Naval Education and Training Command | **NAVEDTRA 130B September 2009** | **Support Manual for MIL-HDBK-29612-2A**

TASK BASED CURRICULUM DEVELOPMENT MANUAL
VOLUME II SAMPLE PRODUCTS

DEPARTMENT OF THE NAVY
NAVAL EDUCATION AND TRAINING COMMAND
250 DALLAS STREET
PENSACOLA, FL 32508

1500
Ser N00/ 337
AUG 13 2009

LETTER OF PROMULGATION FOR NAVEDTRA 130B

1. This guidance manual has been extensively revised. Most of the revisions are in response to user comments and reflect a continuing effort to increase the manual's utility to the training field. NAVEDTRA 130B, Volumes I-III, supersedes and replaces NAVEDTRA 130A, dated July 1997.

2. The procedures in this manual follow a Task Based Curriculum Development method. This manual is intended for use by military, civil service, and contractor personnel engaged in Navy training materials development and modification.

3. Procedural guidance for development of training materials following a Personnel Performance Profile based method is published in NAVEDTRA 131 (Series).

4. This publication is available electronically at: Navy Knowledge Online (NKO) - NETC N74 Learning Standards Homepage; and Navy Marine Corps Intranet's (NMCI) Total Records and Information Management (TRIM).

5. Corrections and comments concerning this manual are invited and should be addressed to the Naval Education and Training Command, attention: N7.

6. Reviewed and approved.

G. R. JONES

PUBLISHED BY DIRECTION OF COMMANDER NAVAL EDUCATION AND TRAINING

TAB A-1

TRAINING PROJECT PLAN

TRAINING PROJECT PLAN

FOR

NAVY SCUBA DIVER

A-433-0023A

PREPARED FOR

DIRECTOR, LEARNING AND DEVELOPMENT (NETC N7)
9549 BAINBRIDGE AVE
NORFOLK, VIRGINIA 23511-2612

PREPARED BY

NAVAL DIVING AND SALVAGE TRAINING CENTER
PANAMA CITY, FLORIDA 32407

SEPTEMBER 2009

TRAINING PROJECT PLAN

TABLE OF CONTENTS

TRAINING PROJECT PLAN

A. COURSE DATA

CIN: A-433-0023A ___ ____X___ _____
New Revision Cancel

CDP (s): **Training Site (s)**:

1. 087R Mobile Diving and Salvage Unit Two
Little Creek, Virginia 23521

2. 031Y Naval Amphibious School Coronado,
California 92155

*3. 6419 Naval Diving and Salvage Training Center
Panama City, Florida 32407

4. 2114 Naval Submarine Training Center, Pacific
Pearl Harbor, Hawaii 96860

(* = Course Curriculum Model Manager)

Training Type: C

Note: Training types would include A, C, F, T, etc… Training type amplification can be found within NAVEDTRA 135B.

Work Center: NA

Note: This identifies area of responsibility within a Learning Center/Site. Not used in all Learning Centers/Sites.

Course Mission Statement: The SCUBA Diver course is designed to provide qualified personnel with the basic training necessary to qualify as a SCUBA diver, perform as a dive team member to plan and conduct open circuit SCUBA diving operations including inspection of major hull components. Diving operations includes underwater searches, underwater maintenance and preparation of records and reports. Conduct initial treatment of diving related injuries. Inspection and maintenance is performed on open circuit SCUBA equipment and accessories along with charging of SCUBA cylinders. Day and night diving operations will be conducted from a shore installation and open water to a qualification depth of 130 FSW.

(1)

Occupational Classification/Prerequisites: NEC 5345/There is no prior training prerequisites for this course. Service and physical requirements are in CANTRAC.

Course Overview:

Instruction includes:

Diving physics and medicine.
Buoyant and free ascent procedures.
Underwater search procedures.
Work techniques using open circuit SCUBA.
Graduates are qualified to a maximum depth of 130 feet.

Learning Site(s) Summary:

1. Mobile Diving Course and Salvage Unit Two

	Course Length	Class Capacity	Class Convenings	AVG OnBoard	Student Throughput
Current:	26	18	7	8.98	126
Planned:	0	0	0	0.00	0

2. Naval Amphibious School

	Course Length	Class Capacity	Class Convenings	AVG OnBoard	Student Throughput
Current:	26	25	8	14.25	200
Planned:	0	0	0	0.00	0

3. Naval Diving and Salvage Training Center

	Course Length	Class Capacity	Class Convenings	AVG OnBoard	Student Throughput
Current:	26	25	9	16.03	225
Planned:	40	25	13	35.62	325

4. Naval Submarine Training Center, Pacific

	Course Length	Class Capacity	Class Convenings	AVG OnBoard	Student Throughput
Current:	26	25	7	12.47	175
Planned:	40	25	12	32.88	300

NOTE: Course Length is in calendar days. "Current" course length is frequently extended by several calendar days at all sites due to bottlenecks caused by training sections exceeding the number of authorized instructors.

NOTE TO READER: The information provided in this sample TPP has been constructed to illustrate the requirements of this manual and governing instruction. It is based on the SCUBA course but does not represent the actual course.

B. JUSTIFICATION:

1. Reference: None.

2. Reason for revision: A course revision is required to support changes to Team Member/SCUBA Diver procedures including:

   a. Modifications in sea rescue procedures and equipment needs.

   b. Increased safety requirements mandated for sea divers and operators/maintainers.

   c. Requirements to reduce maintenance problems with diving equipment.

   d. Due to service downsizing annual student throughput will decrease from 726 to 625. This course will be cancelled at:

      Amphibious School, Coronado
      Mobile Diving and Salvage Unit Two

   e. Course length at the two remaining sites will be increased from 26 calendar days to 40 calendar days to support the increased training requirements.

   f. The current course at all sites has excessive "bottleneck" periods due to instructor shortfalls. Qualified instructors must frequently be borrowed from other courses to minimize bottlenecks. The revised course will support an adequate number of instructors to eliminate bottlenecks in training.

3. Change directives:

   a. OPNAV ltr Ser 4321 of 1 September 1989.

b. NAVSAFECEN bulletin 8790 of 13 October 1989.

c. FLETAP report C89-08.

d. NETPDTC Training Importance Survey "U.S. Navy Diver"

4. Summary of Differences: This course will be cancelled at Amphibious School, Coronado and Mobile Diving and Salvage Unit Two.

5. Impact If Not Approved:

Continuation with the existing course, while shorter and with a greater annual throughput, means teaching maintenance of new SCUBA equipment in a cursory manner. Also, less time spent in the water, lessening the proficiency of graduates.

Given the hazardous nature of this occupation, this places graduates at serious risk, and places the burden of expanded training in the unstructured OJT environment. Extended graduation dates due to course bottlenecks will continue to negatively impact the Navy’s Individuals Account.

C. SAFETY RISKS AND HAZARDOUS MATERIALS:

This course will be designated as high risk in accordance with NETCINST 5100.1. Special emphasis must be placed on strict compliance with published safety precautions and on personal awareness of potentially hazardous conditions peculiar to diving. All personnel must have a comprehensive knowledge of emergency procedures which prescribe courses of action to be followed in the event of equipment failure or human error. Strict adherence to approved and verified operating, emergency, and maintenance procedures is MANDATORY. As a minimum, each individual is responsible for knowing, understanding, and observing all applicable precautions.

D. CURRICULUM DEVELOPMENT METHOD:

1. The following documents will be developed in support of this course in accordance with NAVEDTRA 130B.
2. The documents that will be produced for this course will be as follows:

a. Training Project Plan.

b. Training Task List.

c. Training Course Control Document.

d. Lesson Plan.

e. Trainee Guide.

f. Knowledge/Performance Tests and Administrator's Guides.

g. Instructional Media Materials.

h. Testing Plan.

3. The primary mode of instruction:

The primary mode of instruction will be group-paced consisting mainly of lecture, in-water, and land laboratory periods with practical problem solving experiences. The trainees will be guided by the instructors during problem solving sessions to allow maximum acquisition of knowledge and skills.

E. RESOURCE REQUIREMENTS:

SITE: MOBILE DIVING AND SALVAGE UNIT TWO
CPATS Document #: None - Non NETC activity
Cost Account Code: None

Manpower

	FY2009	FY2010	FY2011	FY2012	FY2013
Officer Billets Required	1	1	0	0	0
Billets Authorized	1	1	1	1	1
Billets Compensated	0	0	0	0	0
Billets Available	1	0	1	1	1
Delta	0	0	1	1	1
Enlisted Billets Required	3	3	0	0	0
Billets Authorized	3	3	3	3	3
Billets Compensated	0	0	3	3	3
Billets Available	0	0	0	0	0
Delta	0	0	0	0	0

NOTE: Enlisted billets compensated reflects course cancellation at this site in FY2011 and reassignment of instructors to NAVDIVESALVTRACEN.

Civilian Billets Required			0	0	0	0
Billets Authorized			0	0	0	0
Billets Compensated			0	0	0	0
Billets Available			0	0	0	0
Delta			0	0	0	0
OPN	F3/FF	D	$0	$0	$0	$0	$0

(7)

Training Equipment

Funding

Approp	AG/SAG	Expense	FY2009	FY2010	FY2011	FY2012	FY2013
OMN	F3/FF	E	$0	$0	$0	$0	$0

Facilities: No additional MILCON requirements, special projects renovations, or base operations support required to cancel this course at MOBDIVSALVU TWO.

SITE: MOBILE DIVING AND SALVAGE UNIT TWO

Site Consideration: Currently, this site has adequate equipment to support a class size of 18 plus 3 instructors. Upon cancellation of the course at Mobile Diving and Salvage Unit Two all equipment will be available for redistribution to NAVDIVESALVTRACEN and NAVSUBTRACENPAC.

Publications

No.	Number	Title	Supplier	QTY REQ'D	QTY O/H	QTY Short
1.	AIG-239	Diver's Advisory		25	25	0
2.	OPNAVINST 3150.28	Diving Log		150	150	0
3.	NA	Equipment PMS		1	0	1
4.	NA	Equipment technical/maintenance manuals		1	0	1
5.	NAVSEAINST 10560.2C	Instruction		1	0	1
6.	OPNAVISNT 5102.1C	Instruction		1	0	1
7.	SS-710AA-MMO-010	Life Preserver, Mk 4		1	0	1
8.	NAVSEA 10560.2A	List of Approved Diving Equipment		25	25	0
9.	NA	Locally prepared job sheets		1	0	1
10.	NA	NAVSHIPS Technical Manual		1	0	1
11.	BUPERS Manual	Navy Military Personnel Command Manual		1	0	1
12.	OPNAV 5100 Series	Safety Precautions for Forces Afloat		3	3	0
13.	NAVSEA NDM	U.S. Navy Diving Manual, Vol I	NAVSEA 0994-LP-001-9010	25	25	0
14.	NAVSEA UWT	Underwater Work Techniques, Vol 1	NAVSHIPS 0994-007-8010	25	25	0
15.	NAVSEA UWT	Underwater Work Techniques, Vol 2	NAVSHIPS 0994-007-8010	30	0	30
16.	S9086-CQ-STM-010/ CH-081 R2	Waterborne Underwater Hull Cleaning of Navy Ships, Chapt, 081	NAVSHIPS 0901-LP-081-0010	25	25	0

NOTE TO READER: This is a representation of publications available for redistribution.

Training Equipment

No.	Type/Nomenclature	Part Number	QTY COG/NIIN/SMIC	QTY AAC	QTY REQ'D	O/H	Short	CAGES U/I	M&R Unit Cost	Technical Code	Code	Reference
1.	Compass, wrist, non-magnetic		1HM-6605-00-079 007 ED		25	49	0	ea	$75.00			NAVSEAINST 10560.2
2.	Cylinder, SCUBA Twin 80	0765-80 (Black)	9C-4220-00-058 1609		25	25	0	ea	$125.00			NAVSEAINST 10560.2
3.	Gage, depth, MK 1 Magnetic		1H-4220-00-639 8999		25	53	0	ea	$75.00			NAVSEAINST 10560.2
4.	Life preserver, MK 4	4053604	1H-4220-01-213 3533		25	24	1	ea	$147.00			NAVSEAINST 10560.2

NOTE TO READER: No Training Materials required. Course will be cancelled at this site before the revised curriculum is implemented.

SITE: NAVAL AMPHIBIOUS SCHOOL
CPATS Document #: 91 63018 63018 S332/89 64018 63018/2156
Cost Account Code: 5WBC

Manpower

	FY2009	FY2010	FY2011	FY2012	FY2013
Officer Billets Required	1	1	0	0	0
Billets Authorized	1	1	1	1	1
Billets Compensated	0	0	0	0	0
Billets Available	0	0	1	1	0
Delta	0	0	1	1	1
Enlisted Billets Required	5	5	0	0	0
Billets Authorized	5	5	5	5	5
Billets Compensated	0	0	5	5	5
Billets Available	0	0	0	0	0
Delta	0	0	0	0	0

NOTE: Enlisted billets compensated reflects course cancellation at this site in FY2011 and reassignment of instructors to NAVSUBTRACENPAC.

Civilian Billets Required	0	0	0	0	0
Billets Authorized	0	0	0	0	0
Billets Compensated	0	0	0	0	0
Billets Available					
Delta	0	0	0	0	0

Funding

Approp	AG/SAG	Expense	FY2009	FY2010	FY2011	FY2012	FY2013
OMN	F3/FF	E	$0	$0	$0	$0	$0
OPN	F3/FF	D	$0	$0	$0	$0	$0

Facilities

Special Projects 90-03-801 equipment storage space renovation - $17.5K.

SITE: NAVAL AMPHIBIOUS SCHOOL

Site Consideration:

Currently, with a class size of 25 plus 5 instructors there is insufficient equipment. However, class size has not exceeded 18. Upon cancellation of this course at all of the Naval Amphibious schools, training equipment will be available for redistribution to NAVDIVESALVTRACEN and NAVSUBTRACENPAC.

Publications

No.	Number	Title	Supplier	QTY REQ'D	QTY O/H	QTY Short
1.	AIG-239	Diver's Advisory		1	1	0
2.	OPNAVINST 3150.28	Diving Log		400	400	0
3.	NA	Equipment PMS		1	0	1
4.	NA	Equipment technical/maintenance manuals		1	0	1
5.	NAVSEAINST 10560.2C	Instruction		1	0	1
6.	OPNAVISNT 5102.1C	Instruction		1	0	1
7.	SS-710AA-MMO-010	Life Preserver, Mk 4		65	65	1
8.	NAVSEA 10560.2A	List of Approved Diving Equipment		45	45	0
9.	NA	Locally prepared job sheets		1	0	1
10.	NA	NAVSHIPS Technical Manual		1	0	1
11.	BUPERS Manual	Navy Military Personnel Command Manual		1	0	1
12.	OPNAV 5100 Series	Safety Precautions for Forces Afloat		1	1	0
13.	NAVSEA NDM	U.S. Navy Diving Manual, Vol I	NAVSEA 0994-LP-001-9010	50	50	0
14.	NAVSEA UWT	Underwater Work Techniques, Vol 1	NAVSHIPS 0994-007-8010	50	50	0
15.	NAVSEA UWT	Underwater Work Techniques, Vol 2	NAVSHIPS 0994-007-8010	30	0	30
16.	S9086-CQ-STM-010/ CH-081 R2	Waterborne Underwater Hull Cleaning of Navy Ships, Chapt, 081	NAVSHIPS 0901-LP-081-0010	50	50	0

NOTE TO READER: This us a representation of publications available for redistribution.

Training Equipment

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	QTY REQ'D	QTY O/H	QTY Short	U/I	Unit Cost	CAGES Code	M&R Code	Technical Reference
1.	Compass, wrist, non-magnetic		1HM-6605-00-079 007 ED		34	34	0	ea	$75.00			NAVSEAINST 10560.2
2.	Cylinder, SCUBA Twin 80	0765-80 (Black)	9C-4220-00-058 1609		34	28	6	ea	$125.00			NAVSEAINST 10560.2
3.	Gage, depth, MK 1 Magnetic		1H-4220-00-639 8999		34	27	7	ea	$75.00			NAVSEAINST 10560.2
4.	Life preserver, MK 4	4053604	1H-4220-01-213 3533		34	28	6	ea	$147.00			NAVSEAINST 10560.2

NOTE TO READER: This is only a representation of the equipment available for redistribution.

NOTE TO READER: No Training Materials required. Course will be cancelled at this site before the revised curriculum is implemented.

SITE: NAVAL DIVING AND SALVAGE TRAINING CENTER
CPATS Document #: 91 63190 63190 C108A
Cost Account Code: 5PPQ

Manpower

	FY2009	FY2010	FY2011	FY2012	FY2013
Billets Required	1	1	1	1	1
Billets Authorized	1	1	1	1	1
Billets Compensated	0	0	0	0	0
Billets Available	0	0	0	0	0
Delta	0	0	0	0	0
Enlisted Billets Required	6	6	16	16	16
Billets Authorized	6	6	6	6	6
Billets Compensated	0	0	3	3	3
Billets Available	0	0	0	0	0
Delta	0	0	-7	-7	-7

NOTE: Three compensated billets come from redistribution of Mobile Diving and Salvage Unit Two manpower assets upon course cancellation. NAVDIVESALVTRACEN can provide no compensation billets.

Civilian Billets Required	0	0	0	0	0
Billets Authorized	0	0	0	0	0
Billets Compensated	0	0	0	0	0
Billets Available	0	0	0	0	0
Delta	0	0	0	0	0

Funding

Approp	AG/SAG	Expense	FY2009	FY2010	FY2011	FY2012	FY2013
OMN	F3/FF	E	$0	$0	$0	$0	$0
OPN	F3/FF	D	$0	$0	$0	$0	$0

Facilities

No additional MILCON requirements, special projects renovations, or base operations support required.

SITE: NAVAL DIVING AND SALVAGE TRAINING CENTER

Site Consideration:

Training equipment numbers are based on a projected class size of 25, 16 instructors, plus spares. The redistribution of usable equipment made available by the cancellation of this course at Amphibious Base, Coronado, and Mobile Diving and Salvage Unit Two will help reduce shortages.

Training Materials numbers are based on 16 instructors, and a student load of 325/yr.

Films

No.	Designator	Title	Running Time	QTY REQ'D	QTY O/H	QTY Short
1.	F0600-AA-PP-89	Navy SCUBA Diver Safety	30 Minutes	2	0	2

Publications

No.	Number	Title	Supplier	QTY REQ'D	QTY O/H	QTY Short
1.	AIG-239	Diver's Advisory		16	6	10
2.	OPNAVINST 3150.28	Diving Log		400	250	150
3.	NA	Equipment PMS		1	0	1
4.	NA	Equipment technical/maintenance manuals		1	0	1
5.	NAVSEAINST 10560.2C	Instruction		1	0	1
6.	OPNAVISNT 5102.1C	Instruction		1	0	1
7.	SS-710AA-MMO-010	Life Preserver, Mk 4		30	40	0
8.	NAVSEA 10560.2A	List of Approved Diving Equipment		30	30	0
9.	NA	Locally prepared job sheets		1	0	1
10.	NA	NAVSHIPS Technical Manual		1	0	1
11.	BUPERS Manual	Navy Military Personnel Command Manual		1	0	1
12.	OPNAV 5100 Series	Safety Precautions for Forces Afloat		20	25	0
13.	NAVSEA NDM	U.S. Navy Diving Manual, Vol I	NAVSEA 0994-LP-001-9010	30	25	5
14.	NAVSEA UWT	Underwater Work Techniques, Vol 1	NAVSHIPS 0994-007-8010	30	30	0
15.	NAVSEA UWT	Underwater Work Techniques, Vol 2	NAVSHIPS 0994-007-8010	30	0	30
16.	S9086-CQ-STM-010/ CH-081 R2	Waterborne Underwater Hull Cleaning of Navy Ships, Chapt, 081	NAVSHIPS 0901-LP-081-0010	30	30	0

Slides

No.	Title	Number	Source	QTY REQ'D	QTY O/H	QTY Short
1.	Underwater Search Equipment	1-1	NAVDIVSALVTRACEN	2	0	2

Training Equipment

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	QTY REQ'D	QTY O/H	QTY Short	U/I	Unit Cost	CAGES Code	M&R Code	Technical Reference
1.	Compass, wrist, non-magnetic		1HM-6605-00-079 007 ED		50	25	25	ea	$75.00			NAVSEAINST 10560.2
2.	Cylinder, SCUBA Twin 80	0765-80 (Black)	9C-4220-00-058 1609		50	24	26	ea	$125.00			NAVSEAINST 10560.2
3.	Gage, depth, MK 1 Magnetic		1H-4220-00-639 8999		50	27	23	ea	$75.00			NAVSEAINST 10560.2
4.	Life preserver, MK 4	4053604	1H-4220-01-213 3533		50	26	25	ea	$147.00			NAVSEAINST 10560.2

Training Materials

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	QTY REQ'D	QTY O/H	QTY Short	U/I	Unit Cost	CAGES Code	M&R Code	Technical Reference
1.	Knowledge Test Administrators Guide				20	0	20	ea				
2.	Lesson Plan				20	0	20	ea				
3.	Peformance Test Administrators Guide				20	0	20	ea				
4.	Trainee Guide				400	0	400	ea				

Transparencies

No.	Title	Number	Graphic Description	QTY REQ'D	QTY O/H	QTY Short
1.	Underwater Hull Cleaning	Bot Scr Prod		2	0	2

NOTE TO READER: This is only a representation of the types of equipment and materials which would be listed under Training Equipment and Training Materials.

VI Equipment

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	QTY REQ'D	QTY O/H	QTY Short	U/I	Unit Cost	CAGES Code	M&R Code	Technical Reference
1.	Chalk Board(Portable)	Manuf. P/N	Open Purchase		10	0	10	ea	$38.00			
2.	Overhead Projector	Manuf. P/N	Open Purchase		5	0	5	ea	$150.00			
3.	Slide Projector, 35mm	Manuf. P/N	Open Purchase		5	0	5	ea	$165.00			

Videos

No.	Designator	Title	Running Time	QTY REQ'D	QTY O/H	QTY Short
1.	DP-49	Charging SCUBA Cylinders	30 Minutes	2	0	2

SITE: NAVAL SUBMARINE TRAINING CENTER, PACIFIC
CPATS Document #: 90 63154 63154 Y2943
Cost Account Code: 5PBB

Manpower

	FY2009	FY2010	FY2011	FY2012	FY2013
Officer Billets Required	1	1	1	1	1
Billets Authorized	1	1	1	1	1
Billets Compensated	0	0	0	0	0
Billets Available	0	0	0	0	0
Delta	0	0	0	0	0
Enlisted Billets Required	5	5	14	14	14
Billets Authorized	0	0	5	5	5
Billets Compensated	0	0	5	5	5
Billets Available	0	0	0	0	0
Delta	0	0	-4	-4	-4

NOTE: Compensated billets come from redistribution of Naval Amphibious School manpower assets upon course cancellation at that site. NAVSUBTRACENPAC can provide no compensation billets.

Civilian Billets Required	0	0	0	0	0
Billets Authorized	0	0	0	0	0
Billets Compensated	0	0	0	0	0
Billets Available	0	0	0	0	0
Delta	0	0	0	0	0

Funding

Approp	AG/SAG	Expense	FY2009	FY2010	FY2011	FY2012	FY2013
OMN	F3/FF	E	$0	$0	$0	$0	$0
OPN	F3/FF	D	$0	$0	$0	$0	$0

Facilities

No additional MILCON requirements, special projects renovations, or base operations support required.

SITE: NAVAL SUBMARINE TRAINING CENTER

Site Consideration:

With a current class size of 25 plus 6 instructors, equipment is adequate. For a projected class size of 25 plus 14 instructors, additional SCUBA cylinders, MK4 life preservers, and wrist compasses are needed. Some equipment will be available from the redistribution of equipment due to course cancellations at Naval Amphibious School and Mobile Diving and Salvage Unit Two.

Training Materials numbers are based on 14 instructors, and a student load of 300/yr.

Films

No.	Designator	Title	Running Time	QTY REQ'D	QTY O/H	QTY Short
1.	F0600-AA-PP-89	Navy SCUBA Diver Safety	30 Minutes	2	0	2

Publications

No.	Number	Title	Supplier	QTY REQ'D	QTY O/H	QTY Short
1.	AIG-239	Diver's Advisory		15	5	10
2.	OPNAVINST 3150.28	Diving Log		400	200	200
3.	NA	Equipment PMS		1	0	1
4.	NA	Equipment technical/maintenance manuals		1	0	1
5.	NAVSEAINST 10560.2C	Instruction		1	0	1
6.	OPNAVISNT 5102.1C	Instruction		1	0	1
7.	SS-710AA-MMO-010	Life Preserver, Mk 4		30	30	0
8.	NAVSEA 10560.2A	List of Approved Diving Equipment		30	30	0
9.	NA	Locally prepared job sheets		1	0	1
10.	NA	NAVSHIPS Technical Manual		1	0	1
11.	BUPERS Manual	Navy Military Personnel Command Manual		1	0	1
12.	OPNAV 5100 Series	Safety Precautions for Forces Afloat		15	5	10
13.	NAVSEA NDM	U.S. Navy Diving Manual, Vol I	NAVSEA 0994-LP-001-9010	30	30	0
14.	NAVSEA UWT	Underwater Work Techniques, Vol 1	NAVSHIPS 0994-007-8010	30	30	0
15.	NAVSEA UWT	Underwater Work Techniques, Vol 2	NAVSHIPS 0994-007-8010	30	0	30
16.	S9086-CQ-STM-010/ CH-081 R2	Waterborne Underwater Hull Cleaning of Navy Ships, Chapt, 081	NAVSHIPS 0901-LP-081-0010	30	30	0

NOTE TO READER: This is only a representation of the types of publications which would be listed under Publications.

Slides

No.	Title	Number	Source	QTY REQ'D	QTY O/H	QTY Short
1.	Underwater Search Equipment	1-1	NAVDIVSALVTRACEN	2	0	2

Training Equipment

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	QTY REQ'D	QTY O/H	QTY Short	U/I	Unit Cost	CAGES Code	M&R Code	Technical Reference
1.	Compass, wrist, non-magnetic		1HM-6605-00-079 007 ED		50	48	2	ea	$75.00			NAVSEAINST 10560.2
2.	Cylinder, SCUBA Twin 80	0765-80 (Black)	9C-4220-00-058 1609		50	40	10	ea	$125.00			NAVSEAINST 10560.2
3.	Gage, depth, MK 1 Magnetic		1H-4220-00-639 8999		50	52	0	ea	$75.00			NAVSEAINST 10560.2
4.	Life preserver, MK 4	4053604	1H-4220-01-213 3533		50	47	3	ea	$147.00			NAVSEAINST 10560.2

NOTE TO READER: This is only a representation of the types of equipment which would be listed under Training Equipment.

Training Materials

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	QTY REQ'D	QTY O/H	QTY Short	U/I	Unit Cost	CAGES Code	M&R Code	Technical Reference
1.	Knowledge Test Administrators Guide				20	0	20	ea				
2.	Lesson Plan				20	0	20	ea				
3.	Peformance Test Administrators Guide				20	0	20	ea				
4.	Trainee Guide				400	0	400	ea				

NOTE TO READER: This is only a representation of the types of equipment which would be listed under Training Materials.

Transparencies

No.	Title	Number	Graphic Description	QTY REQ'D	QTY O/H	QTY Short
1.	Underwater Hull Cleaning	Bot Scr Prod		2	0	2

VI Equipment

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	QTY REQ'D	QTY O/H	QTY Short	U/I	Unit Cost	CAGES Code	M&R Code	Technical Reference
1.	Chalk Board(Portable)	Manuf. P/N	Open Purchase		10	0	10	ea	$38.00			
2.	Overhead Projector	Manuf. P/N	Open Purchase		5	0	5	ea	$150.00			
3.	Slide Projector, 35mm	Manuf. P/N	Open Purchase		5	0	5	ea	$165.00			

Videos

No.	Designator	Title	Running Time	QTY REQ'D	QTY O/H	QTY Short
1.	DP-49	Charging SCUBA Cylinders	30 Minutes	2	0	2

F. COMPENSATION

Manpower	Number/Type Billets	Source of Compensation	Shortfall
MOBILE DIVING AND SALVAGE UNIT TWO	3 Enlisted instructor	A-433-0023 cancelled at this site	
NAVAL AMPHIBIOUS SCHOOL	5 Enlisted instructor	A-433-0023 cancelled at this site	
NAVAL DIVING AND SALVAGE TRAINING CENTER	3 Enlisted instructor	MOBDIVSALU TWO	7
NAVAL SUBMARINE TRAINING CENTER PACIFIC	5 Enlisted instructor	NAVPHIBSCOL	4

Funding	Dollar Amount	Source of Compensation	Shortfall
MOBILE DIVING AND SALVAGE UNIT TWO	$0.00	None	$0.00
NAVAL AMPHIBIOUS SCHOOLS	$0.00	None	$0.00
NAVAL DIVING AND SALVAGE TRAINING CENTER	$0.00	None	$0.00
NAVAL SUBMARINE TRAINING CENTER PACFIC	$0.00	None	$0.00

G. MILESTONES

	Milestone	Date Start	Date Complete
1.	Approval of Training Project Plan.		27 Nov 2008
2.	Develop Course Training Task List.	25 Oct 2008	14 Nov 2008
3.	Develop Training Course Control Document.	14 Nov 2008	14 May 2009
4.	Approval of Training Course Control Document.		16 Jun 2009
5.	Develop Curriculum and Support Material.	14 May 2009	14 Dec 2009
6.	Request authorization to conduct pilot.		14 Dec 2009
7.	Conduct Pilot.	16 Mar 2010	15 May 2010
8.	Submit Pilot Course Monitoring Report and Red Line Copy.		15 Jun 2010
9.	Issue Letter of Promulgation.		22 Jun 2010
10.	Incorporate changes.	15 Jun 2010	14 Aug 2010
11.	Distribute Print Master to Training Sites.		14 Aug 2010

	Milestone	Date Start	Date Complete
12.	Instructor Certification/Personalization.	14 Aug 2010	07 Sept 2010
13.	Implementation of Training Program. Cancel courses at Mobile Diving and Salvage Unit Two and Naval Amphibious School.	10 Sept 2010	

TAB A-2

COURSE TRAINING TASK LIST

COURSE TRAINING TASK LIST (CTTL)

NAVY SCUBA DIVER

A-433-0023A

Course Mission Statement: The SCUBA Diver course is designed to provide qualified personnel with the basic training necessary to qualify as a SCUBA diver, perform as a dive team member to plan and conduct open circuit SCUBA diving operations including inspection of major hull components. Diving operations includes underwater searches, underwater maintenance and preparation of records and reports. Conduct initial treatment of diving related injuries. Inspection and maintenance is performed on open circuit SCUBA equipment and accessories along with charging of SCUBA cylinders. Day and night diving operations will be conducted from a shore installation and open water to a qualification depth of 130 FSW.

No	Source	Duty/Task	Level
1.	Navy Military Personnel Command Manual, BUPERS Manual	**QUALIFY AS A SCUBA DIVER**	S
2.	Navy Military Personnel Command Manual, BUPERS Manual	MEET SCUBA diver physical conditioning level	S
3.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	SELECT SCUBA diver equipment for qualification dives	S
4.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	COMPLY with SCUBA diving safety requirements	S
5.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	**PREPARE DIVING RECORDS**	S
6.	Instruction, OPNAVINST 5102.1C	COMPLETE diving mishap	S
7.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	COMPLETE individual diving log report and diver's personal dive log	S
8.	Instruction, NAVSEAINST 10560.2C	VERIFY approval for service diving equipment	S
9.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	PREPARE custody records for for diving equipment (NAVPERS Form 601-13)	K
10.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	**COMPLY WITH DIVING ACTIVITY AIR SAMPLING PROGRAM REQUIREMENTS**	K

COURSE TRAINING TASK LIST (CTTL)

NAVY SCUBA DIVER

A-433-0023A

No	Source	Duty/Task	Level
11.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	PREPARE Air Sampling Kit data sheet	S
12.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	SUBMIT Air Sampling Kit data sheet	K
13.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	COLLECT ambient air samples	S
14.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	COLLECT source air samples	S
15.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	COMPLY with purity standards for divers breathing air	K
16.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	COMPLY with periodicity and conditions for air source sampling	K
17.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	**PLAN OPEN CIRCUIT SCUBA DIVING OPERATIONS**	S
18.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	Select open circuit SCUBA equipment and related underwater accessories	S
19.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	Plan for effects of undersea environment on light, heat and sound	K
20.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	CONVERT English and Metric systems of measurement	K
21.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	Plan for the effect of buoyancy and pressure	K
22.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	Plan for the effects of waterborne pressure	K
23.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	Plan for the reaction of gases to changes in temperature, volume, and pressure	K
24.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	CHART decompression dives	K
25.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	CHART repetitive dives	K
26.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	CHART dives in extremely cold environment	K

COURSE TRAINING TASK LIST (CTTL)

NAVY SCUBA DIVER

A-433-0023A

No	Source	Duty/Task	Level
27.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	ESTABLISH minimum personnel required by function	K
28.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	COMPLY with working limits	K
29.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	UTILIZE tides, depth, and current information	K
30.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	IDENTIFY considerations that effect dive planning	K
31.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	PLAN for emergency procedures	K
32.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	**PERFORM OPEN CIRCUIT SCUBA DIVE**	S
33.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	PERFORM donning gear procedures	S
34.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	PERFORM water entries and exits	S
35.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	PERFORM buddy breathing	S
36.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	PERFORM buoyancy control	S
37.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	PERFORM ditch and don equipment	S
38.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	PERFORM emergency recovery	S
39.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	PERFORM free and buoyant ascent	S
40.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	PERFORM surface swim with fins	S
41.	Locally prepared job sheets, NA	PERFORM work on mechanical Projects	S
42.	Locally prepared job sheets, NA	PERFORM compass swim	S
43.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	**PERFORM UNDERWATER SEARCH**	K

COURSE TRAINING TASK LIST (CTTL)

NAVY SCUBA DIVER

A-433-0023A

No	Source	Duty/Task	Level
44.	U.S. Navy Diving Manual, Volume 1, NAVSEA NMD; And Underwater Work Techniques Vol. 1, NAVSEA UWT	PERFORM circling line search	K
45.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	PERFORM linear search	K
46.	Underwater Work Techniques, Vol. 1, NAVSEA UWT	PERFORM jackstay search	K
47.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	APPLY pull signals	K
48.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	APPLY SCUBA hand signals	K
49.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	**PERFORM INITIAL TREATMENT FOR DIVING ACCIDENTS AND INJURIES**	K
50.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	RECOGNIZE the physiology of the respiratory and circulatory systems	K
51.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	ADMINISTER adult CPR	K
52.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	Remove foreign body airway obstructions	K
53.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	Diagnose pressure and non-pressure related injuries	K
54.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	RECOGNIZE dangerous marine life	K
55.	U.S Navy Diving Manual, Volume 1, NAVSEA NDM	RECOGNIZE injuries caused by specific dangerous marine life	K
56.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	APPLY first aid for injuries received from dangerous marine life	K
57.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	OBSERVE precautionary procedures for dealing with dangerous marine life	K

COURSE TRAINING TASK LIST (CTTL)

NAVY SCUBA DIVER

A-433-0023A

No	Source	Duty/Task	Level
58.	Equipment PMS, NA	**PERFORM INSPECTION AND MAINTENANCE ON OPEN CIRCUIT SCUBA EQUIPMENT AND REALTED UNDERWATER ACCESSORIES**	S
59.	Equipment PMS, NA	PERFORM periodic and/or required inspections and maintenance	S
60.	Equipment technical/ maintenance manuals, NA	ASSEMBLE/DISASSEMBLE open circuit SCUBA equipment and related accessories	S
61.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	**CHARGE OPEN CIRCUIT SCUBA EQUIPMENT**	S
62.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	APPLY General Gas Laws when SCUBA charging SCUBA cylinders	K
63.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	APPLY safety procedures	S
64.	U.S. Navy Diving Manual, Volume 1, NAVSEA NDM	CHARGE SCUBA cylinders	S
65.	NAVSHIPS Technical Manual, NA; and Underwater Work Techniques, Vol 2 NAVSHIPS UWT	**CONDUCT INSPECTION OF MAJOR HULL COMPONENTS**	S
66.	NAVSHIPS Technical Manual, NA; and Underwater Work Techniques, Vol 2, NAVSHIPS UWT	LOCATE major components of ship’s hull	K
67.	NAVSHIPS Technical Manual, NA	LOCATE fouling areas of ship’s hull	K
68.	NAVSHIPS Technical Manual, NA	IDENTIFY progressive fouling patterns of underwater growth on ship’s hull	K
69.	NAVSHIPS Technical Manual, NA	APPLY fouling rating scale	K
70.	NAVSHIPS Technical Manual, NA; and Underwater Work Techniques, Vol 2, NAVSHIPS UWT	CONDUCT day inspection of ship's hull	S

COURSE TRAINING TASK LIST (CTTL)

NAVY SCUBA DIVER

A-433-0023A

No	Source	Duty/Task	Level
72.	NAVSHIPS Technical Manual, NA; and Underwater Report Work Techniques, Vol. 2, NAVSHIPS UWT	PREPARE ship's hull inspection	S
73.	NAVSHIPS Technical Manual, NA; and Underwater Work Techniques Manual, Volume 2, Part 2	APPLY safety precautions related to ship's hull inspections	S

NOTE: Statements in **all bold** represent a **DUTY**. All other statements represent supporting tasks.

TAB A-3

TRAINING COURSE CONTROL DOCUMENT

TRAINING COURSE CONTROL DOCUMENT

FOR

NAVY SCUBA DIVER

A-433-0023A

PREPARED FOR

DIRECTOR, LEARNING AND DEVELOPMENT (NETC N7)
9549 BAINBRIDGE AVE
NORFOLK, VIRGINIA 23511-2612

PREPARED BY

NAVAL DIVING AND SALVAGE TRAINING CENTER
PANAMA CITY, FLORIDA 32407

OCTOBER 2008

TRAINING COURSE CONTROL DOCUMENT

LETTER OF PROMULGATION

Note to developer: The Letter of Promulgation will be added after the CCA has approved the course for implementation. It may also be automated in AIM after all steps have been completed.

TRAINING COURSE CONTROL DOCUMENT

SUMMARY OF DIFFERENCES

None.

(1)

TRAINING COURSE CONTROL DOCUMENT

TABLE OF CONTENTS

TRAINING COURSE CONTROL DOCUMENT

FOREWORD

This course is designed to teach the knowledge and skills needed to perform basic SCUBA diver tasks. The course was previously taught at four sites: Naval Amphibious School, Coronado; Naval Submarine Training Center, Pearl Harbor; Mobile Diving and Salvage Unit Two, Little Creek and Naval Diving and Salvage Training Center, Panama City. In FY 09 this course will be canceled at the Amphibious School and Mobile Diving and Salvage Unit Two. Manpower and equipment resources from the canceled sites will be redistributed to the remaining two sites. This TCCD describes the revised training program at Naval Submarine Training Center, Pearl Harbor and Naval Diving and Salvage Training center, Panama City.

Panama City is the only site with a diving tower. This impacts on the number of instructors and course length between the two sites. However, adjustments have been made for periods and ratios, and overall course length is the same for both sites.

TRAINING COURSE CONTROL DOCUMENT

COURSE DATA

Course Title:

NAVY SCUBA DIVER

Course Identification Number (CIN):

A-433-0023A

Training Type:

NA

Course Data Processing Code (CDP) by Site:	CDP
1. MOBILE DIVING AND SALVAGE UNIT TWO	087R
2. NAVAL AMPHIBIOUS SCHOOL	031Y
3. NAVAL DIVING AND SALVAGE TRAINING CENTER	6419
4. NAVAL SUBMARINE TRAINING CENTER, PACIFIC	2144

Course Status:

Revision

Course Mission Statement:

The SCUBA Diver course is designed to provide qualified personnel with the basic training necessary to qualify as a SCUBA diver, perform as a dive team member to plan and conduct open circuit SCUBA diving operations including inspection of major hull components. Diving operations includes underwater searches, underwater maintenance and preparation of records and reports. Conduct initial treatment of diving related injuries. Inspection and maintenance is performed on open circuit SCUBA equipment and accessories along with charging of SCUBA cylinders. Day and night diving operations will be conducted from a shore installation and open water to a qualification depth of 130 FSW.

TRAINING COURSE CONTROL DOCUMENT
COURSE DATA (CONT.)

Occupational Classification/Prerequisites: It is proposed that NEC 5345 be awarded to the Team Member/SCUBA course graduate/ there is no prerequisite training.

Course Overview:

1. Course content includes:

- Apply basic diving physics laws and formulas.
- Identify diving diseases and injuries, and select the appropriate treatment.
- Perform underwater search.
- Perform basic underwater hull inspection and search techniques.
- Perform as Recorder, Log Keeper, Chartman for SCUBA operations.
- Perform as diver's Tender for SCUBA operations.

2. Qualify to dive, in accordance with U.S. Navy Diving Manual (NDM), Vol. 1, to designed certification depths in the following equipment:

- Open Circuit SCUBA

3. Perform step-by-step maintenance and repair procedures in accordance with approved technical manuals, Planned Maintenance System, and the U.S. NDM, Vol 1, on the following equipment:

- SCUBA Air Tanks (Steel and Aluminum).
- 1st and 2nd stage regulators and hoses.
- Life preserver and buoyancy compensators.

4. Diving operations may be performed from surface or subsurface vessels, or ship repair facilities or other selected shore installations as necessary, dependent upon organizational mission and commander's requirements.

- Graduates are qualified to a maximum depth of 130 feet.

Course Length Required: 40 Calendar Days
(5)

TRAINING COURSE CONTROL DOCUMENT
COURSE DATA (CONT.)

Training Sites:

1. MOBILE DIVING AND SALVAGE UNIT TWO
   LITTLE CREEK, VIRGINIA 23521

2. NAVAL AMPHIBIOUS SCHOOL
   CORONADO, CALIFORNIA 92155

*3. NAVAL DIVING AND SALVAGE TRAINING CENTER
   PANAMA CITY, FLORIDA 32407

4. NAVAL SUBMARINE TRAINING CENTER, PACIFIC
   PEARL HARBOR, HAWAII 96860

(* = Course Curriculum Model Manager)

Number of Convenings By Site:	Planned
1. MOBILE DIVING AND SALVAGE UNIT TWO	0
2. NAVAL AMPHIBIOUS SCHOOL	0
3. NAVAL DIVING AND SALVAGE TRAINING CENTER	13
4. NAVAL SUBMARINE TRAINING CENTER, PACIFIC	12

Class Capacity By Site:	Planned
1. MOBILE DIVING AND SALVAGE UNIT TWO	
a. Maximum	0
b. Minimum	0
2. NAVAL AMPHIBIOUS SCHOOL	
a. Maximum	0
b. Minimum	0

TRAINING COURSE CONTROL DOCUMENT
COURSE DATA (CONT.)

Class Capacity By Site:	Planned
3. NAVAL DIVING AND SALVAGE TRAINING CENTER	
a. Maximum	25
b. Minimum	10
4. NAVAL SUBMARINE TRAINING CENTER, PACIFIC	
a. Maximum	25
b. Minimum	10

Planned Average On-Board By Site:	
1. MOBILE DIVING AND SALVAGE UNIT TWO	0.00
2. NAVAL AMPHIBIOUS SCHOOL	0.00
3. NAVAL DIVING AND SALVAGE TRAINING CENTER	35.62
4. NAVAL SUBMARINE TRAINING CENTER, PACIFIC	32.88

Instructor/Support Manning:

The estimated plan for Instructor/Support Manning is based on the same ratios for all sites. Periods and ratios can be found in the Course Master Schedule.

Work Center: NA

(7)

TRAINING COURSE CONTROL DOCUMENT

TRAINEE DATA

Personnel Physical Requirements:

Students entering the SCUBA Diver Course must be volunteers; be physically qualified in accordance with Article 15-36, Manual of the Medical Department; be qualified swimmers first class in accordance with MILPERSMAN standards; be recommended by their Commanding Officer; be interviewed by a designated Diving Officer; and be screened by a designated diving activity, in accordance with MILPERSMAN.

Security Clearance:

No security clearance is required for entry into the Diver, SCUBA Course.

Obligated Service:

12 Months

NOBC/NEC Earned:

5345

TRAINING COURSE CONTROL DOCUMENT

OUTLINE OF INSTRUCTION SUMMARY

Lesson Number	Title	Class Periods	Lab Periods	PA Periods	Total Periods
Unit 1:	SCUBA DIVER QUALIFICATIONS				
1.1	SCUBA DIVING	2.0	0.0	0.0	2.0
	Unit 1 Total	2.0	0.0	0.0	2.0

Only Lesson Topic 1 of Units 8 and 9 are used as samples in NAVEDTRA 130 (Series) Volume II. Interim units of instructions are intentionally omitted.

Unit 8:	OPEN CIRCUIT SCUBA EQUIPMENT MAINTENANCE				
8.1.	SCUBA CHARGING	2.0	1.0	0.0	3.0
	Unit 8 Total	2.0	1.0	0.0	3.0
Unit 9:	INSPECTION OF MAJOR HULL COMPONENTS				
9.1.	UNDERWATER HULL INSPECTION	4.0	1.0	0.0	5.0
	Unit 9 Total	4.0	1.0	0.0	5.0
	COURSE TOTAL	8.0	2.0	0.0	10.0

	Periods	**Percent**
Class	8.0	80.0
Lab	2.0	20.0
PA	0.0	0.0
Total	10.0	100.0

TRAINING COURSE CONTROL DOCUMENT

CURRICULUM OUTLINE OF INSTRUCTION

UNIT 1: **SCUBA DIVER QUALIFICATIONS**

Terminal Objective(s):

1.0 QUALIFY as a SCUBA diver in accordance with Navy Military Personnel Command Manual (BUPERS Manual), Article 1410380, Exhibit 6. (CTTL item #1)

Lesson Topic 1.1: SCUBA DIVING

Enabling objective(s):

1.1 **PERFORM** physical training with the class as a group in accordance with the Course Master Schedule, and successfully MAINTAIN diver physical qualification standards throughout the course of training in accordance with BUPERS Manual, Art. 1410380, Exhibit 5.

1.2 **IDENTIFY** the minimum equipment which must be worn by a Navy SCUBA diver in accordance with U.S. Navy Diving Manual, Volume 1.

Only Lesson Topic I of Units 8 and 9 are used as samples in Volume II. Interim units of instruction are intentionally omitted.

UNIT 8: **OPEN CIRCUIT SCUBA EQUIPMENT MAINTENANCE**

Enabling Objective(s):

6.0 **CHARGE** open circuit SCUBA following a checklist and in accordance with the U.S. Navy Diving Manual, Volume 1. (CTTL item #61)

Lesson Topic 8.1: SCUBA CHARGING

Enabling Objective(s):

6.1 **APPLY** General Gas Laws when charging SCUBA cylinders in accordance with U.S. Navy Diving Manual, Volume 1.

TRAINING COURSE CONTROL DOCUMENT

CURRICULUM OUTLINE OF INSTRUCTION (CONT.)

6.2 **FOLLOW** safety precautions applicable to charging Open Circuit SCUBA in accordance with the U.S. Navy Diving Manual, Volume 1.

6.3 **CHARGE**, as a member of a SCUBA charging team, SCUBA cylinders in accordance with the U.S. Navy Diving Manual, Volume 1, to the accuracy required by the Diving Training Standards following an Open Circuit SCUBA charging checklist for the available system.

UNIT 9: **INSPECTION OF MAJOR HULL COMPONENTS**

Terminal Objective(s):

7.0 **APPLY** underwater hull search techniques to CONDUCT inspection of major hull components in accordance with Underwater Work Techniques Manual, Vol. 2, while performing operations as a SCUBA diver. Observe applicable safety precautions. (CTTL item #65)

4.0 **PLAN** OPEN CIRCUIT SCUBA DIVING OPERATIONS in accordance with U.S. Navy Diving Manual, Volume 1, NAVSEA 0994-LP001-9010, chapter 4. (CTTL item #17)

Lesson Topic 9.1: UNDERWATER HULL INSPECTION

Enabling Objective(s):

7.1 **IDENTIFY** the components of the ship's hull in accordance with the Underwater Work Techniques Manual, Volume 2.

7.2 **DESCRIBE** the stages of growth commonly found on underwater hulls in accordance with the NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081, and the Underwater Work Techniques Manual, Volume 2.

7.3 **STATE** the general contents of the Fouling Rating Scale, and the Paint Deterioration Rating Scale, in accordance with the NAVSHIPS Technical Manual,

TRAINING COURSE CONTROL DOCUMENT

CURRICULUM OUTLINE OF INSTRUCTION (CONT.)

Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081.

7.4 **DESCRIBE** the fouling areas of hulls in accordance with the NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081.

4.13 **IDENTIFY** considerations that affect dive planning in accordance with U.S. Navy Diving Manual, Volume 1, NAVSEA 0994-LP-001-9010, para. 4-2.

7.5 **APPLY** the specific safety precautions associated with underwater hull inspections in accordance with the U. S. Navy Diving Manual, Volume 1; the Underwater Work Techniques Manual, Volume 2; and the NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081.

7.6 **PERFORM** day and night underwater hull inspections in accordance with the NAVSHIPS Technical Manual and Underwater Work Techniques Manual, Volume 2.

7.7 **PREPARE** the ship's hull inspection report in accordance with the Diving Training Standards.

Annex A

TRAINING COURSE CONTROL DOCUMENT

RESOURCE REQUIREMENT LIST

Learning Site

MOBILE DIVING AND SALVAGE UNIT TWO

Site Consideration:

Currently, this site has adequate equipment to support a class size of 18 plus 3 instructors. Upon cancellation of the course at Mobile Diving and Salvage Unit Two all equipment will be available for redistribution to NAVDIVESALVTRACEN and NABSUBTRACENPAC.

1. Publications

No.	Number	Title	QTY REQ'D	Supplier
1.	AIG-239	Diver's Advisory	25	
2.	OPNAVINST 3150.28	Diving Log	150	
3.	NA	Equipment PMS	1	
4.	NA	Equipment technical/maintenance manuals	1	
5.	NAVSEAINST 10560.2C	Instruction	1	
6.	OPNAVISNT 5102.1C	Instruction	1	
7.	SS-710AA-MMO-010	Life Preserver, Mk 4	25	
8.	NAVSEA 10560.2A	List of Approved Diving Equipment	25	
9.	NA	Locally prepared job sheets	1	
10.	NA	NAVSHIPS Technical Manual	1	
11.	BUPERS Manual	Navy Military Personnel Command Manual	1	
12.	OPNAV 5100 Series	Safety Precautions for Forces Afloat	3	
13.	NAVSEA NDM	U.S. Navy Diving Manual, Vol I	25	NAVSEA 0994-LP-001-9010
14.	NAVSEA UWT	Underwater Work Techniques, Vol 1	25	NAVSHIPS 0994-007-8010
15.	NAVSEA UWT	Underwater Work Techniques, Vol 2	30	NAVSHIPS 0994-007-8010
16.	S9086-CQ-STM-010/ CH-081 R2	Waterborne Underwater Hull Cleaning of Navy Ships, Chapt, 081	25	NAVSHIPS 0901-LP-081-0010

TRAINING COURSE CONTROL DOCUMENT

RESOURCE REQUIREMENT LIST (CONT.)

2. Training Equipment

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	QTY REQ'D	U/I	Unit Cost	CAGE Code	SM&R Code	Technical Reference
1.	Compass, wrist, non-magnetic		1HM-6605-00-079 007 ED		25	ea	$75.00			NAVSEAINST 10560.2
2.	Cylinder, SCUBA Twin 80	0765-80 (Black)	9C-4220-00-058 1609		25	ea	$125.00			NAVSEAINST 10560.2
3.	Gage, depth, MK 1 Magnetic		1H-4220-00-639 8999		25	ea	$75.00			NAVSEAINST 10560.2
4.	Life preserver, MK 4	4053604	1H-4220-01-213 3533		25	ea	$147.00			NAVSEAINST 10560.2

TRAINING COURSE CONTROL DOCUMENT

RESOURCE REQUIREMENT LIST (CONT.)

Learning Site

NAVAL AMPHIBIOUS SCHOOL

Site Consideration:

Currently, with a class size of 25 plus 5 instructors there is insufficient equipment. However, class size has not exceeded 18. Upon cancellation of the course at Naval Amphibious School, training equipment will be available for redistribution to NAVDIVESALVTRACEN and NABSUBTRACENPAC.

1. Publications

No.	Number	Title	QTY REQ'D	Supplier
1.	AIG-239	Diver's Advisory	1	
2.	OPNAVINST 3150.28	Diving Log	400	
3.	NA	Equipment PMS	1	
4.	NA	Equipment technical/maintenance manuals	1	
5.	NAVSEAINST 10560.2C	Instruction	1	
6.	OPNAVISNT 5102.1C	Instruction	1	
7.	SS-710AA-MMO-010	Life Preserver, Mk 4	65	
8.	NAVSEA 10560.2A	List of Approved Diving Equipment	65	
9.	NA	Locally prepared job sheets	1	
10.	NA	NAVSHIPS Technical Manual	1	
11.	BUPERS Manual	Navy Military Personnel Command Manual	1	
12.	OPNAV 5100 Series	Safety Precautions for Forces Afloat	1	
13.	NAVSEA NDM	U.S. Navy Diving Manual, Vol I	50	NAVSEA 0994-LP-001-9010
14.	NAVSEA UWT	Underwater Work Techniques, Vol 1	50	NAVSHIPS 0994-007-8010
15.	NAVSEA UWT	Underwater Work Techniques, Vol 2	30	NAVSHIPS 0994-007-8010
16.	S9086-CQ-STM-010/ CH-081 R2	Waterborne Underwater Hull Cleaning of Navy Ships, Chapt, 081	50	NAVSHIPS 0901-LP-081-0010

TRAINING COURSE CONTROL DOCUMENT

RESOURCE REQUIREMENT LIST (CONT.)

2. Training Equipment

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	QTY REQ'D	U/I	Unit Cost	CAGE Code	SM&R Code	Technical Reference
1.	Compass, wrist, non-magnetic		1HM-6605-00-079 007 ED		34	ea	$75.00			NAVSEAINST 10560.2
2.	Cylinder, SCUBA Twin 80	0765-80 (Black)	9C-4220-00-058 1609		34	ea	$125.00			NAVSEAINST 10560.2
3.	Gage, depth, MK 1 Magnetic		1H-4220-00-639 8999		34	ea	$75.00			NAVSEAINST 10560.2
4.	Life preserver, MK 4	4053604	1H-4220-01-213 3533		34	ea	$147.00			NAVSEAINST 10560.2

TRAINING COURSE CONTROL DOCUMENT

RESOURCE REQUIREMENT LIST (CONT.)

Learning Site

NAVAL DIVING AND SALVAGE TRAINING CENTER

Site Consideration:

Training equipment numbers are based on a projected class size of 25, 16 instructors, plus spares. The redistribution of usable equipment made available by the cancellation of this course at Amphibious Base, Coronado, and Mobile Diving and Salvage Unit Two will help reduce shortages.

Training Materials numbers are based on 16 instructors, and a student load of 325/yr. NDSTC Panama City is the only site with a diving tower. The distribution of periods and ratios for Naval Submarine Training Center, Pacific are adjusted so the overall course length is the same for both sites.

1. Films

No.	Designator	Title	Running Time	QTY REQ'D
1.	F0600-AA-PP-89	Navy SCUBA Diver Safety	30 Minutes	2

2. Publications

No.	Number	Title	QTY REQ'D	Supplier
1.	AIG-239	Diver's Advisory	1	
2.	OPNAVINST 3150.28	Diving Log	400	
3.	NA	Equipment PMS	1	
4.	NA	Equipment technical/maintenance manuals	1	
5.	NAVSEAINST 10560.2C	Instruction	1	
6.	OPNAVISNT 5102.1C	Instruction	1	
7.	SS-710AA-MMO-010	Life Preserver, Mk 4	65	

TRAINING COURSE CONTROL DOCUMENT

RESOURCE REQUIREMENT LIST (CONT.)

8.	NAVSEA 10560.2A	List of Approved Diving Equipment	65	
9.	NA	Locally prepared job sheets	1	
10.	NA	NAVSHIPS Technical Manual	1	
11.	BUPERS Manual	Navy Military Personnel Command Manual	1	
12.	OPNAV 5100 Series	Safety Precautions for Forces Afloat	1	
13.	NAVSEA NDM	U.S. Navy Diving Manual, Vol I	50	NAVSEA 0994-LP-001-9010
14.	NAVSEA UWT	Underwater Work Techniques, Vol 1	50	NAVSHIPS 0994-007-8010
15.	NAVSEA UWT	Underwater Work Techniques, Vol 2	30	NAVSHIPS 0994-007-8010
16.	S9086-CQ-STM-010/ CH-081 R2	Waterborne Underwater Hull Cleaning of Navy Ships, Chapt, 081	50	NAVSHIPS 0901-LP-081-0010

3. Slides

No.	Title	Number	Source	QTY REQ'D
1.	Underwater Search Equipment	1-1	NAVDIVSALVTRACEN	2

4. Training Equipment

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	REQ'D	U/I	Unit Cost	Code	Code	Reference
1.	Compass, wrist, non-magnetic		1HM-6605-00-079 007 ED		50	ea	$75.00			NAVSEAINST 10560.2
2.	Cylinder, SCUBA Twin 80	0765-80 (Black)	9C-4220-00-058 1609		50	ea	$125.00			NAVSEAINST 10560.2
3.	Gage, depth, MK 1 Magnetic		1H-4220-00-639 8999		50	ea	$75.00			NAVSEAINST 10560.2
4.	Life preserver, MK 4	4053604	1H-4220-01-213		50	ea	$147.00			NAVSEAINST 10560.2

NOTE TO READER: This is only a representation of the types of equipment which would be listed under Training Equipment.

TRAINING COURSE CONTROL DOCUMENT

RESOURCE REQUIREMENT LIST (CONT.)

5. Training Materials

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	QTY REQ'D	U/I	Unit Cost	CAGE Code	SM&R Code	Technical Reference
1.	Knowledge Test Administrators Guide				20	ea				
2.	Lesson Plan				20	ea				
3.	Peformance Test Administrators Guide				20	ea				
4.	Trainee Guide				400	ea				

NOTE TO READER: This is only a representation of the types of equipment which would be listed under Training Equipment and Training Materials.

6. Transparencies

No.	Title	Number	Graphic Description	QTY REQ'D
1.	Underwater Hull Cleaning	Bot Scr Prod		2

7. VI Equipment

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	QTY REQ'D	U/I	Unit Cost	CAGE Code	SM&R Code	Technical Reference
1.	Chalk Board(Portable)	Manuf. P/N	Open Purchase		10	ea	$38.00			
2.	Overhead Projector	Manuf. P/N	Open Purchase		5	ea	$150.00			
3.	Slide Projector, 35mm	Manuf. P/N	Open Purchase		5	ea	$165.00			
4.	Video Monitor 35"	Manuf. P/N	Open Purchase		5	ea	$500.00			

TRAINING COURSE CONTROL DOCUMENT

RESOURCE REQUIREMENT LIST (CONT.)

8. Videos

No.	Designator	Title	Running Time	QTY REQ'D
1.	DP-49	Charging SCUBA Cylinders	30 Minutes	2

NOTE: Items in 1 & 4 are not on the Training Project Plan RRL. These are items to conduct the course that were identified after the Project Plan was approved.

TRAINING COURSE CONTROL DOCUMENT

RESOURCE REQUIREMENT LIST (CONT.)

Learning Site

NAVAL SUBMARINE TRAINING CENTER

Site Consideration:

With a current class size of 25 plus 6 instructors, equipment is adequate. For a projected class size of 25 plus 14 instructors, additional SCUBA cylinders, MK4 life preservers, and wrist compasses are needed. Some equipment will be available from the redistribution of equipment due to the course cancellation at Naval Amphibious School and Mobile Diving and Salvage Unit Two.

Training Materials numbers are based on 14 instructors, and a student load of 300/yr.

NDSTC Panama City is the only site with a diving tower. The distribution of periods and ratios for Naval Submarine Training Center, Pacific are adjusted so the overall course length is the same for both sites.

1. Films

No.	Designator	Title	Running Time	QTY REQ'D
1.	F0600-AA-PP-89	Navy SCUBA Diver Safety	30 Minutes	2

2. Publications

No.	Number	Title	QTY REQ'D	Supplier
1.	AIG-239	Diver's Advisory	15	
2.	OPNAVINST 3150.28	Diving Log	400	
3.	NA	Equipment PMS	1	
4.	NA	Equipment technical/maintenance manuals	1	

TRAINING COURSE CONTROL DOCUMENT

RESOURCE REQUIREMENT LIST (CONT.)

5.	NAVSEAINST 10560.2C	Instruction	1	
6.	OPNAVISNT 5102.1C	Instruction	1	
7.	SS-710AA-MMO-010	Life Preserver, Mk 4	30	
8.	NAVSEA 10560.2A	List of Approved Diving Equipment	30	
9.	NA	Locally prepared job sheets	1	
10.	NA	NAVSHIPS Technical Manual	1	
11.	BUPERS Manual	Navy Military Personnel Command Manual	1	
12.	OPNAV 5100 Series	Safety Precautions for Forces Afloat	15	
13.	NAVSEA NDM	U.S. Navy Diving Manual, Vol I	30	NAVSEA 0994-LP-001-9010
14.	NAVSEA UWT	Underwater Work Techniques, Vol 1	30	NAVSHIPS 0994-007-8010
15.	NAVSEA UWT	Underwater Work Techniques, Vol 2	30	NAVSHIPS 0994-007-8010
16.	S9086-CQ-STM-010/ CH-081 R2	Waterborne Underwater Hull Cleaning of Navy Ships, Chapt, 081	30	NAVSHIPS 0901-LP-081-0010

NOTE TO READER: This is only a representation of the types of publications which would be listed under Publications.

3. Slides

No.	Title	Number	Source	QTY REQ'D
1.	Underwater Search Equipment	1-1	NAVDIVSALVTRACEN	2

4. Training Equipment

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	REQ'D	U/I	Unit Cost	Code	Code	Reference
1.	Compass, wrist, non-magnetic		1HM-6605-00-079 007 ED		50	ea	$75.00			NAVSEAINST 10560.2
2.	Cylinder, SCUBA Twin 80	0765-80 (Black)	9C-4220-00-058 1609		50	ea	$125.00			NAVSEAINST 10560.2
3.	Gage, depth, MK 1 Magnetic		1H-4220-00-639 8999		50	ea	$75.00			NAVSEAINST 10560.2
4.	Life preserver, MK 4	4053604	1H-4220-01-213 3533		50	ea	$147.00			NAVSEAINST 10560.2

TRAINING COURSE CONTROL DOCUMENT

RESOURCE REQUIREMENT LIST (CONT.)

5. Training Materials

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	QTY REQ'D	U/I	Unit Cost	CAGE Code	SM&R Code	Technical Reference
1.	Knowledge Test Administrators Guide				20	ea				
2.	Lesson Plan				20	ea				
3.	Peformance Test Administrators Guide				20	ea				
4.	Trainee Guide				400	ea				

NOTE TO READER: This is only a representation of the types of equipment which would be listed under Training Equipment and Training Materials.

6. Transparencies

No.	Title	Number	Graphic Description	QTY REQ'D
1.	Underwater Hull Cleaning	Bot Scr Prod		2

7. VI Equipment

No.	Type/Nomenclature	Part Number	COG/NIIN/SMIC	AAC	QTY REQ'D	U/I	Unit Cost	CAGE Code	SM&R Code	Technical Reference
1.	Chalk Board(Portable)	Manuf. P/N	Open Purchase		10	ea	$38.00			
2.	Overhead Projector	Manuf. P/N	Open Purchase		5	ea	$150.00			
3.	Slide Projector, 35mm	Manuf. P/N	Open Purchase		5	ea	$165.00			
4.	Video Monitor 35"	Manuf. P/N	Open Purchase		5	ea	$500.00			

TRAINING COURSE CONTROL DOCUMENT

RESOURCE REQUIREMENT LIST (CONT.)

8. Videos

No.	Designator	Title	Running Time	QTY REQ'D
1.	DP-49	Charging SCUBA Cylinders	30 Minutes	2

NOTE: Items in 1 & 4 are not on the Training Project Plan RRL. These are items were identified after the Project Plan was approved.

ANNEX B

MASTER SCHEDULE SUMMARY SHEET Date: 30 October 2008

Activity: NAVAL DIVING AND SALVAGE TRAINING CENTER

A. LOCATION:

CDP	Site/MTU
087R	MOBILE DIVING AND SALVAGE UNIT TWO
031Y	NAVAL AMPHIBIOUS SCHOOL
6419*	NAVAL DIVING AND SALVAGE TRAINING CENTER
2114	NAVAL SUBMARINE TRAINING CENTER, PACIFIC

(* = Course Curriculum Model Manager)

B. COURSE DATA:

Course: NSD CIN A-433-0023A

Periods Per Week: 40 Period Length: 60 minutes

C. MASTER SCHEDULE SUMMARY

Standard Periods		Bottleneck Periods	
T:I Ratio	Periods	T:I Ratio	Periods
25:1	11		
4:1	2		

Total periods = 13 (13 Standard Periods + 0 Bottleneck Periods)

Ratio justification for ratios less than planned class size:

Note: Physical conditioning is mandated for all divers so it is included as part of the 8-hour training day.

TRAINING COURSE CONTROL DOCUMENT

COURSE MASTER SCHEDULE

WEEK 1

Day 1

Topic No.	Type	Period	Topic Title	Period Length	Ratio	Bottleneck Ratio	Justification of Ratios
1.1	Class	1	SCUBA DIVING	50	25:1		
1.1	Class	2	SCUBA DIVING	50	25:1		
	Special	3	Test	50	25:1		

NOTE TO READER: Only portions of Unit 1, Lesson Topic 1; Unit 8, Lesson Topic 1 and Unit 9, Lesson Topic 1 are used as samples in Volume II. Interim units of instruction are intentionally omitted.

WEEK 3

Day 1

Topic No.	Type	Period	Topic Title	Period Length	Ratio	Bottleneck Ratio	Justification of Ratios
8.1	Class	9	SCUBA CHARGING	50	25:1		
8.1	Class	10	SCUBA CHARGING	50	25:1		

TRAINING COURSE CONTROL DOCUMENT

COURSE MASTER SCHEDULE

8.1	Lab	11	SCUBA CHARGING	50	25:1		__
	Special	12	Test	50	25:1		_____
9.1	Class	13	UNDERWATER HULL INSPECTION	50	25:1		__
9.1	Class	14	UNDERWATER HULL INSPECTION	50	25:1	___	__
9.1	Class	15	UNDERWATER HULL INSPECTION	50	25:1		_____

Day 2

Topic No.	Type	Period	Topic Title	Period Length	Ratio	Bottleneck Ratio	Justification of Ratios	
9.1	Class	16	UNDERWATER HULL INSPECTION	50	25:1			__
1.1	Lab	17	PHYSICAL CONDITIONING	50	25:1			__
	Special	13	TEST	50	25:1			__

TAB A-4

LESSON PLAN

LESSON PLAN

FOR

NAVY SCUBA DIVER

A-433-0023A

PREPARED FOR

DIRECTOR, LEARNING AND DEVELOPMENT (NETC N7)
9549 BAINBRIDGE AVE
NORFOLK, VIRGINIA 23511-2612

PREPARED BY

NAVAL DIVING AND SALVAGE TRAINING CENTER
PANAMA CITY, FLORIDA 32407

NOVEMBER 2008

LESSON PLAN

A-433-0023A

CHANGE RECORD

Number and Description of Change	Entered By	Date

(2)

LESSON PLAN

A-433-0023A

TABLE OF CONTENTS

LESSON PLAN

A-433-0023A

SECURITY AWARENESS NOTICE

This course does not contain any classified material.

(4)

LESSON PLAN

A-433-0023A

SAFETY/HAZARD AWARENESS NOTICE

This notice promulgates safety precautions to the staff and trainees of the Navy SCUBA Diver Course in accordance with responsibilities assigned by the Chief of Naval Education and Training.

Trainees may voluntarily request termination of training. Any time the trainee makes a statement such as "I QUIT," or "DOR," (Drop on Request), he or she shall be immediately removed from the training environment and referred to the appropriate division or training officer for administrative action. The trainee must then make a written statement, clearly indicating the desire to DOR.

Any time a trainee or instructor has apprehension concerning his or her personal safety or that of another, he or she shall signal for a "Training Time Out" to clarify the situation or procedure and receive or provide additional instruction as appropriate. "Training Time Out" signals, other than verbal, shall be appropriate to the training environment.

Instructors are responsible for maintaining situational awareness and shall remain alert to signs of trainee panic, fear, extreme fatigue or exhaustion, or lack of confidence that may impair safe completion of the training exercise, and shall immediately stop the training, identify the problem, and make a determination to continue or discontinue training. Instructors shall be constantly alert to any unusual behavior which may indicate a trainee is experiencing difficulty, and shall immediately take appropriate action to ensure the trainee's safety.

The safety precautions contained in this course are applicable to all personnel. They are basic and general in nature. Personnel who operate or maintain equipment in support of Navy SCUBA Diver Course must be thoroughly familiar with all aspects of personnel safety, and strictly adhere to every general as well as specific safety precautions contained in operating and emergency procedures and applicable governing directives.

Special emphasis must be placed on strict compliance with published safety precautions and on personal awareness of potentially hazardous conditions peculiar to diving.

LESSON PLAN

A-433-0023A

SAFETY/HAZARD AWARENESS NOTICE (CONT.)

All personnel must have a comprehensive knowledge of emergency procedures which prescribe courses of action to be followed in the event of equipment failure or human error as stated in the Pre-Mishap Plan. Strict adherence to approved and verified operating, emergency, and maintenance procedures IS MANDATORY. As a minimum, each individual is responsible for knowing, understanding, and observing all safety precautions applicable to the command, school, course, their work, and their work areas. In addition, you are responsible for observing the following general safety precautions:

1. Each individual shall report for work rested and emotionally prepared for the tasks at hand.

2. You shall use normal prudence in all your functions, commensurate with the work at hand.

3. You shall report any unsafe conditions, or any equipment or material which you consider to be unsafe, and any unusual or developing hazards.

4. You shall warn others whom you believe to be endangered by known hazards or by failure to observe safety precautions, and of any unusual or developing hazards.

5. You shall report to the school any mishap, injury, or evidence of impaired health occurring in the course of your work or during non-training environment.

6. You shall wear or use the protective clothing and/or equipment of the type required, approved, and supplied for the safe performance of your work.

7. All personnel in the immediate vicinity of a designated noise hazardous area or noise hazardous operation shall wear appropriate hearing protective devices. (NDSTC Instruction 6260.6 series)

LESSON PLAN

A-433-0023A

SAFETY/HAZARD AWARENESS NOTICE (CONT.)

(7)

LESSON PLAN

A-433-0023A

TERMINAL OBJECTIVES

1.0 **QUALIFY** as a SCUBA diver in accordance with Navy Military Personnel Command Manual, BUPERS Manual (CTTL item #1)

4.0 **PLAN** OPEN CIRCUIT SCUBA DIVING OPERATIONS in accordance with U.S. Navy Diving Manual, Volume 1, NAVSEA 0994-LP-001-9010, Chapter 4. (CTTL item #17)

NOTE TO READER: Sample instruction is provided to fully support only Terminal Objectives 9.0 and 10.0. Sample instruction for Terminal Objectives 1.0 through 3.0, and Terminal Objective 5.0 through 8.0 are intentionally omitted. Terminal Objective 4.0 provides one Enabling Objective for Lesson Topic 3.1.

6.0 **CHARGE** open circuit SCUBA following a checklist and in accordance with the U. S, Navy Diving Manual, Volume 1. (CTTL item #61)

7.0 **APPLY** underwater hull search techniques to CONDUCT inspections of major hull components in accordance with the Underwater Work Technique Manual, Vol 2, while performing as a SCUBA diver. Observe applicable safety precautions. (CTTL item #65)

LESSON PLAN

Unit 1. SCUBA DIVER QUALIFICATIONS A-433-0023A

Topic 1.1 SCUBA DIVING

Class periods: 2
Lab periods: 0
PA Periods: 0

Enabling Objectives:

1.1 **PERFORM** physical training with the class as a group in Accordance with the Course Master Schedule, and Successfully MAINTAIN diver physical qualification Standards throughout the course of training in accordance With BUPERS Manual, Article 1410280, Exhibit 5.

1.2 **Identify** the minimum equipment which must be worn by a Navy SCUBA diver in accordance with U.S. Navy Diving Manual, Volume 1.

Instructor Preparation:

A. Review Assigned Trainee Material.

B. Reference Publications:

1. None.

C. Training Materials Required:

1. None.

Trainee Preparation Materials:

A. Trainee Support Materials:

1. None.

B. Reference Publications:

1. None.

LESSON PLAN

Unit 1. SCUBA DIVER QUALIFICATIONS **A-433-0023A**

Topic 1.1 SCUBA DIVING

DISCUSSION POINT	RELATED INSTRUCTION ACTIVITY
1. Introduction.	1. Establish Contact.
2. **PERFORM** physical training with the class as a group in Accordance with the Course Master Schedule, and Successfully MAINTAIN diver physical qualification Standards throughout the course of training in accordance With BUPERS Manual, Article 1410280, Exhibit 5.	
3. **Identify** the minimum equipment which must be worn by a Navy SCUBA diver in accordance with U.S. Navy Diving Manual, Volume 1.	
4. Summary and Review.	
5. Assignment.	
6. Application.	

LESSON PLAN

Unit 8. OPEN CIRCUIT SCUBA EQUIPMENT MAINTENANCE A-433-0023A

Topic 8.1 SCUBA CHARGING

Enabling Objectives:

6.1 **APPLY** General Gas Laws when charging SCUBA cylinders in accordance with the U.S. Navy Diving Manual, Volume I.

6.2 **FOLLOW** safety precautions applicable to charging Open Circuit SCUBA in accordance with the U.S. Navy Diving Manual, Volume I.

6.3 **CHARGE**, as a member of a SCUBA charging team, SCUBA cylinders in accordance with the U.S. Navy Diving Manual, VOLUME I, to the accuracy required by the Diving Training Standards following an Open Circuit SCUBA charging checklist for the available system.

Trainee Preparation Materials:

A. Trainee Support Materials:

1. SCUBA CHARGING, Outline Sheet 8-1-1.

NOTE TO READER: Assignment of Outline Sheet 8-1-1 was made from a Previous lesson topic. The outline sheet must be studied prior to presentation of this lesson topic.

Instructor Preparation:

B. Reference Publications:

1. SCUBA Charging Checklist, NAVDIVSALVTRACEN

A. Review assigned Trainee Material.

B. Reference Publications:

1. Review Diving Training Standards, NAVDIVSALVTRECEN 433-0023-1.

2. Review Instructional Building Auxiliary Air Operating Procedures Manual, NAVDIVSALVTRACEN Local Instruction.

3. Review SCUBA Charging Checklist, NAVDIVSALVTRACEN.

4. Review U.S. Navy Diving Manual, Vol 1, NAVSEA NDM.

C. Training Materials Required:

1. Instruction Sheets
   a. SCUBA CHARGING, Outline Sheet 8-1-1.

LESSON PLAN

Unit 8. OPEN CIRCUIT SCUBA EQUIPMENT MAINTENANCE **A-433-0023A**

Topic 8.1 SCUBA CHARGING

b. SCUBA Charging, Assignment Sheet 8-1-2.
c. SCUBA Charging, Job Sheet 8-1-3.

2. Transparencies:
a. Scan SCUBA Charging, 8-1-1.
b. Scan SCUBA Charging, 8-1-2.
c. Scan SCUBA Charging, 8-1-3.

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
1. Introduction.	1. Establish Contact. Introduce yourself and give any background on yourself that might be of interest. Establish Readiness. Motivating Statements: Tell trainees how they will use the course material. Tell trainees why they need to know the lesson material. Safety-Review TTO. Refer to Outline Sheet 8-1-1, SCUBA CHARGING, and review objectives.
1. General Gas Laws that affect SCUBA charging.	2. Reference U.S. Diving Manual, Vol 1, NAVSEA NDM, paragraph 2-5-2. Discuss Diving Training Standards, NAVDIVSALVTRACEN 433-0023-1,

LESSON PLAN

Unit 8. OPEN CIRCUIT SCUBA EQUIPMENT MAINTENANCE A-433-0023A

Topic 8.1 SCUBA CHARGING

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
a. The factors of temperature, volume, and pressure are interrelated such that a change in any of these factors must be balanced by a corresponding change in one or both of the others.	a. Display Transparency 8-1-1, SCUBA Charging.
b. SCUBA charging increases the pressure in the bottle, which increases the temperature of the gas, which heats the bottle.	b. Display Transparency 8-1-2, SCUBA Charging.
c. Effect of Temperature.	c. Display Transparency 8-1-3, SCUBA Charging.
(1) Loss of pressure as the bottle cools to ambient Temperature (Especially in cold water).	
(2) Increased possibility of blow-out disc failure 400 PSI maximum is exceeded.	
3. Charge SCUBA Cylinders.	
a. Ensure there is sufficient pressure in the H.P. banks for the type of cylinder to be charged.	a. Reference Instructional Building Auxiliary Air Operating Procedures Manual, NAVDIVSALVTRACEN Local Instruction, Set by command policy (if site specific add note).
WARNING: DO NOT CHARGE ANY SCUBA CYLINDERS HAVING AN EXPIRED HYDROSTATIC TEST DATE. CHARGING A CYLINDER WITH AN EXPIRED HYDROSTATIC TEST DATE MAY LEAD TO RUPTURE OF THE CYLINDER.	
Reference: U.S. Navy Diving Manual, Volume 1 Table 5-4. NOTE: Never mix steel and aluminum cylinders in the same charging line.	

(13)

LESSON PLAN

Unit 8. OPEN CIRCUIT SCUBA EQUIPMENT MAINTENANCE A-433-0023A

Topic 8.1 SCUBA CHARGING

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
CAUTION: Why? Because of the different charging Pressures involved. EMPHASIZE.	
4. Summary and Review:	4. Review the DPs and repeat the EO(s).
a. General Gas Law.	
b. Charge SCUBA cylinders.	
5. Assignment:	
a. Read Assignment Sheet 8-1-2.	a. Refer trainee to Assignment Sheet 8-1-2, SCUBA CHARGING, and pass instructions that the Assignment Sheet will be reviewed at the beginning of Lesson Topic 9.1.
b. Read Outline Sheet 9-1-1 and Information sheet 9-1-3.	b. Homework. Outline Sheet 9-9-1 and Assignment Sheet 9-1-4 will be listed under Trainee Preparation in Lesson Topic 9.1 and discussed at the appropriate place in the lesson.
c. Testing.	
6. Application.	6. Direct trainee to complete Job Sheet 8-1-2, SCUBA Charging, in lab room #13.

LESSON PLAN

Unit 8. OPEN CIRCUIT SCUBA EQUIPMENT MAINTENANCE **A-433-0023A**

Topic 8.1 SCUBA CHARGING

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
	Refer trainee to SCUBA Charging Checklist, NAVDIVSALVTRACEN.
a. Safety precautions:	a. Review TTO/DOR.
(1) TTO.	
(2) DOR.	

(15)

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

Class periods: 4
Lab periods: 1
PA Periods: 0

Enabling Objectives:

7.1 **IDENTIFY** the components to the ship's hull in Accordance with the Underwater Work Techniques Manual, Volume 2.

7.2 **DESCRIBE** the stages of growth commonly found on the underwater hulls in accordance with the NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Surface Ships, Chapter 081, and the Underwater Work Techniques Manual, Volume 2.

7.3 **STATE** the general contents of the Fouling Rating Scale, and the Paint Deterioration Rating Scale, in accordance with NAVSHIPS Technical Manual and Waterborne Underwater Hull Cleaning of Surface Ships, Chapter 081

7.4 **DESCRIBE** the fouling areas of ship's hulls in accordance with the NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Surface Ships, Chapter 081, and the Underwater Work Techniques Manual, Volume 2.

7.5 **APPLY** the specific safety precautions associated with underwater hull inspections in accordance with the U.S. Navy Diving Manual, Volume1: the Underwater Work Techniques Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081.

7.6 **PERFORM** day and night underwater hull inspections in accordance with the NAVSHIPS Technical Manual and Underwater Work Techniques Manual, Volume 2.

7.7 **PREPARE** the ship's hull inspection report in accordance with the Diving Training Standards.

Trainee Preparation Materials:

A. Trainee Support Materials:

1. UNDERWATER HULL INSPECTION, Outline Sheet, 9-1-1.

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

B. Reference Publications:

1. None.

2. UNDERWATER HULL INSPECTION, Assignment Sheet, 9-1-4.

d. UNDERWATER HULL INSPECTION, Outline Sheet, 9-1-4.
e. SURFACE VESSEL HULL INSPECTION, Job Sheet 9-1-5.

Instructor Preparation:

A. Review Assigned Trainee Materials.

B. Reference Publications:

1. U.S. Navy Diving Manual, Volume 1, NAVSEA NDM.

2. Underwater Work Techniques Manual, Volume 2, NAVSEA UWT.

3. Waterborne Underwater Hull Cleaning of Navy Ships, Chapt.081, S9086-CQ-STM-010/CH=081 2.

C. Training Materials Required:

1. Instruction Sheets:
a. UNDERWATER HULL INSPECTION, Online Sheet 9-1-1.
b. PROPELLER NUMBERING SYSTEM, Diagram Sheet 9-1-2.
c. FOULING RATING SCALES, Information Sheet 9-1-3.

2. Transparencies
a. Underwater Hull Inspection, 9-1-1.
b. Underwater Hull Inspection, 9-1-2.
c. Underwater Hull Inspection, 9-1-3.
d. Underwater Hull Inspection, 9-1-4.
e. Zinc, Electrical Systems, 9-1-5.
f. Underwater Hull Inspection, 9-1-6.
g. Underwater Hull Inspection, 9-1-7.
h. Underwater Hull Inspection, 9-1-8.
i. Underwater Hull Inspection, 9-1-9.
j. Underwater Hull Inspection, 9-1-10.

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

3. NAVSHIPS Technical Manual, Chapter 081 Waterborne Underwater Hull Cleaning of Navy Ships.

NOTE TO READER: Transparencies may also be listed individually, with titles, or by numbers i.e. 3-1-1 to 3-1-10

DISCUSSION POINT

1. Introduction.

a. Underwater hull inspection involves the examination of the entire exterior underwater hull and components to determine the condition and needs for maintenance and repair. Stress safety.

RELATED INSTRUCTOR ACTIVITY

1. Establish Contact.

Introduce yourself and give any background on yourself that might be of interest.

Establish Readiness.

Motivating Statements:

Tell trainees how they will use the course material.

Tell trainees why they need to know the lesson material.

Safety-Review TTO.

Refer to Outline Sheet 8-1-1, SCUBA CHARGING, and review objectives.

(18)

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
2. Safety Reminder.	2. Review verbal commands and hand signals for TTO. Review TTO/DOR policy.
3. Various Ship's Hull Components.	
a. Surface Ships:	
(1) Various types of rudders.	(1) Display Transparency 9-1-1, Underwater Hull Inspection.
(2) Various types of propellers.	(2) Display Transparency 9-1-2, Underwater Hull Inspection:
(a) Numbering system.	(a) Refer to Diagram Sheet 9-1-2, PROPELLER NUMBERING SYSTEM.
(b) Fixed Pitch.	(b) Explain fixed pitch, variable pitch.
(c) Variable Pitch.	
(3) Different shafting and strut arrangements.	(3) Display Transparency 9-1-3, Underwater Hull Inspection. Display Transparency 9-1-4, Underwater Hull Inspection.
(4) Cathodic Protection.	(4) Display Transparency 9-1-5 Zinc, Electrical Systems.
(5) Sonar domes.	(5) Display Transparency 9-1-6, Underwater Hull Inspection.

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
(6) Suction and discharge.	(6) Display Transparency 9-1-7, Underwater Hull Inspection.
b. Submarines:	
(1) Single propeller, 7 blade:	(1) Display Transparency 9-1-8, Underwater Hull Inspection.
(a) Numbering system.	
(2) Rudder.	(2) Display Transparency 9-1-9, Underwater Hull Inspection.
(3) Stern Planes and stabilizers.	
(4) Torpedo tube doors.	
(5) Transducer and hydrophones.	
(6) Main Ballast Tank Grate.	
(7) Sonar dome.	
(8) Flush mounted anchors.	

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS A-433-0023A

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
4. Stages of Sea Growth:	
a. Slime - Formation of slime is the first consists of bacteria, fungi, protozoa, and algae. The presence of slime may be confirmed by the generation of a cloud of debris when the surface is wiped by the diver's hand.	a. Reference Waterborne Underwater Hull Cleaning of Navy Ships, Chapt. 081, S9086-CQ-STM-010/CH-081 R2, paragraph 081-1.2.2.
b. Grass - Grass is a form of multicellular green algae. It forms most heavily near the surface. It is less evident as depth increases, and its color changes from green to brown.	b. Reference Waterborne Underwater Hull Cleaning of Navy Ships, Chapt. 081, S9086-CQ-STM-010/CH-081 R2, paragraph 081-1.2.3.
c. Hard fouling - the dominant organisms in this stage of fouling are barnacles (usually acorn) and tubeworms. Acorn barnacles have conical hard shells with jagged tops. tubeworms form intertwined/tubes lying along, or projecting out from, the hull.	c. Reference Waterborne Underwater Hull Cleaning of Navy Ships, Chapt. 081, S9086-CQ-STM-010/CH-081 R2, paragraph 081-1.2.4.
d. Composite - In advanced stages of fouling, the ship will be affected by slime, grass, barnacles, and tubeworms. In addition, fouling will include soft, shell-less animal forms, such as hydrouds, anemones, and tunicates (sea squirts).	d. Reference Waterborne Underwater Hull Cleaning of Navy Ships, Chapt. 081, S9086-CQ-STM-010/CH-081 R2, paragraph 081-1.2.5.
e. Amount of sea growth depends on the following:	
(1) Ship location, duration of ships movement, hull protection, and hull cleaning periodically.	

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS A-433-0023A

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
5. Fouling Rating Scales:	
a. Fouling Rating Scale - The Fouling Rating Scale describes the ten most frequently encountered fouling patterns in order of increasing severity. A number has been assigned to each of the ten fouling patterns on a scale of 0 to 100, in ten point increments. The lowest number represents a clean hull and the higher numbers represent fouling organism populations of increasing density and variety.	a. Reference Waterborne Underwater Hull Cleaning of Navy Ships, Chapt. 081, S9086-CQ-STM-010/CH-081 R2, paragraph 081-1.4 photos, pg 2 thru 15. Refer to Information Sheet 9-1-3, FOULING RATING SCALES.
b. Paint Deterioration Rating Scale - The Paint Deterioration Scale describes the deterioration Of the anti-fouling paint on the waterborne hull. A number has been assigned to each of the ratings, ranging from PDR-10 to PDR-100, in ten point Increments. The lowest number represents paint Intact and the higher numbers represent Deteriorated areas of paint.	b. Reference Waterborne Underwater Hull Cleaning of Navy Ships, Chapt. 081, S9086-CQ-STM-010/CH-081 R2, paragraph 081-1.4 photos, pg 19 thru 27.
6. Critical fouling surfaces:	6. Reference Waterborne Underwater Hull Cleaning of Navy Ships, Chapt. 081, S9086-CQ-STM-010/CH 081 R2, paragraph 081-1.3:
a. Propellers: Growth causes severe reduction on propeller efficiency.	a. Reference Waterborne Underwater Hull Cleaning of Navy Ships, Chapt. 081, S9086-CQ-STM-010/CH-081 R2, paragraph 081-1.4.

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
b. Sonar Dome: Performance decreased rapidly when fouling progresses past hard fouling.	b. Reference Waterborne Underwater Hull Cleaning of Navy Ships, Chapter. 081, S9086-CQ-STM-010/CH-081 R2, paragraph 081-1.3.3.
c. Docking block bearing surfaces: Does not get painted in dry dock, therefore hard fouling is common in these areas.	c. Reference Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081, S9086-CQ-STM-010/CH-081 R2, paragraph 081-1.3.4.
(1) Sea Chest: Hard fouling is common at perimeter and interior of grating. Composite often occurs inside sea chest and is difficult to clean without removing grate.	(1) Reference Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081, S9086-CQ-STM-010/CH-081 R2, paragraph 081-1.3.5.
7. Planning (Assignment Sheet 9-1-4 was assigned as homework in Lesson Topic 6.1):	7. Review Assignment Sheet 9-1-4, UNDERWATER HULL INSPECTION, and answer study questions.
a. Each dive should be completely planned and discussed with ship's personnel and dive team prior to water entry.	a. Reference U.S. Navy Diving Manual, Vol 1, NAVSEA NDM, Chapter 4.
b. Review last hull inspection.	
c. Discuss damage, if any, with dive team:	
(1) Question ship's personnel. Sonar-loss in performance increased noise level. Engineering-shaft vibrations.	

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
(2) Review past UDATS tapes.	(2) Explain UDATS.
(3) Review ship’s docking plans.	
8. Use Ship Repair Safety Checklist:	8. Reference NAVSHIPS Underwater Work Techniques, Vol 2, NAVSEA UWT, Part 2, Section 2.
a. Locate dive boat or platform in close proximity of work.	
b. Fly International Code Alpha.	
c. Pass correct word, public address system.	
d. Have Engineering Department representative available topside.	
e. Know what ship’s machinery is running.	
f. Ensure vessel is steady in moor or tied up properly.	
g. Ensure safe diving distance between pier and vessel, and between ships.	g. Explain separators/camels.

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS A-433-0023A

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
9. Perform underwater hull inspection (day):	
a. Safety Precautions:	
(1) TTO/DOR.	(1) Review TTO/DOR.
(2) Specific precautions.	
(3) Review specific safety precautions for Job Sheet 9-1-5.	
b. Surface Vessel Hull Inspection:	b. Refer to Job Sheet 9-1-5, SURFACE VESSEL HULL INSPECTION.
(1) Rudder:	
(a) Clearances.	
(b) Rudder Plugs.	
(c) Overall physical conditions.	
(d) Sound.	

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
(2) Propellers:	
(a) Dunce.	
(b) Cover Plates.	
WARNING: DO NOT BUMP BLADES WITH SCUBA CYLINDERS.	NOTE: Explain Warning - Can damage blades, SCUBA cylinders or manifold, and can accidentally activate reserve.
(c) Blades.	
(d) Inspect facing for cavitation effects.	
(e) Rope Guards (forward of propeller).	
(3) Struts to Stern Tube:	
(a) External primary strut housing and primary strut.	
(b) Conditions of zincs.	
(c) Fairwaters.	

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
(d) Shaft.	
(e) Secondary strut (if applicable).	
(f) Stern tube.	
(g) Dead lights (if applicable).	
(c) Repeat inspection as per number of propellers.	
(4) Engineering Spaces – Safety precautions:	
(a) Ensure diver can surface safely.	
(b) Ensure suctions and discharges are secure.	
(c) Never dive on any engineering spaces if machinery is running.	
(5) Bilge Keel.	
(6) Zinc.	

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
(7) Main scoop injection pump suction.	
(8) Main circulation pump suction.	
(9) Other suctions and discharges.	
(10) Anchor (if applicable).	
(11) Secondary propulsion motor (SPM) (as applicable).	
(12) Sonar dome (as applicable).	
(13) Keel and Stem.	
c. Submarine Hull Inspection:	
(1) Propeller:	
(a) Dunce cap.	
(b) Cover plate.	
(c) Blades.	

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
(d) Inspect facing for cavitation effects.	
(e) Rope guards (forward of propeller).	
(f) Zincs.	
(2) Rudder and Stern Plane areas:	
(a) Overall appearance.	
(3) Struts, Stern Tubes, and Fairwaters:	
(a) External main strut housing and strut.	
(b) Fairwater halves forward of main strut.	
(c) Shaft.	
(d) Stern Tube fairwater.	
(4) Anchor:	
(a) Check housing for marine growth and obstructions.	

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
(5) Safety:	
(a) Ensure diver can surface easily.	
(b) Ensure suctions/discharges are Secure.	
(c) Never dive on any engineering spaces if machinery is running.	
(6) Zinc.	
(7) Torpedo tube shutters.	(7) "Barn Doors."
(8) Underwater Hull Openings:	(8) Display Transparency 9-1-10, Underwater Hull Inspection.
(a) After ballast tank group.	
(b) Check suction and discharges.	(b) Trash Disposal Unit (TDU).
(c) Format ballast tank group.	
(d) BQH sensors.	
(e) Sonar.	

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
(9) Ship’s keel and bow.	
(10) Secondary Propulsion Motor (SPM) (if applicable).	
d. Perform Underwater Hull inspection (day).	d. Perform Job Sheet 9-1-5, SURFACE VESSEL HULL INSPECTION.
10. Hull Inspection Report:	
a. List items to be inspected.	
b. Include diagrams to show damage.	
c. Include photographs to show damage, deterioration, etc.	
d. Include UDATS cassettes.	
e. Developed locally (specifically for):	
(1) Surface ships.	
(2) Submarines.	

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
f. Diving divisions should retain hull inspection report copies for units within their cognizance as a ready reference, since past history tells us that units tend to misplace their original copies. To avoid in-water duplication of your effort, maintain a correct administration file (by UIC) of all waterborne inspections completed by your divers.	
11. Summary and Review - The objective of this topic was to teach the knowledge and skills required to conduct underwater hull inspection. To accomplish this, trainees must know the different part of the ship, recognize fouling, prepare reports, and understand safety procedures. The following subtopics were discussed:	
a. Ship hull configurations.	
b. Stages of sea growth.	
c. Planning for inspection.	
d. Fouling rating scales.	
e. Fouling areas of ship’s hull.	
f. Diving safety.	

LESSON PLAN

Unit 9. INSPECTION OF MAJOR HULL COMPONENTS **A-433-0023A**

Topic 9.1 UNDERWATER HULL INSPECTION

DISCUSSION POINT	RELATED INSTRUCTOR ACTIVITY
g. Surface ship and submarine hull inspection.	
h. Performance of underwater hull inspection.	
i. Hull inspection report.	
12. Assignments - The following assignments should be completed:	
a. Complete Assignment Sheet 9-2-1. Trainees are to read Information Sheet 9-2-2 and 9-2-3 and review Diagram Sheets 9-2-4 and 9-2-5.	a. Assignment Sheet 9-2-1 is to be completed prior to beginning Lesson Topic 9.2.

TAB A-5

TRAINEE GUIDE

TRAINEE GUIDE

FOR

NAVY SCUBA DIVER

A-433-0023A

PREPARED FOR

DIRECTOR, LEARNING AND DEVELOPMENT (NETC N7)
9549 BAINBRIDGE AVE
NORFOLK, VIRGINIA 23511-2612

PREPARED BY

NAVAL DIVING AND SALVAGE TRAINING CENTER
PANAMA CITY, FLORIDA 32407

NOVEMBER 2008

TRAINEE GUIDE

A-433-0023A

CHANGE RECORD

Number and Description of Change	Entered By	Date

FOR TRAINING USE ONLY

TABLE OF CONTENTS

FOR TRAINING USE ONLY

TRAINEE GUIDE **A-433-0023A**

SECURITY AWARENESS NOTICE

This course does not contain any classified material.

TRAINEE GUIDE **A-433-0023A**

SAFETY/HAZARD AWARENESS NOTICE

This notice promulgates safety precautions to the staff and trainees of the Navy SCUBA Diver Course in accordance with responsibilities assigned by the Chief of Naval Education and Training.

Trainees may voluntarily request termination of training. Any time the trainee makes a statement such as "I QUIT," or "DOR," (Drop on Request), he or she shall be immediately removed from the training environment and referred to the appropriate division or training officer for administrative action. The trainee must then make a written statement, clearly indicating the desire to DOR.

Any trainee having apprehension concerning your personal safety or that of another, you should signal for a "Training Time Out" to clarify the situation or procedure and receive additional instruction as appropriate. "Training Time Out" signals, other than verbal, such as forming a “T” using both hands, can be used.

The safety precautions contained in this course are applicable to all personnel. They are basic and general in nature. Personnel who operate or maintain equipment in support of Navy SCUBA Diver Course must be thoroughly familiar with all aspects of personnel safety, and strictly adhere to every general as well as specific safety precautions contained in operating and emergency procedures and applicable governing directives.

Special emphasis must be placed on strict compliance with published safety precautions and on personal awareness of potentially hazardous conditions peculiar to diving. All personnel must have a comprehensive knowledge of emergency procedures which prescribe courses of action to be followed in the event of equipment failure or human error as stated in the Pre-Mishap Plan. Strict adherence to approved, verified operating, emergency, and maintenance procedures IS MANDATORY. As a minimum, you are responsible for knowing, understanding, and observing all safety precautions applicable to the command, school, course, your work, and your work areas. In addition, you are responsible for observing the following general safety precautions:

SAFETY/HAZARD AWARENESS NOTICE (CONT.)

1. Each individual shall report for work rested and emotionally prepared for the tasks at hand.
2. You shall use normal prudence in all your functions, commensurate with the work at hand.
3. You shall report any unsafe conditions, or any equipment or material which you consider to be unsafe, and any unusual or developing hazards.
4. You shall warn others whom you believe to be endangered by known hazards or by failure to observe safety precautions, and of any unusual or developing hazards.
6. You shall report to the school any mishap, injury, or evidence of impaired health occurring in the course of your work or during non-training environment.
6. You shall wear or use the protective clothing and/or equipment of the type required, approved, and supplied for the safe performance of your work.
7. All trainees in the immediate vicinity of a designated noise hazardous area or noise hazardous operation shall wear appropriate hearing protective devices. (NDSTC Instruction 6260.6 series)
8. You must always observe appropriate safety precautions when working around electrical circuits and equipment to avoid injury or death from electrical shock and short circuits (NDSTC Instruction 5101.2 series).

HOW TO USE YOUR TRAINEE GUIDE

This publication has been prepared for your use while under instruction. It is arranged in accordance with the topics taught, and is in sequence with those topics. By using the table of contents you should be able to locate the lesson topics easily. By following the enclosed course schedule, you should be able to follow the course of instruction in a logical manner. Under each topic there may be the following instruction sheets:

- OUTLINE SHEETS: Provide a listing of major teaching points. The outline is consistent with the outline of the discussion points contained on the DDA pages in the lesson plan. It allows the trainee to follow the progress of lesson topic, to take notes as desired, and to retain topic information for future reference.
- INFORMATION SHEETS: Amplify supplemental information from the reference materials for the course, from technical manuals, or from instruction books. You may be tested on this material during the course.
- PROBLEM SHEETS: Normally used for paperwork troubleshooting when the equipment is not available. Can also be used for drill-and-practice problems related to the topic.
- JOB SHEETS: Provide step-by-step instructions for developing your skills in performing assigned tasks and maintaining the equipment when and where the work is assigned, in the laboratory or practical areas.
- ASSIGNMENT SHEETS: To assist you in being prepared for the lesson topics and laboratory/practical exercises BEFORE they are presented by the instructor or occur in the course.
- DIAGRAM SHEETS: These are used as necessary to simplify the instruction. They are to aid you in understanding the systems, equipment, or topics presented.

All of the instruction sheets are identified by their unit and lesson topic number. They are listed in the order of their use. Each lesson topic will contain at least one Enabling Objective.

The Enabling Objectives listed in this Guide specify the knowledge and/or skills that you will learn during the course, and reflect the performance expected of you on the job. The Enabling Objectives specify the knowledge and/or skills you will learn in a specific lesson topic. You should thoroughly

understand the Enabling Objectives for a lesson topic and what these objectives mean to you before you start each lesson topic. Each learning objective contains behavior(s), conditions, and standards.

They are defined as follows:

- The behavior is a description of the performance and/or knowledge that you will learn in that lesson topic;
- The conditions under which you will be able to perform or use the
- knowledge;
- The standard(s) to which you will be able to perform or use the
- knowledge.

The objectives provide a means by which you can check your progress during training. The objectives also enable you to evaluate your training when you have finished, so you can ensure that you have satisfied the goals of the course. Your instructor will explain the objectives to you at the start of the course. Feel free to ask for additional information during training if you feel that you are not learning as you should.

- STUDY TECHNIQUES: Classroom and laboratory sessions will be conducted by one or more instructors. You will be responsible for completing the material in this guide, some of it before class time. Prior to starting to use this guide, read through the front matter and become familiar with the organization of the material, then follow directions below for each lesson topic:

  - READ the Enabling Objectives for the lesson topic and familiarize yourself with what will be expected of you.
  - STUDY each reading assignment.
  - WRITE any written assignment.
  - EXAMINATIONS AND QUIZZES

Exams and quizzes will be administered as required by the Course Master Schedule. A blitz is an informal test used to check for understanding, and may be given by your instructor at any time. These quizzes do not count toward your final grade. In any event, only the material covered will be tested. All written tests will be in the form of multiple choice, completion, or true/false items. Performance tests will be provided to test job skills as appropriate. Success on exams is dependent upon an understanding of the objectives, involvement in class activities, and good study habits.

TERMINAL OBJECTIVES

1.0 **QUALIFY** as a SCUBA diver in accordance with Navy Military Personnel Command Manual BUPERS Manual.

2.0 **PREPARE** DIVING RECORDS in accordance with U.S. Navy Diving Manual, Vol 1, NAVSEA NDM.

3.0 **COMPLY** WITH DIVING ACTIVITY AIR SAMPLING PROGRAM REQUIREMENTS in accordance with U.S. Navy Diving Manual, Vol 1, NAVSEA NDM.

4.0 **PLAN** OPEN CIRCUITS SCUBA DIVE accordance with U.S. Navy Diving Manual, Volume 1, NAVSEA 0994-LP-001-9010, chapter 4.

5.0 **PERFORM** OPEN CIRCUIT SCUBA DIVE in accordance with U.S. Navy Manual, Vol 1, NAVSEA NDM.

6.0 **PERFORM** UNDERWATER SEARCH in accordance with U.S. Navy Manual, Vol 1, NAVSEA NDM.

7.0 **PERFORM** INITIAL TREATMENT FOR DIVING ACCIDENTS AND INJURIES in accordance with U.S. Navy Manual, Vol 1, NAVSEA NDM.

8.0 **PERFORM** INSPECTION AND MAINTENANCE ON OPEN CIRCUIT SCUBA EQUIPMENT AND RELATED UNDERWATER ACCESSORIES in accordance with Equipment PMS, NA.

9.0 **CHARGE** open circuit SCUBA following a checklist and in accordance with the U. S, Navy Diving Manual, Volume 1.

10.0 **APPLY** underwater hull search techniques to CONDUCT inspection of major hull components in accordance with Underwater Work Techniques Manual, Vol. 2, while performing operations as a SCUBA diver. Observe applicable safety precautions.

NOTE TO READER: Sample instruction is provided to support only Terminal Objectives 1.0, 4.0, 9.0, and 10.0. Sample instruction for Terminal Objective 1.0 is intentionally omitted.

TRAINEE GUIDE **A-433-0023A**

COURSE MASTER SCHEDULE

A-433-0023A

WEEK 3
Day 1

Topic No.	Type	Period	Topic Title	Period Length	Bottleneck Ratio	
1.1	Class	1	SCUBA DIVING	50	25:1	
1.1	Class	2	SCUBA DIVING	50	25:1	
	Special	3	TEST	50	25:1	

NOTE TO READER: Only Unit 2, Lesson Topic 1 and Unit 3, Lesson Topic 1 are used as samples in Volume II. Interim units of instruction are intentionally omitted.

8.1	Class	4	SCUBA CHARGING	50	25:1	
8.2	Class	5	SCUBA CHARGING	50	25:1	
8.3	Lab	6	SCUBA CHARGING	50	4:1	
	Special	7	TEST	50	4:1	
9.1	Class	8	UNDERWATER HULL INSPECTION	50	25:1	
9.2	Class	9	UNDERWATER HULL INSPECTION	50	25:1	
9.3	Class	10	UNDERWATER HULL INSPECTION	50	25:1	

Day 2

9.1	Class	11	UNDERWATER HULL INSPECTION	50	25:1	
9.1	Lab	12	UNDERWATER HULL INSPECTION	50	25:1	
	Special	13	TEST	50	25:1	

TRAINEE GUIDE **A-433-0023A**

OUTLINE SHEET 1-1-1

SCUBA DIVER QUALIFICATIONS

A. INTRODUCTION:

To qualify as SCUBA divers trainees must go through rigorous physical conditioning. A diver's ability to perform underwater is dependent on the physical conditioning of the diver. The benefits of good physical conditioning are increased self confidence and increased underwater endurance. As a diver, you life depends on the selection and use of the proper, approved equipments. And, although diver work is hazardous, your safety is paramount.

B. ENABLING OBJECTIVES:

1.1 **PERFORM** physical training with the class as a group in accordance with the Course Master Schedule, and successfully **MAINTAIN** diver physical qualification standards throughout the course of training in accordance with BUPERS Manual, Article 1410380.

1.2 **IDENTIFY** the minimum equipment which must be worn by a Navy SCUBA diver in accordance with U. S. Navy Diving Manual, Volume 1.

C. TOPIC OUTLINE:

1. Introduction.

2. Overview.

3. Requirements.

4. Goals of the Physical Conditioning Program.

5. Summary and Review.

6. Assignment.

7. Application.

TRAINEE GUIDE **A-433-0023A**
Sheet 1 of 1

OUTLINE SHEET 8-1-1

SCUBA CHARGING

A. INTRODUCTION:

Open circuit SCUBA cylinders must be refilled or "topped off" when the pressure in the cylinder is not sufficient to complete the planned dive. The procedure for doing this is called "charging." In this lesson topic, you will be given the charging air system and charging checklist for use at this command.

B. ENABLING OBJECTIVES:

6.1 **APPLY** General Gas Laws when charging SCUBA cylinders in accordance with U.S. Navy Diving Manual, Volume 1.

6.2 **FOLLOW** safety precautions applicable to charging Open Circuit SCUBA in accordance with the U.S. Navy Diving Manual, Volume 1.

6.3 **CHARGE**, as a member of a SCUBA charging team, SCUBA cylinders in accordance with U.S. Navy Diving Manual, Volume 1, to the accuracy required by the Diving Training Standards following an Open Circuit SCUBA charging checklist for the available system.

C. TOPIC OUTLINE:

1. Introduction.

2. General Gas Law that Affects SCUBA Charging.

3. Charge SCUBA Cylinders.

4. Safety.

5. Summary and Review.

6. Assignment.

OUTLINE SHEET 8-1-1

SCUBA CHARGING (CONT.)

7. Application.

> **NOTE TO READER**: Only those instruction sheets supporting Unit 2, Lesson Topic 1 and Unit 3, Lesson Topic 1 are included to illustrate the contents of a Trainee Guide.

ASSIGNMENT SHEET 8-1-2

SCUBA CHARGING

A. INTRODUCTION:

This assignment is to be completed prior to the material being covered in class.

B. ENABLING OBJECTIVES:

9.1 **APPLY** General Gas Laws when charging SCUBA cylinders in accordance with U.S. Navy Diving Manual, Volume 1.

9.2 **FOLLOW** safety precautions applicable to charging Open Circuit SCUBA in accordance with U.S. Navy Diving Manual, Volume 1.

C. STUDY ASSIGNMENT:

1. Read U. S. Navy Diving Manual, Volume 1, para. 5-3.4; 5-3.5.

D. Study Questions:

1. What are the safety requirements for charging SCUBA cylinders?

2. How often should cylinders be charged?

NOTE TO READER: Only those instruction sheets supporting Unit 2, Lesson Topic 1 and Unit 3, Lesson Topic 1 are included to illustrate the contents of a Trainee Guide.

JOB SHEET 8-1-3

CHARGE SCUBA CYLINDERS

A. INTRODUCTION:

SCUBA cylinders must contain sufficient pressure in order to effectively and safely complete dives. This Job Sheet will allow you to practice the step-by-step procedures required to charge SCUBA cylinders. A major benefit of this exercise is that you will have the opportunity to make the same decisions that will be required to perform this task in your duty assignment.

B. EQUIPMENT:

1. SCUBA charging checklist.
2. SCUBA cylinders.
3. SCUBA charging station including equipment.
4. Hearing protection.

C. REFERENCES:

1. U.S. Navy Diving Manual, Vol 1, NAVSEA NDM.
2. Diving Training Standards, NAVDIVSALVTRACEN 433-0023-1.
3. Instructional Building Auxiliary Air Operating Procedures Manual, NAVDIVSALVTRACEN Local Instruction.
4. SCUBA Charging Checklist, NAVDIVSALVTRACEN.

D. SAFETY PRECAUTIONS:

Review TTO/DOR procedures in the Safety/Hazard Awareness Notice.

E. JOB STEPS:

Perform SCUBA cylinder charging in accordance with NAVDIVSALVTRACEN checklist 40-8.

F. SELF TEST QUESTIONS:

Note: To be developed.

JOB SHEET 8-1-3

CHARGE SCUBA CYLINDERS (CONT.)

NOTE TO READER: Only those instruction sheets supporting Unit 2, Lesson Topic 1 and Unit 9, Lesson Topic 1 are included to illustrate the contents of a Trainee Guide.

OUTLINE SHEET 9-1-1

UNDERWATER HULL INSPECTION

A. INTRODUCTION:

Underwater hull inspection involves the examination of the exterior underwater hull and components to determine the condition and needs for maintenance and repair. In this topic, you will be taught the components to be inspected and the procedures for inspection.

B. ENABLING OBJECTIVES:

7.1 **IDENTIFY** the components of the ship's hull in accordance with the Underwater Work Techniques Manual, Volume 2.

7.2 **DESCRIBE** the stages of growth commonly found on underwater hulls in accordance with the NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081, and the Underwater Work Techniques Manual, Volume 2.

7.3 **STATE** the general contents of the Fouling Rating Scale, and the Paint Deterioration Rating Scale, in accordance with NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081.

7.4 **DESCRIBE** the fouling areas of hulls in accordance with the NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081. 4.13 IDENTIFY considerations that affect dive planning in accordance with U.S. Navy Diving Manual, Volume 1, NAVSEA 0994-LP-001-9010, para. 4-2.

7.5 **APPLY** the specific safety precautions associated with underwater hull inspections in accordance with the U. S. Navy Diving Manual, Volume 1; the Underwater Work Techniques Manual, Volume 2; and the NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081.

OUTLINE SHEET 9-1-1

UNDERWATER HULL INSPECTION (CONT.)

7.6 **PERFORM** day and night underwater hull inspections in accordance with the NAVSHIPS Technical Manual and Underwater Work Techniques Manual, Volume 2.

7.7 **PREPARE** the ship's hull inspection report in accordance with the Diving Training Standards.

> **NOTE TO READER**: Only those instruction sheets supporting Unit 2, Lesson Topic 1 and Unit 3, Lesson Topic 1 are included to illustrate the contents of a Trainee Guide.

C. TOPIC OUTLINE:

1. Introduction.

2. Safety Reminder.

3. Ship Hull Components.

4. Stages of Sea Growth.

5. Fouling Rating Scales.

6. Critical Fouling Surfaces.

7. Dive planning.

8. Use Repair Safety Checklist.

9. Perform Underwater Hull Inspection (day).

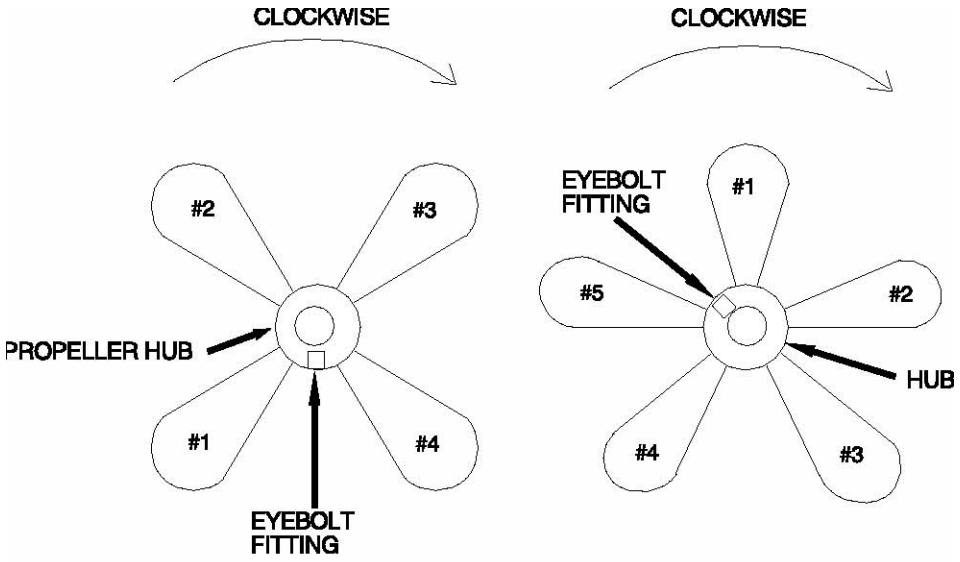
10. Hull Inspection Report.

11. Summary and Review.

12. Assignment.

DIAGRAM SHEET 9-1-2

BLADED PROPELLERS (LOOKING FROM STERN TOWARD BOW)



4-BLADED PROPELLER (TYPICAL) 5-BLADED PROPELLER (TYPICAL)

NOTE TO READER: Only those instruction sheets supporting Unit 2, Lesson Topic 1 and Unit 3, Lesson Topic 1 are included to illustrate the contents of a Trainee Guide.

INFORMATION SHEET 9-1-3

FOULING RATING SCALE

A. INTRODUCTION:

This information describes each of the Fouling Ratings.

B. REFERENCE:

NAVSHIPS Technical Manual, Chapter 081, Waterborne Underwater Hull Cleaning of Navy Ships, Chapt. 081, S9086-CQ-STM=010/CH-081 R2.

C. INFORMATION:

Fouling Rating, (FR)	Description
0	A clean, foul-free surface; red AF paint (for a ship out of dry dock).
10	Continuous graduations of shades of red and green (incipient) slime.
20	Slime as dark green patches with yellow or brown colored areas (advanced slime).
30	Grass as filaments up to 3 inches (76 mm) length, projections up to 1/4 (6.4 mm) in height; or a flat network of filaments, green, yellow, or brown in color.
40	Calcareous fouling on edges, welded seams, corners, or as discrete patches covering flat areas roughly 9 to 10 inches (229 to 254 mm) diameter.
50	Random and scattered tubeworms or barnacles, (or both) on slightly curved or flat surfaces.
60	Area distribution of tubeworms or barnacles, 1/4 inch (6.4 mm) in diameter or less; fouling does not completely cover or blank out surface.
70	Tubeworms and barnacles completely cover surface in patches exceeding 9 to 10 inches (229 to 254 mm) in diameter. Tubeworms lying flat with radiating fringes of growth or branches 1/4 inch (6.4 mm) in diameter or less.
80	Tubeworms closely packed together and growing upright away from surface. Barnacles growing one on top of another. Calcareous shells appear clean or white in color.
90	Dense growth of tubeworms with barnacles 1/4 inch (6.4 mm) or greater. Calcareous shells brown in color or with slime or grass overly.
100	All forms of fouling present, particularly soft sedentary animals without calcareous covering (tunicates).

NOTE TO READER: Only those instruction sheets supporting Unit 2, Lesson Topic 1 and Unit 3, Lesson Topic 1 are included to illustrate the contents of a Trainee Guide.

ASSIGNMENT SHEET 9-1-4

PLANNING UNDERWATER HULL INSPECTION

A. INTRODUCTION:

This assignment is to be completed prior to the material being covered in class.

B. ENABLING OBJECTIVES:

10.1 **IDENTIFY** the components of the ship's hull in accordance with the Underwater Work Techniques Manual, Volume 2.

10.2 **DESCRIBE** the stages of growth commonly found on underwater hulls in accordance with the NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081, and the Underwater Work Techniques Manual, Volume 2.

10.4 **STATE** the general contents of the Fouling Rating Scale, and the Paint Deterioration Rating Scale, in accordance with the NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081.

10.2 **DESCRIBE** the fouling areas of hulls in accordance with the NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081.

4.13 **IDENTIFY** considerations that affect dive planning in accordance with U.S. Navy Diving Manual, Volume 1, NAVSEA 0994-LP-001-9010, para. 4-2.

10.7 **APPLY** the specific safety precautions associated with underwater hull inspections in accordance with the U.S. Navy Diving Manual, Volume 1; the Underwater Work Techniques Manual, Volume 2; and the NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Chapter 081.

ASSIGNMENT SHEET 9-1-4

UNDERWATER HULL INSPECTION (CONT.)

10.5 **PERFORM** day and night underwater hull inspection in accordance with the NAVSHIPS Technical Manual and Underwater Work Techniques manual, Volume 2.

10.6 **PREPARE** the ship's hull inspection report in accordance with the Diving Training Standards.

C. STUDY ASSIGNMENT:

1. Read U. S. Navy Diving Manual, Volume 1, Chapter 4.

D. STUDY QUESTIONS:

1. What are the inspection materials?

2. How many people inspect at a time?

3. How often should inspections be conducted?

NOTE TO READER: Only those instruction sheets supporting Unit 2, Lesson Topic 1 and Unit 3, Lesson Topic 1 are included to illustrate the contents of a Trainee Guide.

JOB SHEET 9-1-5

INSPECTION STEPS

A. INTRODUCTION:

Underwater hull inspection requires a thorough knowledge of the components and conditions peculiar to underwater operations. This Job Sheet will allow you to practice the step-by-step procedures required to conduct underwater hull inspections. A major benefit of this exercise is that you will have the opportunity to make the same decisions that will be required to perform this task in your duty assignment.

B. EQUIPMENT:

1. Open circuit SCUBA outfit.
2. 12" rule.
3. Tending lines.
4. Underwater lights.
5. Chem-lite.
6. Hull inspection report.

C. REFERENCES:

1. Waterborne Underwater Hull Cleaning of Navy Ships, Chapt. 081, S9086-CQ-STM-010/CH-081 R2.
2. Underwater Work Techniques, Vol 2, NAVSEA UWT.
3. U.S. Navy Diving Manual, Vol 1, NAVSEA NDM.

D. SAFETY PRECAUTIONS:

Review TTO/DOR procedures in the Safety/Hazard Awareness Notice.

NOTE TO READER: Only those instruction sheets supporting Unit 2, Lesson Topic 1 and Unit 3, Lesson Topic 1 are included to illustrate the contents of a Trainee Guide.

JOB SHEET 9-1-5

INSPECTION STEPS (CONT.)

E. JOB STEPS:

1. At Diving supervisor's direction, dress in open circuit SCUBA following donning sequence in U.S. Navy Diving Manual, Volume 1, para. 5-4.2.1. Report to the Diving Supervisor for final pre-dive inspection.

2. Review safety checklist in the Underwater Work Techniques Manual, Vol. 2, Part 2 Section 4 before entering water. At Diving supervisor's direction, make proper water entry.

3. At Diving supervisor's direction, descend on craft and make an underwater inspection of the craft's hull.

4. Upon surfacing, sound off, "Maximum Depth_____, Bottom Time_____." Failure to report this information will result in a failing grade for this Job Sheet.

5. At Diving supervisor's direction, make proper water exit.

6. Await further instructions from Diving supervisor.

7. Complete an underwater hull inspection report (one per buddy team).

NOTE: Two percent will be deducted for each line pull signal not given or given incorrectly.

F. SELF-TEST QUESTIONS:

None.

TAB A-6

TEST ADMINISTRATOR'S GUIDES

NAVY SCUBA DIVER
A-433-0023A

SECTION 1 - PERFORMANCE TEST ADMINSTRATOR'S GUIDE

PERFORMANCE TEST 2-1-1
Life Preserver Familiarization, Mask and Snorkel
And Drown Proofing

NOVEMBER 2008

INSTRUCTIONS TO THE ADMINISTRATOR

General Description of performance test:

Students will be evaluated on their ability to:

1. Maintain buoyancy control.
2. Clear mask utilizing using two methods.
3. Demonstrate proper usage of snorkel both with and without a mask.
4. Stay on the surface while participating in drown proofing.

Safety Precautions:

1. When hands are joined together with line, do not tie the line in a knot.
2. When feet are secured with line, do not tie a knot in such a fashion that it cannot be readily untied.
3. NEVER have both hands AND feet tied at one time.
4. Only put as many trainees in the water as can be safely monitored by the number of instructors present. 25:4 ratio.
5. Instructors refer to Job Sheet 2-1-1 for safety precautions pertaining to the area of which the diving will be conducted.

Environment: Swimming Pool

Equipment per trainee: Mask, Fins, Life Preserver, Snorkel, Wet Suit (as required), short piece of line

Special Instructions:

Trainees may voluntarily request termination of training. Any time the trainee makes such a statement such as "I Quit," or "DOR," (Drop on Request), he or she shall be immediately removed from the training environment and referred to the appropriate division or training officer for administrative action. The trainee must then make a written statement, clearly indicating the desire to DOR.

Any time a trainee or instructor has apprehension concerning their personal safety or that of another, they shall signal for a "Training Time Out" to clarify the situation as appropriate. "Training Time Out" signals shall be

appropriate to the training environment. "Training Time Out" signals for this unit are a verbal "HELP", or the hand signals for "HOLD" (Clinched fist), "4 FINGERS HELD UP", or the "T SIGNAL" (one hand laid across the end of the other).

Instructors are responsible for maintaining situational awareness and shall remain alert to signs of trainee panic, fear, extreme fatigue or exhaustion, or lack of confidence that may impair safe completion of the training exercise. Instructors shall immediately stop training, identify the problem, and make a determination whether to continue or discontinue training. Instructors shall be constantly alert to any unusual behavior which may indicate a trainee is experiencing difficulty, and shall immediately take appropriate action to ensure the trainee's safety.

EVALUATION INSTRUMENT

Job Sheet Number: Job Sheet 2-1-1

Steps:

LIFE PRESERVER

1. Swim to deep end of pool.
*2. Inflate Life Preserver with oral inflator until positive buoyancy is achieved.
3. Swim circles on back until told otherwise by instructor.

MASK/SNORKEL

4. In shallow end of pool, take a breath and submerge until snorkel fills with water.
5. Surface and exhale through snorkel, blowing water out while keeping face in water.
6. Continue to breathe through snorkel until comfortable.
7. Don mask.
8. Fill mask with water.
*9. Demonstrate two methods of clearing mask.

    a. Push with palm of hand on top front of mask and exhale through nose with head titled back.
    b. Tilt head to one side, push in on high side of mask and exhale through nose.

*10. Using snorkel, trainee should sit in shallow end of pool without mask and breathe through snorkel for a minimum of 3 minutes.
*11. Using snorkel and fins, swim circles around the pool with face in the water for two laps without lifting head out of water.
*12. Throw mask in water and let it sink to the bottom. Swim underwater, retrieve mask, and don and clear mask of water prior to surfacing.

DROWN PROOFING

*13. Enter water and use basic survival stroke for 5 minutes.
*14. Enter water with ankles tied and use modified basic survival stroke for 5 minutes.
*15. Enter water, holding a line in both hands. With hands touching behind back, use the modified basic survival stroke for 5 minutes.

* = CRITICAL STEP

Step Description:

1. A Checklist will be used to evaluate trainee performance.
2. Steps 2 and 9 through 15 are critical.
3. A counseling sheet will be filled out, concerning areas of deficiency and ways of improvement, each time trainee fails to meet the objectives of this Job Sheet.
4. Mandatory night study will be conducted in the form of practice during evening pool hours.
5. Failure to meet the objectives of this Job Sheet three times will institute a counseling sheet being filled out on the trainee recommending an Academic Review Board (ARB).

Common Errors:

1. Failure to maintain positive buoyancy.
2. Failure to successfully clear mask.
3. Failure to swim while breathing through a snorkel.
4. Failure to maintain composure while drown proofing.

GRADING CRITERIA

1. Satisfactory: A grade of 80 or more and completion of all critical items.
2. Unsatisfactory: A grade of less than 80 or failure to complete any critical item.
3. There are eight critical steps associated with this Job Sheet. All eight critical steps, when successfully completed equate to a passing score of 80.
4. The remaining seven steps are not individually evaluated, but collectively, their successful performance in accordance with instructions is assigned a value of 0 to 20 points.

INSTRUCTIONS TO THE TRAINEE

1. Use of Job Sheet 2-1-1 is not feasible in the pool environment. Prior to allowing any trainee to enter the pool, review with the trainees as a group, all the tasks they are to demonstrate. After the trainee enters the water, the instructor will pace the trainee through each step using the Job Sheet as a guide.

2. Review DOR and TTO procedures with trainees.

3. Point out time requirements for Steps 1., 13, 14, and 15.

4. Successful completion of this Job Sheet is mandatory prior to breathing compressed air during pool phase of SCUBA.

JOB SHEET 2-1-1

Life Preserver Familiarization, Mask and Snorkel Technique and Drown Proofing

Introduction: The purpose of the Performance Test is to assess your skill at maintaining buoyancy control; clearing your mask utilizing both head tilt methods; using a snorkel both with and without a mask; and staying on the surface while participating in drown proofing.

Equipment: Mask, Fins, Life Preserver, Snorkel, Wet-Suit (as required), short piece of line

Job Steps:

LIFE PRESERVER

1. Swim to deep end of pool.

2. Inflate Life Preserver with oral inflator until positive buoyancy is achieved.

3. Swim circles on back until told otherwise by instructor.

MASK/SNORKEL

4. In shallow end of pool, take a breath and submerge until snorkel fills with water.

5. Surface and exhale through snorkel, blowing water out while keeping face in water.

6. Continue to breathe through snorkel until comfortable.

7. Don mask.

8. Fill mask with water.

9. Demonstrate two methods of clearing mask.

10. Using snorkel, trainee should sit in shallow end of pool without mask and breathe through snorkel for a minimum of 3 minutes.

11. Using snorkel and fins, swim circles around the pool with face in the water for two laps without lifting head out of water.

12. Throw mask in water and let it sink to the bottom. Swim underwater, retrieve mask, and don and clear mask of water prior to surfacing.

DROWN PROOFING

13. Enter water and use basic survival stroke for 5 minutes.

14. Enter water with ankles tied and use modified basic survival stroke for 5 minutes.

15. Enter water, holding a line in both hands. With hands touching behind back, use the modified basic survival stroke for 5 minutes.

JOB SHEET 2-1-1 CHECKLIST

Life Preserver Familiarization, Mask and Snorkel Technique and Drown Proofing

TRAINEE NAME/RATE_____ SSN_____
INSTRUCTOR/EVALUATOR_____ DATE_____

Evaluation Instructions Critical Steps: Observe trainee performing each step. Watch for correct use of equipment and adherence to safety regulations. Indicate trainee's performance by circling either SAT or UNSAT. Ten points will be awarded for each step performed satisfactorily. _____

SAFETY - Failure to adhere to all safety requirements will result in automatic failure of this Performance test.

LIFE PRESERVER

2.	Inflate Life Preserver with oral inflator until positive buoyancy is achieved.	SAT UNSAT

MASK/SNORKEL

9.	Demonstrate two methods of clearing mask.	SAT UNSAT
10.	Using snorkel, trainee should sit in shallow end of pool without mask and breathe through snorkel for a minimum of 3 minutes.	SAT UNSAT
11.	Using snorkel and fins, swim circles around the pool with face in the water for two laps without lifting head out of water.	SAT UNSAT
12.	Throw mask in water and let it sink to bottom. Swim underwater, retrieve mask, and don and clear mask of water prior to surfacing.	SAT UNSAT

DROWN PROOFING

13. Enter water and use basic survival stroke for 5 minutes. SAT UNSAT

14. Enter water with ankles tied and use modified basic survival stroke for 5 minutes. SAT UNSAT

15. Enter water, holding a line in both hands. With hands touching behind back use the modified basic survival stroke for 5 minutes. SAT UNSAT

Evaluation Instructions for Non-Critical Steps: Observe overall trainee performing and composure when executing each step. Assign an overall rating of 0 to 20 points. _____

LIFE PRESERVER

1. Swim to deep end of pool.

3. Swim circles on back until told otherwise by instructor.

MASK/SNORKEL

4. In shallow end of pool, take a breath and submerge until snorkel fills with water.

5. Surface and exhale through snorkel, blowing water out while keeping face in water.

6. Continue to breathe through snorkel until comfortable.

7. Don mask.

8. Fill mask with water.

Comments:

Navy SCUBA Diver
A-433-0023A

SECTION 2 - KNOWLEDGE TEST ADMINISTRATOR'S GUIDE

Test for Units 1 through 9

MAY 2009

INSTRUCTIONS TO ADMINISTRATOR

Prior to the start of testing:

1. Cover or remove all training aids that could assist the trainees in answering test items.

2. Have trainees clear their desks of all unrelated testing material.

3. Inform trainees that they have 50 minutes for the test.

4. Provide pencils and scratch paper as necessary.

5. Read the test instructions to the trainees.

6. Provide pertinent diving reference documentation.

7. Comply with local instruction pertinent to testing as applicable.

After completing the test:

1. Collect and inventory all testing material.

2. Check test for marks made by trainees.

3. Review test with trainees.

4. Evaluate any test challenged by trainees.

5. Apply local instructions as necessary.

Test Instructions to the Trainee:

a. Complete the administrative section of the answer sheet by entering your name, Social Security number, and class number.

b. Trainees caught cheating will be given a zero on the test and remanded to the Training Officer for disciplinary action.

C. The Test booklet and answer sheet will be turned in to the administrator at the completion of the Test.

The following test items have been compiled for illustrative purposes to assess trainees' knowledge of Units 2 and 3 of the SCUBA Course:

UNIT 2: **CHARGE OPEN CIRCUIT SCUBA EQUIPMENT**

Lesson Topic 2.1: SCUBA Charging

A. SCUBA Charging

EO9.1 1. While charging SCUBA cylinders with high pressure air, the cylinders become hot to the touch. The cause of the increase in temperature is explained by the _____ General Gas Law.
(CTTL #62) (U.S. Navy Diving Manual, Vol. 1, para. 2-5.2.4)

EO9.2 2. (True/False) When charging SCUBA cylinders you should place your face close to the gage to avoid getting a false reading. False.
(CTTL #63) (U.S. Navy Diving Manual, Vol. 1, Table 5-4, #3)

EO9.3 3. Name the two accepted methods of charging SCUBA cylinders. _____ and _____.
Cascading and High Pressure Air Compressor
(CTTL #64) (U.S. Navy Diving Manual, Vol. 1, para. 5-3.4)

UNIT 3: **CONDUCT INSPECTION OF MAJOR HULL COMPONENTS**

Lesson Topic 3.1: Underwater Hull Inspection

E10.1 1. On an illustration of a typical SSBN underwater hull, label each of the indicated components. Underwater Work Techniques Manual, Vol. 2, Fig. 4-1.
(CTTL #66)

E10.2 2. Name four factors that determine the amount of sea growth a ship will have: Ship location, Duration of ship's movement, Hull protection and Hull cleaning Periodicity.
(CTTL #68) (NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Vol. 2, para. 081-2.1.1)

E10.4 3. Name three possible effects on a propeller which can be caused by use of improper cleaning tools: Change acoustic signature, induce singing, induce cavitation.
(CTTL #67) (NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Vol. 2, para. 081-3.7.2.1)

E10.2 4. Of the four stages of sea growth, which of the following would be the first stage?

a. Grass.
b. Tubeworms.
c. Slime.
d. Barnacles.

(CTTL #68) (NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Vol. 2, para. 081-1.2.1)

E10.2 5. What stage of sea growth is common on the docking block bearing surface areas of a ship? _____
Stage 3.
(CTTL #68)(NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Vol. 2, para. 081-1.3.4)

E10.2 6. Barnacles and tubeworms would identify which of the following stages of sea growth?

a. Slime.
b. Grass.
c. Hard fouling.
d. Composite.

(CTTL #68)(NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Vol. 2, para. 081-1.2.4)

E10.2 7. Which of the following stages of sea growth is most likely to be found inside a sea chest of a ship taken from dry dock and then set in port for a year?

a. One.
b. Two.
c. Three.
d. Four.

(CTTL #68)(NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Vol. 2, para. 081-1.2.5)

E10.4 8. Why is the docking block bearing surface area of a ship's hull considered to be more susceptible to fouling? _____ Unpainted in dry dock.
(CTTL #68)(NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Vol. 2, para. 081-1.3.4)

E10.3 9. On the Fouling Rating Scale, the lowest number represents _____ a clean hull.
(CTTL #69) (NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Vol. 2, para. 081-1.2.7)

E10.3 10. On the Paint Deterioration Rating Scale, the first three ratings represent:

a. the highest level of paint deterioration.
b. appearance associated with normal wear.
c. blistering, due to paint system failure.
d. cavitation scouring.

(CTTL #69) (NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Navy Ships, Vol. 2, para. 081-1.4)

E10.13 11. Name the manual and chapter in the manual where the procedures for diving operations planning are found? U.S. Navy Diving Manual, Vol. 1, Chapter 4
(CTTL #31)

NOTE: For the purposes of this sample, questions for EOs 10.5, 10.6, and 10.7 are omitted.

TAB A-7

MONITORING REPORT

MONITORING REPORT

Navy SCUBA Diver

A-433-0023A

I. Course Identification

A. LOCATION: NAVDIVSALVTRACEN, Panama City

B. TITLE: Navy SCUBA Diver

C. CIN: A-433-0023A

D. PILOT PERIOD: 16 March through 15 May, 2010

E. MONITORS: HTCM (DV) Monday (Pilot Team Chairman) NAVDIVSALVTRACEN, Panama City; Mr. L. T. Tuesday (Course Monitor) NETC Pensacola

II. Administration

A. Facilities.

The class capacity is 35. The facilities are adequate for this trainee load.

B. Safety.

Safety policies and procedures are in place and are being practiced. Trainees are aware of Training Time Out (TTO) and Drop on Request (DOR) procedures, and appear comfortable in utilizing these procedures as needed. Instructors maintain situational awareness and constantly strive to maintain a safe training environment.

C. Security.

Course is not classified; therefore, security not applicable.

D. Allocation.

This course is 40 calendar days long with 30 instructional days. The trainee/instructor ratio is 12

to 1. This is required due to an increase in planned input and will be adequate.

E. Critique Sheet Summary(s).

1. Trainees' comments are generally favorable toward course content and instructors.

2. Many trainees felt that more time was needed on Gas Laws in Unit 8. Future test performance for this unit will be analyzed to determine if reinforcement is needed.

3. Most junior trainees felt the study questions were helpful; senior trainees less so.

III. Curriculum Validation

A. Lesson Plan. Objectives reflect the tasks to be performed in the job assignment. The objectives are properly structured and clear. Trainees had no problem understanding concepts and ideas stated by the objectives.

B. Trainee Guide. The Trainee Guide is well organized. Safety is addressed in great depth and guidance is provided on how to use the Guide. Suggestions for study and instruction sheets directly support the learning process.

C. Equipment/Tools. Proper equipment is provided to support training. Items such as swim fins, diving watches, strobe lights, diver's lights, snorkels, weight belts, etc. are available and in adequate supply.

D. Support Materials. The course has various Support Materials available and in adequate supply. There are 5 overhead projectors, 5 slide projectors, 13 chalkboards, 8 transparencies, 15 slides, and 9 films.

E. Instruction. The instructors were well prepared and the lessons were well presented. The instructional materials, methods, and devices all serve to support the attainment of course objectives.

F. Testing. Tests are administered as reflected in the Course Master Schedule. However, the instructor administers an occasional pop quiz which does not impact course grade. Tests items are randomly chosen from a test bank.

IV. Instructional Accuracy/Adequacy

The yardstick of instructional accuracy was the Curriculum Outline of Instruction (COI) in the TCCD. In this pilot course the COI was followed, but some "backtracking" to earlier topics was done for reinforcement of weak points. Because all trainees passed all objectives by testing, adequacy of objectives is accepted. External evaluation by Naval Training Requirements Review (NTRR) and direct Fleet feedback will determine if the objectives and their achievement continue to meet the Fleet's needs.

V. Minority Reports

None.

VI. Other

None.

TAB A-8

TESTING PLAN

TESTING PLAN

FOR

NAVY SCUBA DIVER COURSE

A-433-0023A

AUGUST 2009

Tests and Methods

This testing plan establishes procedures to use when evaluating the trainees' performance in attaining course objectives. Progress through the course is measured by Progress Tests, Within-course Comprehensive Tests, and Practical Work. Progress and Within-course Comprehensive Tests are both knowledge and performance. Lesson Topics are logically grouped and make up a unit. Instruction is presented at the lesson topic level. Tests are as follows:

Physical Screening Test - A physical fitness test administered on the second day of the course.

Unit 1 Progress Test - A knowledge test administered at the 3rd period of Unit 1.

Unit 2 Progress Test - A knowledge test administered at the end of the first section of Unit 2.

Physical Fitness Test - A physical fitness test administered in the second week of training.

Unit 2 Progress Test - A knowledge test administered at the end of unit 2.

Within-course Comprehensive Test 1 - A knowledge test administered at the end of Unit 2.

Within-course Comprehensive Test 2 - A performance test administered at the end of Unit 2.

Unit 3 Progress Test - A two-part knowledge test administered at the end of Unit 3.

Within-course Comprehensive Tests 3 and 4 - Knowledge tests administered at the end of Unit 3.

Within-course Comprehensive Test 5 - A performance test administered at the end of Unit 3.

Unit 8 Progress Test - Performance test for charging SCUBA cylinders.

Unit 9 Progress Test - Performance test for underwater hull inspection.

Physical Fitness Test - A physical fitness test administered in the fifth week of training.

Knowledge Test Procedures. Knowledge tests are administered to the entire class. Normally, this consists of written and/or oral examinations. Results of the tests are used to diagnose problem areas of the class as a whole and specific problems of the individual trainee prior to continuing with the course.

Performance Test Procedures. Performance tests are administered to the entire class. Normally, this consists of diving charts which require trainees to accurately perform the steps in the process. Instructors evaluate the decisions and behaviors of the trainee. Failure to meet the standard constitutes failure of the test. The instructor will provide specific feedback to the trainee as to his/her performance on the first test to allow the trainee to correct any problems. Additional practice may be required for the trainee prior to retaking the test.

Testing Constraints

The NAVDIVSALVSCOL compressed air and filter systems are scheduled for major overhaul. Work should be completed prior to the implementation date. If work is not completed prior to the first class convening, this will preclude achievement of Terminal Objective 2.0, Charge SCUBA Cylinders. The alternatives are:

1. An attachment to the trainee's record of course completion stating that Terminal Objective 2.0, SCUBA Cylinder Charging, was not achieved due to local constraints and that this training must be accomplished through On-the-Job-Training (OJT) prior to granting the NEC.

2. Contracting use of civilian diving facilities for this training.

Performance Test Numerical Grade

The standard for performance test grades is pass/fail or a minimum of 80 points out of a possible 100. Practical work grades are based on laboratory sessions in which trainees complete job sheets. The instructor will observe and grade the Laboratory sessions. All critical steps must be performed without error.

Minimum Passing Grade

The minimum passing grade for the U.S. Navy SCUBA Diver Course is 80. Evaluation of the course objectives and the inherent dangers of diving operations require the minimum passing grade be set above the average level of understanding.

Final Grade

A final course grade reflects the trainee's scores on progress tests and comprehensive tests. Scores for practical work are not averaged since it is graded on a pass/fail basis and trainees must pass all such work to graduate. Knowledge progress tests and the knowledge component of comprehensive tests add a maximum of 10 points each to the final grade of 80. Physical fitness testing is not assigned a grade since it is a course prerequisite.

Remediation

Remediation for trainees is initially performed at the class level. Answers to all progress test items are available to the trainees during the examination review while the instructor provides explanations for the correct responses. Specific problem areas that the general class experiences will be explained at this time. Trainees who pass the test will be remediated immediately on any questions/problem missed. Trainees who score below the minimum passing score will be subject to instructor oral remediation and night study. Trainees who fail the retake of both knowledge and performance tests will be recommended for an Academic Review Board (ARB).

Test Schedule

See Course Master Schedule.