel Diving Operations	Periodic Tests and Inspections of Diving Equipment Provision	Breathing Gas Tests.	Oxygen Cleaning.	First Aid and Treatment Equipment.	Breathing Supply Hoses.	Gages and Timekeeping Devices.	Diving Equipment.	Pressure Vessels and Pressure Piping.
400 Existing	X																					
402 Existing																						
404 Existing																						
410 Existing																						
420 Existing																						
421 Existing																						
425 Existing																						
427 Existing																						
430 Existing																						
432 Existing																						
434 Existing																						
436 Existing																						
438 Added																						
450 Existing																						
452 Existing																						
454 Existing																						
456 Existing																						
458 Existing																						
460 Existing																						
462 Existing																						

Comments

Remove ( c )

In ( b ), replace "...utilize Operation Risk Management (ORM) incorporating hazard identification, hazard assessment, making of risk decisions, control implementation and supervision" with "...insure that a SMS is in place, reviewed, and being implemented with respect to the proposed operation."

Modify (iv) to include "Emergency equipment should be available and in good working order." Remove , except that SCUBA divers shall maintain their own profiles". ( h ) should be replaced with "A single Bell Diving minimum team size is 12, supporting two bell divers on one bell run and the appropriate chamber operation for the safe running of the operation and will include a bell diving supervisor, appropriate life support personnel, technicians, standby divers and tenders."

Add to ( a ) "Manning levels and working hours for all diving projects should be based on a review of each project by Contractor and Client and be consistent with existing Labor law standards." ( e ) should be revised to include consideration of a depth limit and the task specifics if the dive team only has 3 members. ( f ) should be modified from "130" FSW to "100" FSW. This topic should be addressed in the Contractor's Diving (Safety) Manual.

Add "( a ) Contractor shall develop emergency procedures specific for each type of diving done by the company." Renumber section. Additional emphasis should be made for periodic drills to include the recovery of an injured or unconscious diver and deployment of the HRC for companies engaged in saturation diving operations. This topic should be addressed in the Contractor's Diving (Safety) Manual. Refer to DOT

Recommended that SCUBA not be recognized as an Offshore Commercial Diving operation. Remove in ( 4 ) ; except when the diver is using a heavy weight diving outfit or is diving in a physically confining space"

MAJOR REWRITE NEEDED with industry input. Lack of clarity due to modern operations. In ( c ) ( 1 ) replace "220" with "170". Period after "decompression", remove "times greater than 120 minutes; and"

See Attachment 1

In (a) (1), change "24" to "12".

# Title 46 CFR 197 Subpart B - Commercial Diving Operations

(June 12, 2007 USCG Draft)

Records Provision	Recommended as Worded			Comments
	Add	Modify	Remove	
480 Existing		X		
482 Existing		X		
483 Added		X		
484 Existing		X		
486 Existing		X		
488 Existing		X		
490 Added		X		
(was noted as 483 also)				
Logbooks.		X		
Logbook Entries.		X		
Termination of Site Diving Activity Following a Casualt		X		
Notice of Casualty.		X		
Written Report of Casualty.		X		
Retention of Records after Casualty.		X		
Retention of Equipment after Casualty.		X		
				In (b) (9), change "130" to "100".



# NOSAC - Diving Subcommittee Recommendations Title 46 CFR 197 Subpart B - Commercial Diving Operations

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## Footnotes

<sup>1</sup> - Add a definition for recreational diver for clarity purposes

- Omit definitions for CPR Training, Dangerous drug, drug, Fails a chemical test for Dangerous drugs High Pressure Compressor, Injurious corrosion, Law enforcement officer, Low Pressure Compressor, Medical Review Officer (MRO), Pressure vessel, and Senior Company Official.

- Modify "Decompression sickness" to add the term "Baro-Trauma" to the definition as a description of decompression.

- Modify "PVHO" to read "means pressure vessel for human occupancy."

- Add "LST (Life Support Technician) - employed to primarily control and constantly monitor the hyperbaric environment and system in which divers live while saturation diving."

- Modify "Surface-supplied air diving" to exclude "including oxygen or oxygen enriched air if supplied for treatment."

- Modify "Umbilical" to read "... that supplies the diver or bell with a strength member, breathing medium, communications, power, and heat as appropriate to the diving mode or conditions."

<sup>2</sup> - Replace "a Tender/Scuba" with "an entry level Tender/Diver"

- Add ":", after "minimum training". Omit "at an accredited school, company training program, or U.S. military diving training facility:"

- Omit "(ii)" and "(iv)"

- Replace "Diseases, Injuries, and Psychological Aspects" with "Medicine and Physiology"

- Omit "and Cardio-Pulmonary Resuscitation (CPR)" in (vii). CPR is currently a part of First Aid but technique is constantly changing.

- Replace "and Associated Equipment" with "Operations" in (x).

- Omit "Scuba" in (xi) and (xii).

## ATTACHMENT 1

### § 197.438 Dynamic Positioned (DP) Vessel Diving Operations

(a) During DP operations, the person-in-charge shall insure that—

(1) Diving is not conducted in shallow depths, proximity to other vessel/rigs or seas that impede station-keeping ability of the vessel with no single thruster operating at more than 80 percent power;

(2) All diving and vessel operations shall be performed to best industry practices. (See ADCI, IMCA documents)

(3) DP will have three data sources for station keeping from at least two different sources.

(a) DP data sources should not be blocked by any orientation of the vessel.

(b) Vessel DP system should be a Class 2 or better.

(4) Two sources of communication between the vessel bridge/DP station and dive control, with minimum communication of at least the following:

(a) Intention to move vessel.

(b) Any change in operational status.

(c) Any forecast or actual significant changes in weather.

(d) Ship movements in vicinity. (landing helicopters included)

(e) Intention to handle down-lines of any description.

(f) Major deck operations (lifting)

(g) Start and stopping of dive operations

(5) DP status light system in dive control (Green, Yellow, Red), with override equipped audible alarm for Red status.

(a) Green status, normal dive operations

(b) Yellow status, secure dive operations and start the recovery of the diver.

(c) Red status, immediately recover the diver.

(6) Divers umbilical to be physically secured at a length 16 ft (5 m) short of the nearest thruster, Standby divers umbilical to be physically secured at a length of 6 ft (3 m) short of the nearest thruster.

(a) Safe umbilical length calculations and diagrams for each vessel, each dive station, and depths at 30 ft (10 m) intervals will be performed and inserted in project procedures.

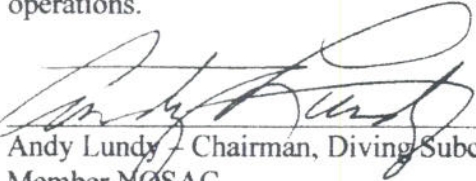


**NOSAC**  
**Diving Subcommittee**  
**46 CFR 197 Sub Part B**  
**Revision Recommendations Acknowledgements**  
**April 18, 2008**

The following individuals were members and participated in the review of 46 CFR 197 Sub Part B on behalf of NOSAC for the USCG:

Alan Allred	Aker Marine Contractors
Bill Crowley	President / Association of Diving Contractors International (ADCI) General Manager Equipment / Cal Dive International NOSAC Committee Member - Diving
Phil Newsum	Executive Director / Association of Diving Contractors International (ADCI)
Paul Woodhall	GoM Diving & Subsea Specialist / BP
Collin Morrison	HES Specialist / Chevron
Jane Bugler	Technical Director / International Marine Contractor Assoc. (IMCA)
Hugh Williams	Chief Executive / International Marine Contractor Assoc. (IMCA)
Andy Lundy (Chair)	District Production/Ops. Eng. / McMoRan Oil & Gas, LLC NOSAC Committee Member - Production
Jack Couch	Technical Manager / Oceaneering International, Inc.

These participants, through the course of 7 separate meetings this past year and in excess of 40 hrs. away from their regular daily responsibilities, reviewed and worked toward general agreement on the recommendations for revising 46 CFR 197 Sub Part B, provided to the USCG on behalf of NOSAC. The professionalism and cooperation of the diving industry technical organizations was exemplary and this collective expertise provided the foundation for not only the development of these recommendations but also a path forward for continuing the review and input as deemed necessary by the USCG with respect to not only this regulation but overall diving safety in general. This effort by these organizations will certainly affect diver safety in a very positive way at all levels of diving operations.

  
Andy Lundy - Chairman, Diving Subcommittee  
Member NOSAC