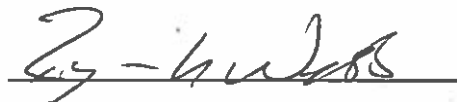


NAVAL SEA SYSTEMS COMMMAND  
PROCESS INSTRUCTION 008  
NAVSEA-00C3-PI-008  
REVISION A

APPLICATION PROCEDURE OF CARBOGUARD 890H COATINGS ON  
PORTABLE OR AFLOAT RECOMPRESSION CHAMBER SYSTEMS

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**SCOPE**

Chambers shall be painted utilizing original paint specifications and in accordance with approved NAVSEA or NAVFAC procedures. The following NAVSEA approved procedure provides the minimum requirements for paint removal, surface preparation, repainting and air sampling of the interior of Navy Steel & Stainless Steel Portable, Afloat and Shore-Based Recompression Chambers using Carboguard 890H Recompression Chamber Systems using Carboguard 890H Coating. This paint is manufactured by Carboline of St. Louis, MO. (314)644-1000, [WWW.CARBOLINE.COM](http://WWW.CARBOLINE.COM).

In the event of a conflict between any portion of this procedure and the referenced specifications, data sheets, or drawings, such conflicts shall immediately be brought to NAVSEA 00C3 attention.

The use of chipping hammers, needle guns and other mechanical paint removing power tools of this type are not authorized for use on recompression chambers. Chemical paint stripper/removers are also not authorized.

For ease of use, this procedure is written in **THREE** sections:

- **SECTION ONE** - Procedure for conducting spot repairs and touch-up painting.
- **SECTION TWO** - Procedure for removal of all paint and completely repainting the interior surface of recompression chambers.
- **SECTION THREE** - Procedure for conducting atmospheric sampling after completing SECTION ONE or SECTION TWO of this procedure.

**STANDARDS AND CODES**

Applicable sections of the following documents form part of this procedure; latest editions and revisions apply.

NAVSEA TS500-AU-SPN-010	U.S. Navy General Specification for the Design, Construction, and Repair of Diving and Hyperbaric Equipment
SS521-AA-MAN-010	U.S. Navy Diving and Manned Hyperbaric Systems Safety Certification Manual
SS521-AG-PRO-010	U.S. Navy Dive Manual
ASTM	American Society for Testing Materials
OSHA-2206	Occupational Safety & Health Act (29 CFR 1910)
SSPC	Steel Structures Painting Council - Painting and Surface Preparation Standards
	<ul style="list-style-type: none"> <li>• SSPC-SP1 - Solvent Cleaning</li> <li>• SSPC-SP2 - Hand Tool Cleaning</li> <li>• SSPC-SP3 - Power Tool Cleaning</li> <li>• SSPC-SP5 - White Metal Blast Cleaning</li> <li>• SSPC-PA2 - "Measurement of Dry Paint Thickness with Non-Destructive Magnetic Gauges"</li> </ul>

**PAINT APPLICATION CONDITIONS:**

To prevent moisture condensation on the chamber surface and subsequent failure of the paint application, the coating system shall be applied when the surface temperature of the chamber is above 50°F with the optimum surface temperature being between 60°-85°F but not exceeding 125°F. Ensure that the maximum/minimum temperatures for the Carboguard 890H coating system are not exceeded. Temperature must be maintained during curing. The Dew Point is the temperature at which moisture will condense on the surface. Carboguard 890H shall not be applied unless the ambient temperature is above the dew point and not falling. Document the application conditions for each coat per the procedure.

A reference chart for the application conditions for Carboguard 890H, a dew point chart, and a curing schedule have been provided below for reference:

**Application Conditions for Carboguard 890H**

CONDITIONS	MATERIAL	SURFACE	AMBIENT	HUMIDTY
Minimum	50°F	50°F	50°F	0%
Normal	60°-85°F	60°-85°F	60°-90°F	0-80%
Maximum	90°F	125°F	110°F	80%

**Dew Point Chart**

		AMBIENT AIR TEMPERATURE °F										
		20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°
HUMIDITY %	90	18	28	37	47	57	67	77	87	97	107	117
	85	17	26	36	45	55	65	75	84	95	104	113
	80	16	25	34	44	54	63	73	82	93	102	110
	75	15	23	33	42	52	62	71	80	91	100	108
	70	13	22	31	40	50	60	68	78	88	96	105
	65	12	20	29	38	47	57	66	76	85	93	103
	60	11	19	27	36	45	55	64	73	83	92	101
	55	9	17	25	34	43	53	61	70	80	89	98
	50	6	15	23	31	40	50	59	67	77	86	94
	45	4	13	21	29	37	47	56	64	73	82	91
	40	1	11	18	26	35	43	52	61	69	78	87
	35	-2	8	16	23	31	40	48	57	65	74	83
	30	-6	4	13	20	28	36	44	52	61	69	77

**Example:** If air temperature is 70°F and relative humidity is 65%, the dew point is 57°F. Therefore, no coating should be applied unless surface temperature is above 57°F.

Pot Life must be kept in mind during application. Pot Life is a term used to describe the “working time” or “useable life” of a coating system that cures through a chemical reaction from the combination of two or more (2+) components or “parts”. Pot Life ends when the coating loses body and begins to sag. Carboguard 890H is a two (2) parts coating system with a Pot Life of 3 hours at 75°F; Pot Life will be less at higher temperatures. Due to Carboguard 890H’s short Pot Life, batches of paint may need to be mixed and prepped between coatings.

## **SECTION 1: PROCEDURE FOR SPOT REPAIRS/TOUCH-UP PAINTING**

This section is to be used for spot repairs to the interior of recompression chambers. Spots that require repair include areas that are chipping/cracking and areas without paint. Spot/Touch-up painting is considered to be any area or areas which make up 20% or less of the entire interior chamber surface area. If considering painting an area greater than 20%, contact NAVSEA 00C3 and NAVSEA 00C4 to discuss requirements and procedures. Spot repairs that encompass less than 10% of the chamber interior surface area is considered minor and will not require a gas sample per Section Three of this procedure.

It is best practice to perform spot repairs and touch-up painting utilizing the paint specification used during the last complete interior repaint of the chamber. If the paint specification is unavailable, discontinued or no longer approved for use, alternative approved paints and their associated Process Instructions may be used. If further guidance is required, contact NAVSEA 00C3 and NAVSEA 00C4. For application of Formula 150/152 paint, refer to Process Instruction 001 (PI-001).

### **EQUIPMENT/MATERIALS:**

The following is a list of equipment that is required for paint removal and spot painting of a recompression chamber.

- Carboguard 890H paint (Part A and B)
- Carboline Thinner #76
- Emery/Sand Paper, 60/80 grit
- Emery/Sand Paper, 200 grit
- Paint Brush
- Wire brush
- Lint free rags
- Tank-type Vacuum Cleaner
- Ventilation Blower (Red Devil or equivalent)
- Water
- Non-ionic Detergent (NID)
- Dry Film Thickness Gauge (Elcometer, Mikrotest II or III, or equivalent)
- Respirator/organic vapor filter
- Heat Lamp
- Power mixer

### **PROCEDURE:**

Initial or check the steps of below procedure as they are accomplished. Provide the information requested where blanks are provided. Initialing or checking a step means that responsible, technically qualified personnel have authorized, performed, accepted, and tested the work accomplished. Evaluating the condition of the coating system (paint) of a chamber prior to the start of work is critical for determining the extent of painting required.

If a vendor is selected to paint the chamber, then that vendor shall provide all necessary documentation to indicate that the steps of procedure have been followed and that technically qualified personnel have performed the work. The vendor shall protect all gasket surfaces, flange faces, valve stems, name plates, pressure gauges, instrument cases, gauge glasses, electrical fixtures, and all previously installed and coated equipment.

This form provides the minimum documentation requirements to support REC. Retain a copy of this completed procedure in the REC.

1. \_\_\_\_\_ Inspect the entire interior/exterior painted surface of the chamber. Inspect the coating system for blistering, chipped, cracked, peeling, flaking, rust and corrosion.
2. \_\_\_\_\_ For interior finishes, determine the total square feet that must be repaired \_\_\_\_\_ ft<sup>2</sup> then determine the percent of total surface area to be repaired \_\_\_\_\_. If spot repairs make up 20% or less of the entire interior chamber surface area, move to Step 3. If spot repairs make up more than 20% of the entire interior chamber surface area, contact the NAVSEA 00C3 and NAVSEA 00C4 for further guidance.
3. \_\_\_\_\_ Open a Re-entry Control procedure in accordance with local instruction. REC # \_\_\_\_\_.
4. \_\_\_\_\_ Red tag chamber primary and secondary supply valves.
5. \_\_\_\_\_ Rig blower to provide chamber ventilation. The blower's outside ducting should reach to the far end of the inner lock.
6. \_\_\_\_\_ Clean/wire brush bare surfaces to remove loose scale, rust and dirt.
7. \_\_\_\_\_ Sand the damaged area to a feather edge using 60/80 grit emery/sand-paper. Ensure that the bare metal has a bright surface appearance.
8. \_\_\_\_\_ Continue to feather edges using the 200 grit sandpaper. Continue steps 5 and 6 until the transition from the bare metal to painted surface is smooth.
9. \_\_\_\_\_ Repeat steps 4 through 6 on all areas that need to be refinished.
10. \_\_\_\_\_ Clean/Vacuum areas that were sanded until all paint chips and visible dust are removed from the chamber.
11. \_\_\_\_\_ Wipe areas that were sanded with a clean lint free rag moistened with Carboline Thinner #76.
12. \_\_\_\_\_ Allow the surfaces 2 hours to dry completely and then paint prepared spots as soon as possible.

**NOTE**

AFTER CLEANING AND PREPPING AREAS, BE CAREFUL NOT TO TOUCH BARE METAL AREAS WITH FINGERS. OIL, SALTS AND OTHER PARICULATES FROM THE SKIN WILL CAUSE POOR ADHESION AND COULD CAUSE THE METAL TO CORRODE. APPLY PAINT TO PREPPED AREAS AS SOON AS POSSIBLE, NEVER ALLOWING MORE THAN 6 HOURS TO PASS WITHOUT PAINTING. IF THE PREPPED AREA DOES NOT GET AT LEAST ONE COAT OF PAINT WITHIN 6 HOURS THEN THE ENTIRE AREA SHOULD BE RE-SANDED.

13. \_\_\_\_\_ For the first coat, power mix the required amount of Carboguard 890H Parts A and B individually; then mix together Parts A and B at a ratio of 1:1 using the power mixer. Add Carboline Thinner #76 as required based on the type of paint application.  
  
 Brush - Up to 16 oz/gal (12%) w/ Carboline Thinner #76  
 Roller- Up to 16 oz/gal (12%) w/ Carboline Thinner #76  
 Spray - Up to 13 oz/gal (10%) w/ Carboline Thinner #76

**NOTE**

DUE TO OVERSPRAY AND OTHER TECHNICAL REQUIREMENTS OF APPLICATION, USING A SPRAYER IS NOT AUTHORIZED FOR SPOT/TOUCH-UP PAINTING WITHOUT FIRST CONTACTING NAVSEA 00C3 AND NAVSEA 00C4. TESTING HAS SHOWN THAT IT IS DIFFICULT TO APPLY THIS PAINT IN THIN EVEN COATS BUT IT MAY BE ACHIEVEABLE IF REQUIRED.

IF USE OF THE SPRAYER IS REQUIRED, THE SPRAY GUN SHALL BE CLEANED WITH CARBOLINE THINNER #76. A SCRAP PIECE OF METAL SHALL BE PAINTED PRIOR TO THE START OF WORK TO ENSURE THE CORRECT FILM THICKNESS WILL BE OBTAINED DURING ACTUAL APPLICATION.

14. \_\_\_\_\_ Apply the first coat of Carboguard 890H at 4-6 mils. Do not exceed 6 mils in a single coat.
15. \_\_\_\_\_ First coat must dry a minimum of 12 hours before applying a second coat. Ventilate the chamber; maintain a temperature of at least 100°F inside the chamber. If the viewports are installed, temperatures shall not exceed 125 °F. Elevated temperatures are required to assist with paint curing and offgasing.
16. \_\_\_\_\_ For the second coat, power mix the required amount of Carboguard 890H Parts A and B individually; then mix together Parts A and B at a ratio of 1:1 using the power mixer. Add Carboline Thinner #76 as required based on the type of paint application.  
  
 Brush - Up to 16 oz/gal (12%) w/ Carboline Thinner #76  
 Roller- Up to 16 oz/gal (12%) w/ Carboline Thinner #76  
 Spray - Up to 13 oz/gal (10%) w/ Carboline Thinner #76
17. \_\_\_\_\_ Apply the second coat of Carboguard 890H at 4-6mils. Do not exceed 6 mils in a single coat.
18. \_\_\_\_\_ Second coat must dry 72 hours. Continue to ventilate the chamber; maintain a temperature of at least a 100°F inside the chamber. If the viewports are installed, temperatures shall not exceed 125 °F. Elevated temperatures are required to assist with paint curing and offgasing.
19. \_\_\_\_\_ Use a calibrated dry film thickness gauge to ensure proper application thickness. Target dry film thickness is 10 mils after all painting is complete, but must be in the range of 8-12 mils. If film thickness does not exceed 7 mils a third coat should be added, but the total film thickness shall not exceed 12 mils.

**NOTE**

IF THE TOTAL FILM THICKNESS EXCEEDS 12 MILS, CONTACT NAVSEA 00C3 FOR FURTHER GUIDANCE. THE PAINT MAY NEED TO BE STRIPPED AND REPAINTED.

MAXIMUM RECOAT/TOPCOAT TIMES ARE 30 DAYS. IF THE MAXIMUM RECOAT TIMES ARE EXCEEDED, THE SURFACE MUST BE STRIPPED AND REPAINTED.

20. \_\_\_\_\_ Continue to ventilate the chamber; maintain a temperature of at least a 100°F inside the chamber for a total of three (3) weeks after all the painting has been completed. If the viewports are installed, temperatures shall not exceed 125 °F. Elevated temperatures are required to assist with paint offgasing.
21. \_\_\_\_\_ After the three (3) week cure time, wipe down the entire interior surface of the chamber using a lint free rag moistened with non-ionic detergent (NID) and water.
22. \_\_\_\_\_ Use a calibrated dry film thickness gauge to ensure proper application thickness. Verify that the repaired area(s) paint thickness does not exceed the thickness of the original paint.
23. \_\_\_\_\_ If the repaired area(s) exceeded 10% of the chamber interior surface, skip to Section Three of this process instruction to sample the chamber atmosphere for contaminants and close out the REC. If the air sample was not required, skip to Step 24 of this procedure.
24. \_\_\_\_\_ Remove the Red tags
25. \_\_\_\_\_ Close the REC and put the chamber back into service.

## **SECTION 2: PROCEDURE FOR COMPLETE REPAINT OF INTERIOR SURFACE**

This section is to be used for removing all paint from the interior of the chamber by grit blasting and completely refinishing the interior of recompression chambers.

### **EQUIPMENT/MATERIALS:**

The following is a list of equipment that is required for paint removal and painting of a recompression chamber.

- Carboguard 890H paint (Part A and B)
- Carboline Thinner #76
- Emery/Sand Paper, 60/80 grit
- Emery/Sand Paper, 200 grit
- Paint Brush
- Wire brush
- Spray paint equipment
- Lint free rags
- Tank-type Vacuum Cleaner
- Ventilation Blower (Red Devil or equivalent)
- Water
- Non-ionic Detergent (NID)
- Dry Film Thickness Gauge (Elcometer, Mikrotest II or III, or equivalent)
- Surface Profile Gauge & Replica Tape
- Respirator/organic vapor filter
- Heat Lamp
- Tape, Antiseizing, MIL-T-27730
- Polyurethane Bags
- Plugs and Caps
- Plywood
- Rubber Gaskets
- Masking Tape
- Full Face Shield Air Supplied Breathing Mask
- Sand Blaster & Blasting Abrasive (to achieve 1.0-3.0 mil anchor profile)
- Power mixer
- Wrenches

### **PROCEDURE:**

Initial or check the steps of below procedure as they are accomplished. Provide the information requested where blanks are provided. Initialing or checking a step means that responsible, technically qualified personnel have authorized, performed, accepted, and tested the work accomplished. Evaluating the condition of the coating system (paint) of a chamber prior to the start of work is critical for determining the extent of painting required.

If a vendor is selected to paint the chamber, then that vendor shall provide all necessary documentation to indicate that the steps of procedure have been followed and that technically qualified personnel have performed the work. The vendor shall protect all gasket surfaces, flange faces, valve stems, name plates, pressure gauges, instrument cases, gauge glasses, electrical fixtures, and all previously installed and coated equipment.

This form provides the minimum documentation requirements to support REC. Retain a copy of this completed procedure in the REC.



1. \_\_\_\_\_ Open a re-entry control procedure in accordance with local instruction. REC # \_\_\_\_\_.
2. \_\_\_\_\_ Red tag chamber primary and secondary supply valves.
3. \_\_\_\_\_ Remove interior air, oxygen, TX Gas and ECS piping and fittings at break down joints.
4. \_\_\_\_\_ Plug or cap all openings and penetrators using clean non-plastic plugs and caps. Use Antiseizing Tape, MIL-T-27730 on pipe threads.
5. \_\_\_\_\_ Tape and bag all removed parts. Store in a clean secure place until ready for reassembly.
6. \_\_\_\_\_ Remove deck plates and all other removable parts from the chamber.
7. \_\_\_\_\_ Remove view ports using the appropriate MIP for the chamber system. Verify view port manufacturing dates.
8. \_\_\_\_\_ Manufacture rubber gaskets for use in viewport flange. Manufacture one-half inch plywood protective covers or similar templates for use as viewport replacements during painting operations. The retaining rings should be used as templates.
9. \_\_\_\_\_ Place the rubber gaskets with the plywood templates as a backing against the viewport sealing area. Secure gaskets and template backing in place with the view port retaining rings or use a t-bolt inserted through hole drilled in the center of the template and secured in place with the strong-back of the chamber.
10. \_\_\_\_\_ Carefully place a minimum of 3 layers of masking tape over door gaskets, gasket sealing surface and any exposed or non-painted sealing surface.

**CAUTION**

ABRASIVES FROM BLASTING CAN MIGRATE INTO THE BEARING GREASE/SURFACE OF THE DOOR HINGE BEARINGS. REMOVAL AND CLEANING OR REPLACEMENT OF THE DOOR HINGE BEARINGS SHOULD BE EVALUATED AND CONSIDERED.

11. \_\_\_\_\_ Protect all remaining components not removed from interior of chamber from sand blasting effort. Reinstall bolts or sacrificial bolts into exposed female threads to protect threads from degradation and accumulation of sand shot.
12. \_\_\_\_\_ Set up ventilation blower to evacuate dust from the interior of the chamber during grit blasting operations.
13. \_\_\_\_\_ As required, construct protective covers/enclosures at the chamber entrance as required to protect adjacent machinery, piping, and/or other equipment from contamination.
14. \_\_\_\_\_ Rig up the full face shield air supplied breathing mask. The person operating the blaster shall wear a full set of protective clothing with openings taped to protect bare skin. A Tender shall be stationed immediately outside the door during the blasting operations.

15. \_\_\_\_\_ Utilizing the sand blaster and appropriate blasting abrasive, blast the paint off the interior of the chamber to white metal in accordance with SSPC-SP5. Blasting anchor profiles shall be a minimum of 1.0 mil profile; the anchor profile shall be 1.0-3.0mils to allow for proper adhesion of the paint.

**CAUTION**

NEVER ALLOW NOZZLE OF THE BLASTER TO STAY IN ONE PLACE OR DAMAGE TO CHAMBER SHELL CAN OCCUR. ALWAYS KEEP THE NOZZLE MOVING IN A SLOW PATTERN WORKING IN SECTIONS.

16. \_\_\_\_\_ Using a calibrated surface profile gauge and replica tape, spot check the interior surface at ten (10) locations to verify the surface profile at all locations is between 1.0 to 3.0 mils. Be sure to wipe areas to be measured clean with a lint free rag moistened with Carboline Thinner #76.
17. \_\_\_\_\_ Clean/Vacuum areas that were sanded until all paint chips and visible dust are removed from the chamber.
18. \_\_\_\_\_ Wipe down the entire chamber with clean lint free rags moistened with Carboline Thinner #76.
19. \_\_\_\_\_ Allow the surfaces 2 hours to dry completely and then paint as soon as possible.

**NOTE**

AFTER CLEANING AND PREPPING AREAS, BE CAREFUL NOT TO TOUCH BARE METAL AREAS WITH FINGERS. OIL, SALTS AND OTHER PARICULATES FROM THE SKIN WILL CAUSE POOR ADHESION AND COULD CAUSE THE METAL TO CORRODE. APPLY PAINT TO PREPPED AREAS AS SOON AS POSSIBLE, NEVER ALLOWING MORE THAN 6 HOURS TO PASS WITHOUT PAINTING. IF THE PREPPED AREA DOES NOT GET AT LEAST ONE COAT OF PAINT WITHIN 6 HOURS THEN THE ENTIRE AREA SHOULD BE RE-BLASTED.

20. \_\_\_\_\_ Set up spray painting equipment. Spray gun should be cleaned with Carboline Thinner #76.
21. \_\_\_\_\_ For the first coat, power mix the required amount of Carboguard 890H Parts A and B individually; then mix together Parts A and B at a ratio of 1:1 using the power mixer. Add Carboline Thinner #76 as required based on the type of paint application.

Brush - Up to 16 oz/gal (12%) w/ Carboline Thinner #76

Roller- Up to 16 oz/gal (12%) w/ Carboline Thinner #76

Spray - Up to 13 oz/gal (10%) w/ Carboline Thinner #76

**NOTE**

IT IS RECOMMENDED TO PAINT A SCRAP PIECE OF METAL PRIOR TO THE START OF WORK TO ENSURE THE CORRECT FILM THICKNESS WILL BE OBTAINED DURING ACTUAL APPLICATION.

FOR ANY SPILLAGES INSIDE THE CHAMBER, ONLY USE CABOLINE THINNER 76 TO CLEAN. FOR ANY SPILLAGES OUTSIDE THE CHAMBER, CARBOLINE THINNER 76 OR ACETONE MAY BE USED. ABSORB AND DISPOSE OF IN ACCORDANCE WITH LOCAL REGULATATIONS.

22. \_\_\_\_\_ Apply the first coat of Carboguard 890H at 4-6 mils. Do not exceed 6 mils in a single coat. Large surfaces shall always receive passes in two directions at right angles to each other (cross-hatched). Parallel passes are acceptable in all other areas.
23. \_\_\_\_\_ First coat must dry a minimum of 12 hours before applying a second coat. Ventilate the chamber; maintain a temperature of at least 100°F inside the chamber. Elevated temperatures are required to assist with paint curing and offgasing.
24. \_\_\_\_\_ For the second coat, power mix the required amount of Carboguard 890H Parts A and B individually; then mix together Parts A and B at a ratio of 1:1 using the power mixer. Add Carboline Thinner #76 as required based on the type of paint application..
- Brush - Up to 16 oz/gal (12%) w/ Carboline Thinner #76  
 Roller- Up to 16 oz/gal (12%) w/ Carboline Thinner #76  
 Spray - Up to 13 oz/gal (10%) w/ Carboline Thinner #76
25. \_\_\_\_\_ Apply the second coat of Carboguard 890H at 4-6mils. Do not exceed 6 mils in a single coat. Large surfaces shall always receive passes in two directions at right angles to each other (cross-hatched). Parallel passes are acceptable in all other areas.
26. \_\_\_\_\_ Second coat must dry 72 hours. Continue to ventilate the chamber; maintain a temperature of at least 100°F inside the chamber. Elevated temperatures are required to assist with paint curing and offgasing.
27. \_\_\_\_\_ Use a calibrated dry film thickness gauge to measure application thickness at a minimum of 10 points; starting at the outer lock, measure points two feet apart while traveling around the circumference. After completing one revolution move two feet down the length of the chamber and repeat the measurements around the circumference of the chamber. Mark spots that are not 8-12 mils. Target dry film thickness is 10 mils after all painting is complete, but must be in the range of 8-12 mils. If film thickness does not exceed 7 mils a third coat should be added, but the total film thickness shall not exceed 12 mils.

**NOTE**

IF THE TOTAL FILM THICKNESS EXCEEDS 12 MILS, CONTACT NAVSEA 00C3 FOR FURTHER GUIDANCE. THE PAINT MAY NEED TO BE STRIPPED AND REPAINTED.

MAXIMUM RECOAT/TOPCOAT TIMES ARE 30 DAYS. IF THE MAXIMUM RECOAT TIMES ARE EXCEEDED, THE SURFACE MUST BE STRIPPED AND REPAINTED.

28. \_\_\_\_\_ Continue to ventilate the chamber; maintain a temperature of at least a 100°F inside the chamber for a total of three (3) weeks after all the painting has been completed. Elevated temperatures are required to assist with paint offgasing.
29. \_\_\_\_\_ Reassemble Air, O2, TX Gas and ECS fittings and conduct Joint Tightness Testing to system maximum operating pressure (s).
30. \_\_\_\_\_ Reinstall viewports using the appropriate MIP for the chamber system.
31. \_\_\_\_\_ Wipe down the entire interior surface of the chamber using a lint free rag moistened with non-ionic detergent (NID) and water.

32. \_\_\_\_\_ Conduct Recompression Chamber leak test IAW, U.S. Navy Diving Manual, Chapter 21, Figure 21-15.
33. \_\_\_\_\_ Conduct interior atmosphere sampling in accordance with Section Three of this procedure. The REC can be closed and the chamber can be put back into service following successful air sampling per Section Three.

**SECTION 3: OFF GAS PROCEDURE**

This section is to be used for conducting atmosphere sampling after completing either partial or full painting of the interior of a recompression chamber.

**EQUIPMENT/MATERIALS:**

- Gas sample cylinder kit from an approved laboratory
- Wrenches

**PROCEDURE:**

1. \_\_\_\_\_ Prior to taking the gas sample, pressurize the chamber to a depth of 165 FSW and return to the surface twice.

**NOTE**

IF A STRONG PAINT ODOR IS NOTED AFTER THE CHAMBER DOORS HAVE BEEN SECURED FOR A PERIOD OF TIME, THE CHAMBER MAY REQUIRE MORE PRESSURE CYCLES.

IF TWO INDIVIDUALS WITH REASONABLE SMELLING SENSES FIND THE ODOR TO BE OBJECTIONABLE, CONTACT NAVSEA 00C3 AND NAVSEA 00C4 SHALL BE CONTACTED PRIOR TO GAS SAMPLING FOR FURTHER GUIDANCE.

2. \_\_\_\_\_ Pressurize entire chamber to 60 FSW. Once depth has been reached, do not add air to maintain depth.
3. \_\_\_\_\_ Allow chamber stand at depth for a minimum of 24 hours. Do not allow the temperature to exceed 100°F during the 24 hour dwell period.
4. \_\_\_\_\_ Ensure gas sample cylinder (e.g. bomb) sample inlet and exhaust are closed.
5. \_\_\_\_\_ Connect gas sample cylinder using an easily accessed connection (e.g. gauge port).
6. \_\_\_\_\_ Open the valve where the connection was made to the chamber (e.g. gauge port valve).
7. \_\_\_\_\_ Slowly open the gas sample cylinder inlet. Slowly open the gas sample cylinder exhaust. Vent the gas sample cylinder for a minimum of 15 seconds, but not to exceed 30 seconds.
8. \_\_\_\_\_ Close gas sample cylinder exhaust, allow pressure to equalize.
9. \_\_\_\_\_ Close gas sample cylinder inlet.
10. \_\_\_\_\_ Close valve where the connection was made to the chamber (e.g. gauge port valve).
11. \_\_\_\_\_ Remove gas sample cylinder from the chamber port.
12. \_\_\_\_\_ Bring the chamber to the surface.
13. \_\_\_\_\_ Return the gas sample to the laboratory and have it analyzed for Total Hydrocarbons as methane (CH<sub>4</sub>) by volume. The chamber shall be considered to have passed the test if the Total Hydrocarbons are 25 parts per million (ppm) or less.

**NOTE**

IF THE ANALYSIS REPORT IS UNSATISFACTORY, CONTACT NAVSEA 00C3 AND NAVSEA 00C4  
FOR FURTHER GUIDANCE.

14. \_\_\_\_\_ Place a copy of the satisfactory air sample results in the REC.
15. \_\_\_\_\_ Remove the Red tags.
16. \_\_\_\_\_ Close the REC and put the chamber back into service.