GENERAL REQUIREMENTS

1. SCOPE

1.1 Intent. This standard specification invokes general requirements for conducting ship repair availabilities for Coast Guard vessels.

1.2 Appendices.

PROCESS STANDARD	APPENDIX
Requirements For Environmental Protection at Contractor Operated (Non USCG) Facilities	A
Requirements For Environmental Protection at USCG Facilities	B

1.3 Acronyms and term definitions. Below are definitions of various acronyms and terms that are used in this standard or may be encountered in work item specifications.

- **AFFF**: Aqueous Film Forming Foam.
- **Additional safety measure:** An impediment to the release of energy or the energization or startup of the machinery, equipment, or system being serviced. Examples of additional safety measures include, but are not limited to, removing an isolated circuit element, blocking a controlling switch, blocking, blanking or bleeding lines, removing a valve handle or wiring it in place, or securing an extra disconnecting device or valve.
- **ACM**: Asbestos and Asbestos Containing Material. Asbestos means actinolite, amosite, antophyllite, chrysotile, crocidolite, and tremolite. Asbestos material means asbestos or any material containing asbestos such as asbestos waste, scrap, debris bags, containers, equipment, and asbestos-contaminated clothing consigned for disposal. Friable asbestos material means any material that contains more than one percent asbestos by weight and that can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure. OSHA defines ACM as any material containing greater than one percent asbestos.
- **As directed, as required, as permitted, approved, acceptance**: Expressions referring to the direction, requirements, permission, approval, or acceptance by the Contracting Officer or a properly designated Contracting Officer's Representative.
- **As shown, as indicated, as detailed**: Expressions used to refer to particular specified reference documents/drawings/sketches.
- **ATON**: Aids To Navigation.
- **Barge**: A flat-bottomed vessel built mainly for river and canal transport of heavy goods. CG barges are not self-propelled and need to be pushed by tenders or tugboats.
- **Blank/Blanking**: The act of precluding the entry of foreign material, protecting exposed threads or flanges, and removing blanks before reinstalling a system or component(s). Specific requirements of blanking equipment will be as called out in individual work item.
- **Boat**: A Coast Guard ship less than 65 feet in length, with no permanent crew assigned.
- **CAUTION**: Highlights an essential operating or maintenance procedure, practice, condition, statement, etc., which if not strictly observed, could result in damage to, or destruction of, equipment or loss of mission effectiveness.
- **CDR**: Contractor Deficiency Report.

- **Certify**: Produce a printed certificate.
- **Chemical Waste**: Includes salts, acids, alkalis, herbicides, pesticides, and organic chemicals.
- **CFE**: Contractor-Furnished Equipment.
- **CFR**: Condition-Found Report. Report submitted to the Contracting Officer's Representative, either in written or electronic format, describing the condition(s) found while performing a task specified in the work item, such as an inspection.
- **CG**: Coast Guard.
- **CIR**: Critical Inspection Report. Report submitted to the COR within designated percent of the availability contract period, either in written or electronic format, describing the condition(s) found while performing a task specified in the work item, such as an inspection.
- **CLIN**: Contract Line Item Number.
- **CO/OIC**: Commanding Officer/Officer-In-Charge - The commanding officer or senior officer/officer in charge, or the senior petty officer of a vessel.
- **COC**: Certificate of Compliance.
- **Coast Guard Inspector/CG Inspector**: All work items within the contract will be assigned to a Coast Guard Inspector, who is appointed by the Contracting Officer's Representative. The Contracting Officer's Representative will identify the inspector to the Contractor and the inspector or an authorized alternate will be the point of contact for that work item. The inspector's duties are to monitor the assigned work items, to keep informed of how work is progressing, and to ensure that the specifications are being followed. The inspector will witness all tests, measurements and inspections as required.
- **Coast Guard PA**: Designated Coast Guard Property Administrator.
- **COR**: Contracting Officer's Representative – the person delegated by the KO as the on-scene representative for matters concerning performance of work; this includes correctness, timeliness, and quality of the Contractor's work.
- **Critical-coated surfaces:** Areas where premature failure of the coating system cannot be detected by routine observation due to inaccessibility, or areas where restoration of a failed system cannot be undertaken without laying up the ship at an industrial facility or a forward repair site; or areas where restoration of a failed system may subject a vessel to a loss of operational days, in addition to resulting in avoidable repair costs. The following list of Critical- coated surfaces will always be treated as critical-coated surfaces as set forth in the applicable sections of this standard and SFLC Std Spec 6310. Individual work items may place a critical-coated surface designation on additional surfaces. The absence of a critical-coated surfaces list or designation in work items does NOT downgrade, diminish, or relax the critical-coated surface protocols established for the following list;
    - Underwater (u/w) body surfaces, including u/w appendages (rudders, struts, stabilizing fins).
    - Freeboard, superstructure, masts, and stacks.
    - All weather decks, including buoy and helicopter (flight) decks.
    - Stern ramp, wet notch and door (for patrol class boats).
    - All tanks and voids.
    - Bilges.
    - Chain lockers.
    - Sea bays.
    - Forepeak compartments.
    - Vent plenum ducts and trunks.

  - Shaft alleys.
  - AFFF Stations.
  - Deck machinery.
- **Cutter**: A Coast Guard ship 65 feet in length or greater, with permanent crew assigned.
- **Debris**: Includes combustible and noncombustible wastes, such as waste materials that result from construction or maintenance and repair work.
- **Discard**: Remove and dispose of as scrap.
- **DFT**: Dry Film Thickness.
- **EDG**: Emergency Diesel Generator.
- **EO/EPO**: Engineering Officer/Engineering Petty Officer.
- **EPA**: Environmental Protection Agency.
- **Fabricate**: Construct or make according to a plan or stated guide.
- **Fastener:** Includes all components for securing. For example, for bolting, the term fastener must include bolts, nuts, threaded studs, washers, and where applicable, locking devices such as cotter pins and safety wire.
- **FLOAT:** Float is the number of days that the critical paths can be delayed without affecting the final delivery date.
- **FT**: Foot/Linear foot, or feet/linear feet.
- **Garbage**: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.
- **GFCI**: Ground Fault Circuit Interrupter.
- **GFE:** Government-Furnished Equipment.
- **GFM:** Government-Furnished Material.
- **GFP:** Government-Furnished Property.
- **Hazardous Material (HM)**: Chemicals defined by 29 CFR 1915.1200 or 49 CFR, Parts 100 through 199.
- **Hazardous Substance**: Substances defined under the Clean Water Act (33 USC. 1251 – 1376) and CERCLA (42 USC 9601 to 9675).
- **Hazardous Waste/HAZWASTE (HW)**: Substances which are defined as hazardous, in accordance with 40 CFR Part 261.
- **HM/HW Coordinator**: The HM/HW Coordinator at any particular Coast Guard facility.
- **Host Employer:** An employer (the prime contractor) who is in charge of coordinating the shipyard-employment work of other employers, or who hires other employers to perform shipyard-employment work or to provide shipyard employment-related services at a multi-employer worksite. Examples:
  - When a vessel is in maintenance period at a shipyard, the Contractor is responsible for adhering to the policy and procedures in accordance with 29 CFR § 1915.
  - When a vessel is in a homeport maintenance period where work is being performed by non-uniformed military personnel or contractors, the cutter crew is responsible for managing the tag-out lockout procedures in accordance with 29 CFR § 1915.
- **Hotwork**: Any activity involving riveting, welding, burning, the use of power-actuated tools or similar fire-producing operations. Grinding, drilling, abrasive blasting, or similar spark-producing operations are also considered hot work, except when such operations are isolated physically from any atmosphere containing more than 10 percent of the Lower Explosive Limit (LEL) of a flammable

or combustible substance.

- **HVAC**: Heating, Ventilation, and Air Conditioning.
- **Inspect**: Examine an object/component or a space for defects, abnormalities, or deviations from a prescribed standard.
- **Install:** Permanently place in position, for example, by bolting or welding. When used without the term Government-furnished, install implies that the Contractor must furnish what is to be installed.
- **Interferences**: Any part of a vessel, whether permanently installed or portable, that must be moved, isolated or disturbed, to accomplish work specified in a work item; this may include machinery, piping, ducts, wiring, insulation, structure, and anything else which interferes with proper accomplishment of a work item.
- **IN:** Inch(es).
- **KO**: Contracting Officer - a Federal employee with the authority to enter into, administer and/or terminate contracts; make related determinations and findings; and appoint COR. This individual is also authorized, by virtue of position or by appointment, to perform the functions defined by the Federal Acquisition Regulation and the Homeland Security Acquisition Regulation. The KO will make the final decision in all disputes.
- **LBP**: Lead Based Paint is defined as any paint or surface coating that contains any amount of lead, in such a way that would generate airborne levels to which employees may be exposed. It is the employer's duty to conduct exposure monitoring (or use objective or historical data as defined in 29 CFR 1926.62(d)(3)(iii) through 1926.62(d)(3)(iv)(B) and in 29 CFR 1926.62(n)(4)) to demonstrate that the Lead in Construction standard's action level (30 micrograms/cubic meter of air) is not exceeded. The results of the exposure assessment then determine whether the employer would need to apply the further protections of that rule. If the levels of lead to which employees are exposed are below the action level (which may occur when the levels of lead in paint are very low and work is being done in such a way as to not disturb the paint and, therefore, generate airborne concentrations of lead), then the further requirements of the standard would not apply.
- **Licensed Tech Rep**: An individual who is technically qualified and a trained employee of the OEM or OEM representative providing assistance in the installation, operation, and maintenance of the applicable equipment or system, with unrestricted access to the OEM current proprietary information, software, and tools. OEM Authorized Tech Rep is an interchangeable term with Licensed Tech Rep.
- **Lockout/ Tags-plus Coordinator**: An employee designated by the employer (prime contractor) to coordinate all lockout and tags-plus applications on vessels or vessel sections and at landside facilities when employees are performing multiple servicing operations on the same equipment at the same time, or on vessels and vessel sections when employees are servicing multiple machines, equipment or systems at the same time. The coordinator is responsible for maintaining a lockout/ tag out log for each worksite.
- **MDE**: Main Diesel Engine.
- **MDFT**: Minimum Dry Film Thickness.
- **MGT**: Main Gas Turbine.
- **MSDS**: Material Safety Data Sheet
- **MTI**: Mandatory Turn-in Item. Equipment or repair parts that are generally more economical to repair and restore them to ready for issue condition than to procure replacements so the turn in of the defective part requires designation and tracking of the carcass.

- **NDE**: Nondestructive examination. The act of determining the suitability of a material or a

component for its intended purpose using techniques not affecting its serviceability. Nondestructive inspection (NDI), nondestructive testing (NDT), and nondestructive evaluation are interchangeable terms for NDE.

- **NOTE**: Highlights an essential operating or maintenance procedure, practice, condition or statement.
- **ODS**: Oxygen Depleting Substances.
- **OEM**: Original Equipment Manufacturer.
- **OEM Authorized Tech Rep**: See Licensed Tech Rep.
- **Oily Waste**: Includes petroleum products and bituminous materials.
- **Open**: To gain access or enter.
- **OSHA**: Occupational Safety and Health Administration.
- **PA**: Property Administrator.
- **PCL**: Paint Containing Lead. Any paint or surface coating that contains any amount of lead, in such a way that would generate airborne levels to which employees may be exposed. See also Lead Based Paint.
- **PCB**: Polychlorinated Biphenyls. Toxic and non-biodegradable materials used extensively under trade names, such as Pyranol or Askarel, as insulating cooling fluids in capacitors and transformers. PCBs (which are known to be hazardous to human health) may be present in various locations on board Coast Guard vessels. These locations include those which contain non-armored electrical cable manufactured prior to 1982 (typically grey PVC jacketed cable), and in Chromelock Tape which may be used with some soft patches, sheathing, pipe hangers and lap-riveted joints. All material with results above 50 ppm and not totally enclosed are considered PCB containing for regulatory purposes.
- **PE**: Port Engineer. The duties of the Port Engineer are to assist the COR in technical aspects of the contract, assist in estimating the price, cost, and time needed for any recommended changes, and keep the COR informed of any potential or actual delays.
- **PEL**: Permissible Exposure Limit.
- **Post-Consumer Material**: A material or finished product that has served its intended use and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item. Post-consumer material is a part of the broader category of recovered material.
- **PDM**: Program Depot Maintenance.
- **Preserve/Preservation**: When used in context of painting, refers to surface preparation and paint/coating application.
- **QA**: Quality Assurance.
- **QC**: Quality Control.
- **Qualified Tech Rep:** An individual who has provided a résumé demonstrating qualification, training, and prior experience in the installation, operation, and maintenance of the applicable equipment or system; including a list of prior contracts as a OEM Authorized Tech Rep or Qualified Tech Rep with the equipment or system. Additional qualifications may be defined in the applicable requiring Work Item.
- **Recovered Material**: Waste materials and byproducts which have been recovered or diverted from solid waste including post-consumer material, but such term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process.
- **Reinstall**: Place back in original condition and location, after temporary removal.

- **Renew**: Permanently remove an item and install, in its place, a new and unused item which is

identical in material, form, fit, and function; the new item must:

  - Have the same shape, size, dimensions, and other physical parameters.
  - Have the same ability as the old item, to physically interface or interconnect with or become an integral part of another item.
  - Perform the same action or actions original item was designed to perform.

- **Repair**: To correct an identified discrepancy to a given standard of performance.
- **Replace**: To remove the original item and to install in its place a different item, as described in the specification.
- **Residual fluids/Residues**: Liquid, dirt, and other substance remaining after drainage or removal, such as in a tank after loss of suction by installed equipment.
- **Restore**: To bring back to the former, original, or normal condition before alteration or removal.
- **Restricted interferences**: Restricted interferences are systems, components of systems, and vessel components that are vital to the health, well-being, and feeding of the vessel's crew that, if removed, will result in a dangerous or hazardous condition to the vessel or the environment.
- **Rubbish**: A variety of combustible and noncombustible wastes such as paper, boxes, glass, crockery, metal, lumber, cans, and bones.
- **Sewage**: Waste characterized as domestic sanitary sewage.
- **SCBA**: Self Contained Breathing Apparatus.
- **SDS**: Safety Data Sheet
- **Solid Waste**: Solid waste is any waste as described in 40 CFR Section 260.
- **SQIN**: Square Inch(es).
- **SQFT**: Square Foot/ Feet.
- **SSDG**: Ship's service diesel generator.
- **SSMEB**: Ship's Structure and Machinery Evaluation Board.
- **Tags-Plus System:** A system for controlling hazardous energy that is comprised of: an energy isolating device with a tag affixed to it and an additional safety measure. When an energy isolating device is capable of being danger tagged and padlocked in the required position, such must normally be done to isolate the work area; tags-plus measures are implemented in all other cases. Commonly used additional safety measures under the tags-plus system include lock wiring, fuse or hand wheel removal, and blank flange installation.
- **Tech Rep**: Technical Representative.
- **Ungrounded**: A power system where all of the current-carrying conductors and windings (including any neutral connection) are insulated from ground. In contrast, a generator or transformer in which at least one conductor or point (usually the midpoint or corner of a delta winding or the common center of a wyes winding) is intentionally grounded, either solidly or through an impedance, is considered grounded. Note that the distinction concerns only current-carrying conductors; for both ungrounded and grounded power systems, non-current carrying metal parts and equipment grounding conductors are always bonded to earth ground for personnel safety. At non-Governmental facilities, dockside wye connected transformer secondary windings are almost always grounded and are generally not suitable for connection to a Coast Guard cutter without a separate Contractor furnished isolation transformer.
- **Upgrade**: To improve a system or component to a higher grade, quality, or standard.
- **U/W**: Under Water.
- **Vessel**: Vessel is defined as a Coast Guard ships cutter, tender, boat, or barge.

- **WARNING**: Highlights an essential operating or maintenance procedure, practice, condition, statement, etc., which, if not strictly observed, could result in injury to, or death of, personnel or long term health hazards.
- **WFT**: Wet Film Thickness.
- **XO**: Executive Officer.

2. REFERENCES

COAST GUARD DRAWINGS

NAVSEA Drawing 804-5773931, Rev A, Acoustic & Thermal Insulation For Compartments Installation Details

COAST GUARD PUBLICATIONS

Coast Guard Commandant Instruction (COMDTINST) M5100.47 (Series), Safety and Environmental Health Manual

Coast Guard Commandant Instruction (COMDTINST) M9077.1 (Series), Equipment Tag-Out Procedures

CG-TTP 4-11.6 Lead Hazard Awareness and Management

Surface Forces Logistics Center Standard Specification 0450 (SFLC Std Spec 0450), Latest Revision, Electrical Power for Contractor's Tools and Equipment

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), Latest Revision, Welding and Allied Processes

Surface Forces Logistics Center Standard Specification 0342 (SFLC Std Spec 0342), Latest Revision, Shipboard Electrical Cable Test

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), Latest Revision, Requirements for Preservation of Ship Structures

Surface Forces Logistics Center Standard Specification 6341 (SFLC Std Spec 6341), Latest Revision, Install New Deck Covering Systems

Surface Forces Logistics Center Standard Specification 8635 (SFLC Std Spec 8635), Latest Revision, Temporary Services

OTHER REFERENCES

American National Standards Institute /American Society Heating Refrigeration and Air Conditioning (ANSI/ASHRAE) 62.1, 2019, Ventilation for Acceptable Indoor Air Quality, Section 6.1 (Ventilation Rate Procedure)

American Society for Heating Refrigeration and Air Conditioning (ASHRAE) Standard 26, 2019, Mechanical Refrigeration and Air-Conditioning Installations aboard Ship, Paragraph 4.9 (Ventilation)

ASTM International (ASTM) 6966, 2018, Standard Practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Determination of Metals

ASTM International (ASTM) D3951, 2018, Standard Practice for Commercial Packaging

ASTM International (ASTM) F992, 2017, Standard Specification for Valve Label Plates

Code of Federal Regulations (CFR) Title 16, Part 1303, Jan 2019, Ban of Lead-Containing Paint And Certain Consumer Products Bearing Lead-Containing Paints

Code of Federal Regulations (CFR) Title 29, Part 1910, Jul 2019, Occupational Safety and Health Standards

Code of Federal Regulations (CFR) Title 29, Part 1915, Jul 2019, Occupational Safety and Health Standards for Shipyard Employment

Code of Federal Regulations (CFR) Title 29, Part 1926, Jul 2019, Safety and Health Regulations for Construction

Code of Federal Regulations (CFR) Title 33, Jul 2013, Navigation and Navigable Waters

Code of Federal Regulations (CFR) Title 40, Jul 2013, Protection of the Environment

Code of Federal Regulations (CFR) Title 49, Oct 2013, Transportation

CID A-A-59316, Feb 1999, Abrasive Materials; For Blasting

MIL-A-22262, Mar 1996, Abrasive Blasting Media Ship Hull Blast Cleaning

MIL-STD-1310H, Sep 2009, Standard Practice for Shipboard Bonding, Grounding and other Techniques for Electromagnetic Compatibility and Safety

National Fire Protection Association (NFPA) 51, 2018, Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes

National Fire Protection Association (NFPA) 70, 2020, National Electrical Code (NEC)

National Fire Protection Association (NFPA) 312, 2016, Standard for Fire Protection of Vessels during Construction, Conversion, Repair, and Lay-Up, Chapter 2 (Construction, Conversion, and Repair)

The Society for Protective Coatings (SSPC)/NACE International (NACE) Joint Surface Preparation Standard SSPC-SP WJ-2/NACE WJ-2, 2017, Water Jet Cleaning of Metals – Very Thorough Cleaning

US Code, Title 15 (15 USC), Jan 2012, Commerce and Trade

US Code, Title 33 (33 USC), Jan 2012, Navigation and Navigable Waters

US Code, Title 42 (42 USC), Jan 2012, The Public Health and Welfare

3. REQUIREMENTS

3.1 General conformance applicability. The Contractor must be aware that the General Requirements are a part of the contract specifications, and that the requirements specified herein are an amplification of, or are in addition to, the solicitation provisions and contract clauses; consequently, the Contractor must be responsible for understanding and complying with all requirements specified herein, and in addition to, the texts of all work items included in the specification package.

3.2 Administrative and work support requirements.

3.2.1 Applicable references and regulations. The Contractor must be aware that:

- All references and regulations applicable to the contract must be of the issue date or revision indicated in the Consolidated List of Applicable References section of the specification package.
- The statutes and regulations listed herein form a part of this specification to the extent referenced.
- The publications are referred to in the text by the basic designation only.

3.2.1.1 Order of precedence. In the event of a conflict between the text of the specifications and applicable references, hierarchy, priority, or order of precedence of requirements must be as follows:

1. The text of the specification work items.
2. The text of the General Requirements specifications.
3. Coast Guard Drawings.
4. Coast Guard Technical Publications.
5. Commercial Drawings.
6. Commercial Technical Manuals.
7. Coast Guard Standards and Instructions.
8. Commercial or Industrial Standards.
9. Commercial Practices.
10. Federal and Military Specifications and Standards.

NOTE

Nothing in the above-listed documents, however, will supersede applicable laws and regulations unless a specific exemption has been obtained.

3.2.1.2 Drawing deficiencies. Although detailed and dimensioned drawings for precision equipment are generally accurate, and provide sufficient information for estimating, the Contractor must take into consideration allowance for changes in dimensions, due to changes of equipment and to the structure and arrangement of the vessel. Ensure that all actual installations conform to the specifications.

3.2.2 Arrival conference. After contract award and prior to the start of contract work, the Contractor must attend an Arrival Conference, scheduled by the KO or a designated representative of the KO, at either the Contractor's conference facilities near the vessel, or onboard the vessel (time and location of meeting to be at the sole discretion of the KO). Refer to the Arrival Conference Agenda.

NOTE

The Arrival Conference Agenda is sent to the Contractor by the KO via letter.

3.2.3 Severe weather plan. The Contractor must have a written Severe Weather Plan that will be put in effect in the event of gales, storms, hurricanes, and destructive weather. The plan must contain specific responsibilities and detailed actions to be taken during the conditions listed in Table 1 (Weather Conditions).

TABLE 1 - WEATHER CONDITIONS

WEATHER	CONDITIONS (The CO will set all conditions)	WINDS (hours)	ACTION
GALE STORM/ HURRICANE/ TYPHOON	IV	▸ 74	Review hazardous/destructive weather implementation plan.
	III	▸ 48	Take preliminary precautions.
	II	▸ 24	Take precautions to permit establishing an appropriate state of readiness on short notice.
	I	▸ 12	Take appropriate precautions to minimize damage.
THUNDERSTORM/ TORNADO (Lightning and thunder are also anticipated)	II	◂ 6	Take precautions to permit establishing an appropriate state of readiness on short notice.
	I	◂ 0*	Take appropriate precautions to minimize damage.

▸ Trend indicates a possible threat of destructive winds within the number of hours shown.

◂ Destructive winds accompanying the phenomenon are reported or expected in the general area within the number of hours shown.

***IMMINENT**

3.2.3.1 Minimum inclusions. Ensure the plan contains, at a minimum, the following information as dictated by conditions listed in Table 1 (Weather Conditions):

- Steps to be taken to remove or secure staging items or equipment on vessel decks, pier or dry dock, including cranes that could become windborne.
- Protection of vessels from damage from other floating equipment, such as barges, doughnuts, work floats and other vessels.
- Provisions for security, emergency fire and flooding protection, emergency shipboard dewatering and firemain capability, electrical power generation, and communication.
- Steps to be taken, to secure the vessel to the Contractor's pier or drydock, including the following:
    - Size, type, and number of lines to be used to secure the vessel.
    - Sketch, showing location of all securing devices, including fenders, bumpers, and camels.
    - Method to be used to check tension and slack in lines during heavy weather.
- Steps to be taken to assure that all openings are made watertight.
- Steps to be taken to secure floating piers during high winds or high tides.
- The name and telephone number (business and residential) of the Contractor's single point of contact, who has the authority to commit the contractor to take necessary actions as requested by the vessel's CO.
- Steps to be taken to secure and safeguard all other Government properties, including, but not limited to removed interferences, GFP, and MTI items.

3.2.3.2 Plan submission. Submit a copy of the plan to both the KO and COR within 7 days after contract award.

3.2.4 QC/ QA Program.

3.2.4.1 General. The Contractor must be aware that QC/QA is the sole responsibility of the Contractor; consequently, the Contractor must implement a QC/QA Program, to ensure that Contractor work meets the requirements of the specifications, without undue delay and re-work. Be aware that:

- The COR may delegate inspection responsibilities to members of the vessel's crew, to monitor the progress and quality of work done by the Contractor.
- If, during the performance of work the Coast Guard Inspectors witness work that fails to meet the specifications, work that is otherwise unsatisfactory, or conditions which may lead to an unsatisfactory end product, the inspectors will alert the KO, who will then advise the Contractor informally of the deficiency. If the deficient work is not corrected within a reasonable period of time (as approved by the KO), the KO will officially alert the Contractor via a CDR.

3.2.4.2 In-process QC measures for critical-coated surfaces. The Contractor must abide by the below-specified in-process QC measures during preservation of critical-coated surfaces (see the definition of critical-coated surfaces in paragraph 1.3 (Acronym and term definitions)).

3.2.4.2.1 Painting contractor certification program requirement. Be aware that a QP 1 Certification, in accordance with the SSPC QP 1 Certification Programs, is required for all Contractors or sub-Contractors who engage in preservation (excluding touch-ups) of critical-coated surfaces. Ensure that the QP 1-Certification is in effect prior to contract award, and remains so during any surface preparation or painting of said surfaces. Notify the KO if SSPC QS-1 certification is current or pending. Notify the KO of any

change in contractor certification status. In addition, be aware that:

- If the certification expires during the performance period, preservation tasks will not be allowed to continue, until said certification has been reissued.
- Requests for extension of time for any delay to the completion of the project due to an inactive certification will not be considered.

NOTE

Information on the SSPC certification programs can be found at www.sspc.org

3.2.4.2.2 Coating tech rep. In lieu of meeting the QP 1 Certification requirements, the Contractor may opt to provide the services of a coating Tech Rep, in accordance with the following guidelines:

3.2.4.2.2.1 Qualifications. The Tech Rep must be a Certified Coating Inspector, having successfully completed the NACE-International Coating Inspector Program (CIP), Level 3 - Peer Review or holds current SSPC QP-5 Certification For Coating And Lining Inspection.

NOTE

Information regarding the CIP may be obtained at www.nace.org

3.2.4.2.2.2 Professional independence. The Tech Rep must neither be an employee of the Contractor, nor of any coating system manufacturer.

3.2.4.2.2.3 Certification document submission. The Contractor must submit, to the KO, the QP 1 Certificate or the name of the NACE-Certified Tech Rep, along with Certificate Number, during the pre-award phase of the contract.

3.2.4.2.3 QP 1 inspector or tech rep duties. The Coating Inspector for the QP 1-certified Contractor or the Contractor-provided NACE-certified Tech Rep must remain on site, to perform the following duties, as applicable, for each work item that involves preservation of critical-coated surfaces:

- Verify inspection instrument calibration.
- Verify and approve the suitability of ambient conditions before surface preparation is begun, and before each coat of paint is applied.
- Verify all aspects of surface preparation – including, but not limited to:
    - Cleanliness of compressed air.
    - Adequacy of solvent cleaning.
    - Proper handling of blast media.
    - Actual surface preparation procedure.
- Inspect and approve final surface preparation, before application of primer coat.
- Supervise and approve coating system preparation and application procedures, including but not limited to: mixing and thinning, stripe coating application, spray techniques, and film thickness measurements and recordings.
- Determine when applied coats have sufficiently cured for overcoating or for system service resumption (see paragraph 3.1.17 of SFLC Std Spec 6310 (Critical drying time requirements)).
- Complete and sign the quality assurance (QA) inspection forms, provided in Appendix E of SFLC Std Spec 6310 (Coatings QA Forms/QA-1 thru QA-5).
- Submit all completed QA inspection forms to the KO (through the Contractor), upon completion of work.

3.2.4.2.4 The Contractor must ensure the NACE Inspector is formally informed - via suitable subcontract documentation- and is willing and able to perform all duties listed in above paragraph (QP 1 Inspector or Tech Rep duties). Submit documentation of this contract and assumption of duties to the KO at the Arrival Conference.

NOTE

The NACE Inspector must remain onsite, to fulfill the tasked duties listed above - unless otherwise approved by the KO.

3.2.5 Planning document. The Contractor must generate a legible Planning Document (PD) with the following characteristics:

- Graphical in format (see Fig. 1 (Sample Planning Document Submittal)).
- Shows overall period of performance for each CLIN, with start and stop dates of major sub-tasks.
- Contains due dates for Critical Inspection Reports (CIR) and any events requiring Coast Guard Inspector presence.
- Identifies all work item time periods that require OEM Tech Rep assistance.
- Identifies the critical paths for the project.
- Shows calculations for the float along the critical paths and labels the critical paths with the number of delay days the critical paths can absorb without affecting the final delivery date.

3.2.5.1 Ensure that the PD also includes the names, contact information, and written commitment from all Tech Reps required by the Contract - indicating they are available for work during the proposed time period.

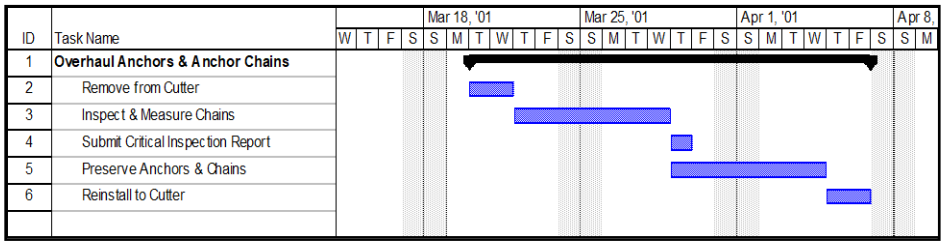
3.2.5.2 Submit a preliminary electronic copy of the PD to the KO - for Government review - no later than one week after contract award.

3.2.5.3 Submit 3 copies of the PD to the KO, 15 days prior to the start of the performance period, and at all weekly Progress Meetings.

NOTE

A separate document, specifically prepared for the Government is not desired or required. A copy or summary of the Contractor's internal scheduling document is preferred.

FIG. 1 - SAMPLE PLANNING DOCUMENT SUBMITTAL



3.2.5.4 When the critical path extends beyond or encroaches upon the final delivery date, provide a resource constraint and scheduling evaluation of the critical path before any request for extension will be entertained. Submit the resource constraint and scheduling evaluation via a CFR.

NOTE

The intent of the resource constraint and scheduling evaluation is to identify the resources necessary to 'crash' the critical path or make adjustments to the production schedule to meet the delivery date in lieu of a project extension.

3.2.6 Inspection requirements.

3.2.6.1 Time of performance. The Contractor must ensure that all required readings and inspections are performed within 24 hours after machinery and systems have been tagged-out and opened.

3.2.6.1.1 Advance notice for CG inspector verification. The Contractor must notify the COR of the time and location of inspections requiring Coast Guard verification 24 hours prior to the inspections, unless such inspections need to be conducted more than 50 road miles from the primary place of contract performance - in which case three working day notice must be required, in order to make travel arrangements for the CG Inspectors.

3.2.6.1.2 Instrument/tooling calibration. The Contractor must ensure that all measurements and readings are taken with calibrated measurement and test instruments/equipment. Submit to the COR a list of all instruments to be used for specified inspections and tests, complete with date of calibration (for each instrument) at the Arrival Conference.

3.2.6.1.3 Submission forms. The Contractor must submit all reports of readings, operational tests, and inspections required by the specifications to the COR, in writing, using a CFR.

NOTE

A sample inspection report form will be provided by the Coast Guard, upon request by the Contractor. The Contractor is encouraged to generate and submit all inspection reports in electronic format.

3.2.6.1.4 Inspection report particulars. The Contractor must do the following:

3.2.6.1.4.1 Time of submission. Submit all CIRs and CFRs for routine inspections and tests within 24 hours after completing the specified inspections and tests. Submit CFRs for unexpected conditions within 24 hours of discovery.

3.2.6.1.4.2 Report contents. Include the following details, at a minimum, in each report, to facilitate the contract-change process:

- Sequential number to indicate order of submission.
- CLIN and title to which the condition-found report relates - for example: CLIN 19-D, Propeller Shaft Remove, Inspect, and Reinstall or CLIN 25-O, Propeller Shaft Covering Renew (where D and O stand for Definite and Option, respectively).
- A clear statement, definition, and description of the condition found, including but not limited to frame numbers, part numbers, materials, and dimensions as appropriate.
- A proposed or recommended repair to correct the defective condition, including but not limited to frame numbers, part numbers, materials, and dimensions as appropriate.
- When measurements are taken the Contractor must, at a minimum, list the measurements taken, list the allowable tolerances and dimensions, and perform the required calculations (e.g., running clearances, interference fit tolerance, etc…), and provide a PASS/FAIL determination for each measurement along with a repair recommendation.
- Indication whether the report requires Coast Guard action or if it is provided For Information Only. If action is required, indicate the time and date when the Coast Guard response is required in order to complete the action within the specified contract performance period. If

the action cannot be completed within the specified contract period, so state.

- When Coast Guard action is required, indicate the response time needed to avoid a contract extension and how many additional days past the scheduled completion date the added work will require.
- Space on the form for the Coast Guard designated representative to make comments.
- Signature of the Contractor Ship Superintendent, including date of signature and condition-found report submission.

NOTE

The Contractor is encouraged to submit all inspection reports in electronic format.

3.2.7 Contractor-furnished properties and services. The Contractor must furnish all necessary labor, equipment, materials, staging, fittings, and tools, for proper completion of each item of work, unless otherwise specified as Government-furnished in particular work items.

3.2.7.1 Services include, but are not limited to the below-listed, as required, for completion of Contractor work:

- Electrical power (see SFLC Std Spec 0450).
- Compressed air
- Steam
- Crane services
- Garbage and refuse disposal
- Phones
- Office space
- Fresh water
- Garbage and refuse disposal

NOTE

Services required by the vessel will be listed in the specification package when required.

3.2.8 GFP. The Contractor must refer to the Government-furnished property clauses in the Master Solicitation document for guidance on handling of GFP.

NOTE

The term GFP may be used interchangeably for GFE and GFM.

3.2.9 Government-loaned equipment. The Contractor must return all Government-loaned equipment in the same condition as when received, excluding the normal wear and tear. Repair or renew all equipment that is damaged due to improper use when requested by the COR.

3.2.10 Mandatory turn-in items. For each removed equipment/component that is identified as a MTI item in the specification package, the Contractor must accomplish the following tasks:

3.2.10.1 Package the item and temporarily store the item, to prevent damage. Ensure that all surfaces subject to corrosion, including internal hollow spaces, are coated with a thin film of corrosion preventative compound, as applicable. Install all blanks or securing hardware provided with the replacement item. In addition, wrap and seal all weather-exposed surfaces with heavy duty, weather/water-proofed, barrier material.

3.2.10.2 Return MTI to the Coast Guard PA, and ensure that all necessary turn-in documents are properly completed and enclosed with the item.

3.2.10.3 Provide heavy lifting services, as applicable, to load item onto a Government-provided vehicle.

NOTE

The Contractor may use the original crate or shipping box, if all previous shipping information is permanently covered or removed.

3.2.11 Temporary sanitary and sewage facilities.

3.2.11.1 Sanitary facilities for vessel-personnel – due to disruption of grey water and sewage systems. When the shipboard grey water and sewage systems are disrupted due to repairs required by contract work, the Contractor must provide vessel-personnel with a sanitary facility, within a five minute walking distance from the vessel, to include the amenities listed in Table 2(Sanitary Facility Amenities). Ensure the following:

- Shower stalls are equipped with privacy screens.
- Sinks are provided with fresh hot and cold water.
- Electrical convenience GFI receptacles, in accordance with NFPA 70, National Electric Code (NEC), are located in vicinity of sinks.
- Toilets have doors or privacy dividers.
- Lockers are capable of being locked.

TABLE 2 - SANITARY FACILITY AMENITIES

VESSEL						
LENGTH (FEET)	**TYPE**	**SHOWER STALL**	**TOILET**	**SINK**	**CHAIR**	**LOCKER**
65	BUS	1	1	1	2	2
	WLI	1	1	1	2	2
	WLR	2	2	2	4	4
	WYTL	1	1	1	2	2
75	WLIC	2	2	2	4	4
	WLR	2	2	2	4	4
87	WPB	2	2	2	4	4
100	WLI	2	2	2	4	4
	WLIC	2	2	2	4	4
110	WPB	2	2	2	4	4
140	WTGB	2	2	2	4	4
154	WPC	2	2	2	4	4
160	WLIC	2	2	2	4	4
175	WLM	2	2	2	4	4
179	WPC	2	2	2	4	4
210	WMEC	2	2	2	4	4
225	WLB	2	2	2	4	4
240	WLBB	2	2	2	4	4
270	WMEC	2	2	2	4	4
282	WMEC	2	2	2	4	4
295	WIX	2	2	2	4	4
378	WHEC	4	4	4	4	4
399	WAGB	4	4	4	4	4
418	WMSL	4	4	4	4	4
420	WAGB	4	4	4	4	4

3.2.11.2 HVAC system. Ensure that the facility is equipped with heating, filtered ventilation, and air conditioning to maintain interior temperatures in the 65 to 78 degree Fahrenheit range, and has local climate control for the user.

3.2.11.3 Janitorial services. Ensure that the facility is cleaned at least once a day, and cleaning must include, but not be limited to:

- Trash removal.
- Restocking of consumables (toilet paper, soap, etc.).
- Cleaning of toilets, showers and sinks.
- All plumbing repairs such as unclogging of toilets and shower and sinks drains.

3.2.11.4 Security. Ensure that the facility is capable of being locked from the outside and is also equipped, on the inside, with a suitable locking mechanism such as a sliding latch. Provide the COR with two keys for each lock.

3.2.11.5 Additional sanitary facility for mixed gender crew. Unless otherwise specified in the specification package, provide separate facilities for each gender that is completely separate, with its own entrance.

3.2.11.6 Sewage facilities for vessel personnel – due to disruption of sewage system. When the shipboard toilets are unavailable due to contract work, unless otherwise specified in the specification package, the Contractor must provide vessel personnel with portable toilets as specified in Table 3 (Portable Toilets). Ensure that the toilets are:

- Located as close as possible to the vessel, at a distance not to exceed 100 yards.
- Cleaned and emptied daily, and restocked with consumables.

TABLE 3 - PORTABLE TOILETS

VESSEL		PORTABLE TOILETS (QTY)
LENGTH (FEET)	TYPE	
65	BUS	1
	WLI	2
	WLR	2
	WYTL	1
75	WLIC	2
	WLR	2
87	WPB	2
100	WLI	2
	WLIC	2
110	WPB	2
140	WTGB	2
154	WPC	2
160	WLIC	2
175	WLM	3
179	WPC	3
210	WMEC	5
225	WLB	4
240	WLBB	4
270	WMEC	5
282	WMEC	5
295	WIX	3
378	WHEC	6
399	WAGB	6
418	WMSL	6
420	WAGB	6

3.2.12 Sanitary facilities for contractor-personnel. The Contractor must be responsible for providing sanitary facilities for all Contractor-personnel, ensuring that such facilities are distinct and separate from facilities used by vessel personnel.

3.3 Work control requirements.

3.3.1 Personnel safety and property protection - general. The Contractor must comply with all applicable sections of 29 CFR 1910 and 29 CFR 1915, all OSHA safety and health regulations for ship repair and any other applicable Federal, state, and local laws, codes, ordinances, and regulations for the protection of both personnel and property.

3.3.1.1 Temporary ventilation. The Contractor must provide all equipment and services necessary, to ensure continuous positive ventilation in all spaces/compartments (affected directly and indirectly by contract work). Ventilate compartments in accordance with 29 CFR 1910.94, 1926.57, or 1926.353, as applicable; ANSI/ASHRAE 62.1, Section 6.1, and ASHRAE Std 26, Paragraph 4.9. When ventilation is shut down due to contract work, provide ventilation to manned compartments equivalent to the normal zonal ventilation rating for that space. Provide additional exhaust ventilation to spaces contaminated by fumes caused by contract work (welding, preservation, cleaning, adhesive application, etc…). For work areas contaminated with or laden by fumes, the ventilation must be set up in a net exhaust condition so as to create slightly negative pressure in the compartment as compared to adjacent compartments.

3.3.1.2 Confined or enclosed space entry and hot work.

3.3.1.2.1 Precaution for safe entry. Before entering a tank, void, and any other confined or enclosed space; and before performing manual cleaning and other cold work, the Contractor must ensure that the space is tested and certified SAFE FOR WORKERS, in accordance with 29 CFR 1915.11-13.

3.3.1.2.2 Precaution for safe hot work. Before performing hot work in a confined or enclosed space, compartment below deck, and on a vessel component, the Contractor must ensure that the space or component is certified SAFE FOR HOT WORK in accordance with 29 CFR 1915.14 and 1915.51-54.

3.3.1.2.3 Maintenance of safe conditions and warning signs.

3.3.1.2.3.1 The Contractor must maintain safe conditions, in accordance with 29 CFR 1915.15; ensure that testing is performed, as often as necessary, and all necessary measures (including, but not limited to opening, cleaning, and ventilating) are taken to maintain the safe conditions for the duration of the work being performed. In addition, ensure that Marine Chemist Certificates, Shipyard Competent Person Log of Inspections, and suitable warning signs and labels are posted in view of all affected employees, in accordance with 29 CFR 1915.16.

3.3.1.2.3.2 The Contractor must post Gas Free Certificates, indicating the current status of all affected compartments, posted on the Quarterdeck and at each open access to the compartments. Submit one copy to the CG Inspector.

3.3.1.3 Fire watch requirements. The Contractor must ensure that fire watch personnel and fire extinguishers are provided for all work as required by applicable law or regulation and any work activity meeting the definition of hot work. Be aware that this requirement applies to all work under the scope of the contract, subsequently modified into the contract, and any contract extension periods granted.

3.3.1.3.1 Contractor provided fire watch personnel. When fire watch is to be conducted by Contractor personnel, the Contractor must provide fire watch personnel with appropriate personal protective gear and necessary functioning equipment, on a per job basis, in accordance with NFPA 312, Chapter 2. Ensure that all Contractor welders, brazers, and ship fitters check in with the COR, with their Contractor-provided fire watch, prior to commencing any hotwork. Notify the COR upon the completion of hotwork.

3.3.1.3.2 Coast Guard fire watch personnel – provision of fire extinguishers. When fire watch is to be conducted by Coast Guard personnel in lieu of Contractor personnel, the Contractor must provide fully-charged portable fire extinguishers, on a loan basis, for use by each assigned Coast Guard fire watch personnel. In addition, notify the COR at least 24 hours before hot work is begun, and ensure that all Contractor welders, brazers, and ship fitters check in with the COR, in order to be assigned with a Coast Guard fire watch personnel. Replace all discharged fire extinguishers with fully charged units,

immediately after discharge.

NOTE

Fire watch responsibility will be specified in the General Requirements work item, which is used to invoke this standard specification.

3.3.1.3.3 Lockout/ tags-plus system and logs.

3.3.1.3.3.1 The host employer must be responsible for implementing and complying with all applicable requirements of 29 CFR §1915.

3.3.1.3.3.2 The host employer must work with designated Coast Guard or crew members to ensure the coordination of the lockout/ tags-plus system and logs.

NOTES

1. The EO or EPO will verify with shipyard Lockout/Tags-plus Coordinator that tags are hung and signed by appropriate personnel. They must be tracked in either a joint or separate log signed by the cutter's Tag-Out coordinator and the contractor's lockout/ tags-plus coordinator. If a joint log is used, a copy of the log must be retained by the EO or EPO.

2. USCG uniformed personnel may continue to follow COMDINST 9077.1 but must work with the host employer or shipyard to coordinate the use of the instruction alongside the OSHA requirements. The use of COMDINST 9077.1 by USCG uniformed personnel does not alleviate the host employer or shipyard from complying with 29 CFR §1915. When a cutter or boat is in a homeport maintenance availability where work is being performed by civilian personnel or contractors, the cutter crew is responsible for managing the tag-out lockout procedures in accordance with 29 CFR § 1915.

3.3.1.4 Shipboard bonding, grounding and shielding. The Contractor must restore bonding, grounding or shielding to all equipment or structures which have been disturbed due to any interference work, in accordance with MIL-STD-1310 and SFLC Std Spec 3042.

3.3.1.5 Temporary covers for deck openings. The Contractor must install a suitable plate or cover over each resulting deck opening, to prevent injury to personnel, and protect the vessel's interior spaces and equipment against outside contamination. When covering a deck opening left from a removed hatch or scuttle, ensure that the cover is configured to allow normal passage of ship's personnel and equipment.

3.3.1.6 Temporary lines or rails. The Contractor must install temporary lines or rails to replace all removed lifelines or life rails. Retain temporary lines or rails until replacement tasks have been completed.

3.3.1.7 Illumination. The Contractor must be aware that adequate illumination is required in walkways, work areas, and access to provide a safe work environment ([29 CFR 1915.82(a)]). Ensure that permanent, temporary, and emergency lighting are provided, as required. In addition, ensure that the components of the lighting are safe for the location in which it is installed.

3.3.1.7.1 Be aware of the following potential hazards due to inadequate or poor-quality lighting:

- Slips, trips, and falls.
- Electric shocks and burns.
- Inability to exit the space.

3.3.1.7.2 Abide, at a minimum, to the following safety requirements:

- Temporary lights must have guards or be recessed to prevent accidental contact with the bulb. [29 CFR 1915.82(b) (1) and 29 CFR 1915.82(c) (1)].
- Temporary lights must be as per [29 CFR 1915.82(b)(2)],and as follows:
    - Be equipped with heavy duty electric cords.
    - Not be suspended by their electric cords.
    - Have splices equal to the insulation of the cable.
    - Cords must be protected from damage [29 CFR 1915.82(b) (3)].
    - Exposed non-current-carrying metal parts of temporary lights must be grounded. [29 CFR 1915.82(c)].
    - Temporary lights must be equipped with overcurrent protection (such as fuses, circuit breakers). [29 CFR 1915.82(f)].
    - Portable emergency lighting (e.g., flashlight, light sticks) must be provided. [29 CFR 1915.82(d)].
    - Workers must not enter dark spaces without suitable portable light. [29 CFR 1915.82(e)].
    - Temporary lights in tanks that have not been gas free certified must be explosion-proof [29 CFR 1915.36(a) (4)].

3.3.1.8 Exposure to asbestos, lead, and PCB. Refer to Appendix A (Requirements for Environmental Protection) of this document, for requirements applicable to asbestos, lead, and PCB exposure.

3.3.2 Vessel protection.

3.3.2.1 Pier or wharf facility. Unless in drydock or at the vessel's home pier, the Contractor must provide a secure pier or wharf during the performance period of the contract. Ensure that the pier or wharf has adequate clearance to safely accommodate the vessel being moored.

3.3.2.1.1 Water depth. Ensure that water depth is sufficient at the pier to allow the vessel's lowest underwater appendage to clear the bottom by at least two feet at:

- Ordinary low water mark on non-tidal rivers.
- At all tide conditions predicted during the availability for tidal rivers and other navigable waterways (Bay, Lake, etc.).

3.3.2.1.2 Construction. Ensure that the pier or wharf is adequately constructed and conditioned to support weight-handling gear such as cranes, forklifts, and delivery vehicles that are necessary for the completion of the specification requirements; in addition ensure that load limitations are clearly identified and marked in a conspicuous location.

3.3.2.1.3 Collision protection. Provide a fender system to prevent the vessel's sides from chafing and colliding with the pier or wharf while moored at the Contractor's facility. Ensure that no other vessel is moored alongside the vessel without specific permission from the COR.

3.3.3 Vessel component, space, and equipment protection.

3.3.3.1 The Contractor must take the following protective measures, as applicable, in addition to all other requirements that may be specified in individual work items, to prevent contamination and surface damage of non-affected shipboard equipment, components, and spaces:

- Plug, blank, wrap, cover, seal, and mask equipment, components, cables, wire ways, boats, and openings using fire retardant/water repellent materials, and prevent entry of contaminants to machinery, winches, rigging, machinery surfaces, weapons systems, electrical equipment, electronic equipment, valves, vents not in use, and other openings.

- Place drain channels in overboard discharges in use, to direct discharges away from the hull.
- Provide wooden plugs or coverings for sea chest spool pieces, scuppers and overboard discharges not in use.
- Cover all glass (port lights, windows, etc.) adjacent to areas interior and exterior where abrasive blasting, burning, or welding is required or accomplished, to prevent scarring and damage.
- Install fire retardant industrial filter material on the intake of supply and exhaust ends of ventilation systems that will be remain in use during performance of work. Maintain all filter materials, to prevent excessive air restriction and/or damage to ventilation motors.
- Install double curtain baffles at the entrances of each access where airborne contamination could occur during contamination-producing operations. Install a dirt-collecting mat on the deck directly inside each access.
- Provide adequate protection to all deck covering or deck surfaces in areas where the work under items of these specifications is being accomplished and on all main access routes to these areas. Immediately repair or renew any protective coverings which are damaged during the course of work.

NOTE

Acceptable protective deck coverings include heavy cardboard, masonite (fiberboard), flame-retardant polyethylene deck plate with a non-slip diamond pattern from 10 to 40 mil thickness or plywood installed in sufficient quantities to adequately protect deck surfaces.

3.3.3.1.1 Ensure that temporary coverings are not removed during contamination-producing operations without permission of the COR.

3.3.3.1.2 Inspect the integrity of the protective covering at the beginning of each shift in which contamination-producing operations will be accomplished. Ensure that equipment and machinery have not been infiltrated by contaminants. Notify the COR immediately by verbal means, followed on the next workday in writing, if contamination or surface damage has occurred. Reseal to prevent further entry of contaminants or surface damage.

3.3.3.1.3 Remove protective coverings upon completion of contamination-producing operations and inspect for presence of contamination or surface damage. Notify the COR immediately by verbal means, followed on the next workday in writing, if contamination or surface damage has occurred, prior to removal of the contamination and repair of damage.

3.3.3.1.4 Dispose of all protective coverings, upon completion of work.

NOTE

Any damage resulting from failure by the Contractor to provide adequate coverings will be repaired at the Contractor’s expense.

3.3.3.2 When removing interference-fit bearings (water lubricated propulsion bearing, bronze sleeves, etc.), the Contractor must restrict removal to processes/methods that do not cause secondary damage to ship's structures.

NOTES

1. Examples of damage-causing methods:

a). Oxy-acetylene torch to flame cut bronze sleeves out of the struts. This causes the intermediate struts (much less mass than the aft struts) to lose their diametric roundness across the 12 o'clock to 6 o'clock axis forming an egg shape that results in the inability to achieve the proper interference fit and results in a loss of bearing concentricity if the bearing is pressed into the egg shape.

b). Air arc rod (exothermic torch) cutting the lower rudder bearing sleeves out of the rudder housings results in 'gouges' (loss of material from the inside diameter of the housings). This loss of material causes a corrosion concern as water can get behind the bronze sleeve and corrode the mild steel rudder housings.

2. Acceptable alternatives:

a). Hydraulic driven press, employing bearing adapter collars, threaded rod, and a receiver to hydraulically press the bearings out.

b). Reciprocating saw, to parse the bearing shell and collapse the sleeve inward. However, when this is done by an unskilled worker, the reciprocating saw can cut into the housing or damage the packing gland pusher cup (when equipped).

3.3.4 Vessel access. During work at the Contractor's facility, provide a minimum of two means of access or egress to the vessel, in accordance with 29 CFR 1915.74, Subpart E. Provide a

minimum of two gangways that have the following:

- Adequate walking surface width and strength and be safely secured.
- A railing, with a mid-rail, on each side of the gangway, and a turn table if necessary.
- Substantial steps properly secured and equipped with at least one handrail, when the upper end of the gangway rests on or is flush with the top of the bulwark of the dock.
- Nets or other suitable protection on both sides, when there is a danger of personnel falling between the ship and the dock. Nets and other suitable protection must extend beyond the projected area of the access and egress points so as to catch a personnel that may be falling outward: i.e., the nets must be wider than the gangway.
- Proper trimming at all times.
- Adequate illumination for their full length.
- Separated by one-fourth the length of the vessel, at a minimum, as to mitigate the possibility that an incident could block both means of escape.

3.3.4.1 Gangway alternative. If gangways are not practicable, submit to the COR a proposal for a suitable alternative.

3.3.4.2 Obstructions. Do not lay obstructions on or across the means of access/egress. Do not pass loads or cargo over the means of access/egress while personnel are on them.

3.3.5 Interferences. The Contractor must remove all interferences in way of specified work, as necessary, without regard to whether interferences are listed in applicable work items; restore all removed interferences upon completion of the specified work. The Contractor may exercise the discretion to work around certain interferences, when possible, so long as the specified work is successfully accomplished.

3.3.5.1 Operational testing. Witness an operational test of all machinery, electronics, and electrical equipment that will be worked on, disturbed or removed as interferences during the availability. Generate and complete pre-work equipment checks that captures and documents the pre-work condition observed during the pre-work operational testing and submit the pre-work equipment checks via a CFR for final concurrence by the COR. Generate and complete post-work operational checks of all machinery, electronics and electrical equipment at the end of the availability and compare the post-work checks to the pre-work equipment checks.

3.3.5.1.1 All machinery, electronics and electrical equipment must be in the same or better condition as the pre-work checks. Be aware that items that were worked on will be in better condition than their pre-work checks and their final post-work condition will be measured against the performance standard(s) in the applicable work items and Change Requests.

3.3.5.2 Handling of restricted interferences. Before removing restricted interferences, submit to the COR a written plan for the removal within 48 hours before that process is begun. Ensure the plan includes:

- Procedures for removing the interferences.
- Time at which interferences will be restored.
- Alternate arrangements, as necessary, to minimize the crew's inconvenience, or to alleviate the hazardous conditions.

3.3.5.3 Labeling and stowing requirements. The Contractor may stow removed interferences onboard the vessel; however, location and condition of stowage must be approved by the COR. When stowing onboard the vessel is not practical, the Contractor must stow all interferences in a suitable shore side stowage facility. Ensure that interferences are protected from weather and damage during removal, stowage, and reinstallation. In addition, ensure that all stowed items are tagged with removable tags, or stenciled with non-permanent paint, with the following information:

- Vessel name.
- Location from which items have been removed.

3.3.5.4 Disturbed hydraulic systems. If a hydraulic system is disturbed as an interference, in a particular work item, the Contractor must perform all tasks associated with hydraulic system cleanliness, in accordance with SFLC Std Spec 5000.

3.3.5.5 System restoration. The Contractor must ensure that all ship spaces or compartments, components, or equipment that are damaged or exposed due to interference removal are restored to original conditions in form, fit, function, and appearance. Renew the following components or disturbed portions of systems, as applicable, when reassembling or reinstalling affected systems:

- Gasket materials.
- Insulation material permanently installed with adhesive (see NAVSEA Drawing 804-5773931).
- Disturbed portions of deck covering systems (see SFLC Std Spec 6341).

3.3.6 Welding and brazing requirements. The Contractor must perform all welding and allied processes, and nondestructive examination (NDE), in accordance with SFLC Std Spec 0740 - whether explicitly stated in work items or not, and for other work subsequently authorized by changes, modifications, or extensions to the contract.

3.3.7 Housekeeping. The Contractor must accomplish the following, in regards to housekeeping:

- Maintain good housekeeping conditions at all times, and provide adequate aisles and passageways in all work areas. Ensure that all staging platforms, ramps, stairways, walkways, aisles, and passageways on vessels or dry docks are kept clear of all tools, materials, and equipment (except those that are in use), and all debris such as welding rod tips, bolts, nuts,

and similar material; ensure that hoses and electric conductors are elevated over or placed under the walkway or working surfaces or covered by adequate crossover planks.

- Ensure that all working areas on or immediately surrounding vessels and dry docks, graving docks, or marine railways are kept reasonably free of debris, and construction material. Ensure that materials and debris do not present a hazard to personnel.
- Take action to mitigate any slippery condition on walkways or working surfaces.
- Maintain free access at all times to all exits and to all fire alarms or fire-extinguishing equipment.
- Keep all oils, paint thinners, solvents, waste, rags, or other flammable substances in fire resistant covered containers when not in use.
- Take care to prevent job site contamination by materials, equipment, and personnel; provide, when applicable, protective clothing and plastic shoe covers for all Contractor personnel and Coast Guard Inspectors, who must access the work areas, to prevent outside contamination. Upon completion of all work, remove equipment and material from the work site and restore all existing facilities affected by the work to original conditions.

3.3.8 Disposal of non-reusable equipment, components, and materials. During the availability, the Contractor must dispose of, as scrap, all items or materials removed from the vessel that are not designated to be: reinstalled, retained and shipped by the Contractor to a Coast Guard authorized facility, or turned over to the COR. Ensure that all item/material disposals are in accordance with applicable Federal, state, and local regulations. Refer to Appendix A (Requirements for Environmental Protection) of this standard, and to the paragraph titled HW Disposal in the General Requirements item, for requirements pertinent to disposal of hazardous wastes.

3.3.9 Restoration of damaged equipment. The Contractor must restore, renew, or repair all machinery, piping, wiring, insulation, paint work, deck coverings, and any other article or component removed, moved, disturbed, or damaged by the Contractor in accomplishing the work outlined in the specification package.

3.3.10 Workmanship. The Contractor must ensure that care is taken to smooth off all ragged edges or burned off edges by grinding or filing to leave a smooth surface. Removal of fixtures, equipment, plating, piping, and fittings must be made clean to the root and finished off. Where pipes, cables, and fittings are removed, the hole must be blanked off flush with welded plates of like material and thickness.

3.3.11 Bracket and supports. The Contractor must ensure that all pipes, cables, duct work, installed furniture, and equipment are bracketed, supported, and/or secured so as to carry the weight, prevent excessive vibration, and withstand inertia forces resulting from rolling and pitching.

3.3.12 Labels/ tags. The Contractor must provide label plates for all new and redesignated access fittings, compartments, electrical and electronic equipment and fittings, ventilation blowers and systems, valves; and any other equipment and fittings requiring labels or tags indicated on installation drawings, in accordance with the below-provided guidance.

3.3.12.1 Valves. Install label plates on all new valves, in accordance with ASTM F992.

3.3.12.2 Piping.

3.3.12.2.1 Stencil the following onto the pipe surfaces:

- Name of the piping system service.
- Destination, where feasible.
- Direction of flow, indicated by an arrow 3 inches long pointing away from the lettering (for reversible flow, point an arrow away from each end of the lettering).

3.3.12.2.2 Ensure that all lettering and arrow(s) are as follows:

- Black in color, in general, but white for dark-colored piping.
- Applied in conspicuous locations, preferably near control valves.

NOTE

For piping systems that are insulated, labeling must be stenciled onto the insulation material.

3.12.3 Other equipment/ components. Unless specifically shown otherwise on the installation drawings, ensure that the fabrication, engraving, and installation of labels/tags on all other equipment must conform to that for existing plates aboard the vessel. In the absence of guidance regarding the inscriptions, ensure that the plates must be engraved with the inscriptions provided by the COR.

3.3.13 Tests and inspections. The Contractor must perform all tests and inspections required in individual work items, in the presence of the COR, CG Inspector or Port Engineer. Be aware that the Government reserves the right to perform any additional inspections deemed necessary to ensure the work conforms to the prescribed requirements.

3.3.13.1 Operational testing. Accomplish the following operational tests; when required in a particular work item, or when deemed necessary by the COR:

3.3.13.1.1 Initial test. Prior to commencement of work, witness an operational pre-test, by Coast Guard personnel of all items or shipboard devices to be disturbed, used, repaired, or altered, to demonstrate existing operational condition. Submit a CFR.

3.3.13.1.2 Post-repair test. After completion of work, thoroughly test and prove all items or shipboard devices that have been disturbed, used, repaired, altered, or installed to be in satisfactory operating condition, in the presence of the Coast Guard Inspector. Submit a CFR.

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment.

3.3.13.2 Dock and sea trials. The Contractor must conduct dock and sea trials to test the work performed during the contract when required by individual work items (see 3.3.13 Tests and Inspections). This must include operational tests or inspections, as appropriate, of all machinery, piping, wiring, insulation, preservation work, deck coverings, and any other article removed, moved, disturbed, or damaged by the Contractor in accomplishing the work outlined in the specification. Schedule for these specific dockside tests or inspections must be included within the planning document (see 3.2.5 Planning document).

3.3.13.2.1 The Contractor must provide a pier facility or allow the vessel to move to a Coast Guard pier to support dock trials. The Contractor must not conduct trials that require the vessel to be waterborne while the vessel is floating inside a dock (e.g., graving dock, floating drydock).

3.3.14 Electrical compliance planning. For cutter availabilities, the Contractor must submit to the KO the following electrical compliance planning documentation during the pre-award phase of the contract.

3.3.14.1 Shore power. When ungrounded shore power is to be provided per SFLC Std Spec 8635, provide a one line electrical diagram showing how such power will be supplied, including the winding and grounding configuration and rating of any generator or isolation transformer. For drydock availabilities, separate diagrams should be submitted for waterborne and non-waterborne periods.

3.3.14.2 Arc welding. When electric arc welding is to be performed per SFLC Std Spec 0740 while the vessel is waterborne, provide a diagram showing the general proposed location of each welding machine, the grounding configuration of each machine, and the return current conductor size and length. For drydock availabilities, separate diagrams may be necessary for waterborne and non-waterborne periods.

3.3.14.3 Hull bonding and lightning protection. For work periods while the vessel is not waterborne, provide a diagram showing how the hull grounding straps required by SFLC Std Spec 8635 will be sized (length and gauge) and connected.

3.3.14.4 Tool and equipment power. Provide a diagram showing how Contractor tool and equipment power will be supplied and distributed for dockside and shipboard use in accordance with SFLC Std Spec 0450. For drydock availabilities, separate diagrams should be submitted for waterborne and non-waterborne periods.

4. NOTES

4.1 Equipment operation. Coast Guard personnel will operate all shipboard machinery and equipment during all operational, weight, and other required tests.

4.2 Coast Guard inspector responsibilities. Although the Contractor is responsible for applying appropriate quality control measures, the Coast Guard Inspector will have the following duties:

- Monitor all work evolutions and keep informed of progress, to ensure that the specifications are being followed.
- Witness all tests, measurements, and inspections, as necessary.

APPENDIX A

REQUIREMENTS FOR ENVIRONMENTAL PROTECTION AT CONTRACTOR OPERATED (NON USCG) FACILITIES

A1. SCOPE

A1.1 Intent. This appendix describes the requirements for ensuring Contractor environmental protection compliance at/on Contractor Operated Facilities.

A2. REQUIREMENTS

A2.1 Environmental management plan. The Contractor must submit an acceptable environmental management plan to the KO or COR prior to the initiation of work.

A2.1.1 The plan must outline how the Contractor will handle hazardous materials, petroleum products, hazardous substances, hazardous wastes, and other solid wastes. The Plan must comply with all Federal, state, and local regulations applicable to handling and disposal of hazardous materials, hazardous wastes, and or non-hazardous wastes; and must address, at a minimum, the following requirements:

- A General Storage Site Plan.
- A list of all anticipated hazardous wastes (HW) to be generated and a Federal/state/local regulation cross reference list for those wastes.
- Waste collection and containment procedures.
- A Hazardous Material (HM) Spill and Cleanup Plan including tools and materials that will be on hand and readily available to facilitate containment and cleanup.
- Training certifications for the Contractor's hazardous waste manager and all personnel conducting hazardous waste activities.
- Methods used to analyze and identify whether or not generated material (blasting debris, paint waste, etc.) are hazardous wastes.
- Any HW licenses and permits required to be obtained or currently held by the Contractor in accordance with Federal, state, and local regulations.
- Air district permits required to be obtained or currently held by the Contractor in accordance with Federal, state, and local regulations.
- Any permits required by the National Pollutant Discharge Elimination System (33 U.S.C. 1342) to be obtained or currently held by the Contractor in accordance with Federal, state, and local regulations.

A2.1.2 The Contractor must ensure that all HW must be disposed of through the Contractor's EPA ID#, and managed in a manner consistent and conformant with all Federal, state, and local regulations.

A2.2 General compliance. The Contractor must provide and maintain environmental protection during the life of the contract to control pollution or to correct conditions that develop during performance of the contract. Comply with all Federal, state, and local laws and regulations pertaining to water, air, and noise pollution.

A2.2.1 Waste management. With the exception of materials specifically indicated or specified to be salvaged for reuse, and turned over to the Government, the Contractor must assume responsibility for removal of all non-hazardous wastes and demolished materials. Comply with all requirements of 49 CFR 178 regarding proper storage container and labeling of wastes.

A2.2.1.1 Facility hazardous waste generator status. Ensure that all work conducted within the boundaries of the facility meet the regulatory requirements of the generator designation. Comply with all provisions of Federal, State and local regulatory requirements applicable to the generator status regarding training and storage, handling, and disposal of all wastes.

A2.2.1.2 Hazardous waste/debris management. The Contractor must be responsible for all hazardous waste/debris, and provide a documented waste determination for all resultant waste streams. Hazardous waste/debris must be identified, labeled, handled, stored, and disposed of by the Contractor in accordance with all Federal, state, and local regulations including 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, and 40 CFR 268. Store hazardous wastes in approved containers in accordance with 49 CFR 173 and 49 CFR 178.

A2.2.1.3 Disposal documentation for hazardous and regulated wastes. The Contractor must manifest, pack, ship and dispose of hazardous or toxic waste and universal waste in accordance with the generating facilities generator status under the Recourse Conservation and Recovery Act. Submit a copy of the applicable EPA and or State permit(s), manifest(s), or license(s) for transportation, treatment, storage, and disposal of hazardous and regulated waste by permitted facilities.

A2.2.2 Pollution prevention/ hazardous waste minimization. The Contractor must minimize the use of hazardous materials and the generation of hazardous waste.

A2.2.3 Release/ spills of oil and hazardous substances. The Contractor must exercise due diligence to prevent, contain, and respond to spills of hazardous material, hazardous substances, hazardous waste, sewage, regulated gas, petroleum, lubrication oil, and other substances regulated by environmental law. Maintain spill cleanup equipment and materials at the work site, and in the event of a spill, must take prompt, effective action to stop, contain, curtail, or otherwise limit the amount, duration, and severity of the spill/release. The Contractor's spill response must be in accordance with 40 CFR 300 and applicable state and local regulations, and is responsible for verbal and written notifications as required by 40 CFR 355, state, local regulations, and Coast Guard Instruction M5100.47(series).

A2.2.4 Oil spill response plan. Transfers of any amount of oil, as defined by 33 CFR 154.105, between the vessel and the Contractor's facility, or a mobile tank facility, subcontracted or otherwise arranged by the Contractor, are subject to the oil spill response plan requirements of 33 CFR 154.1010. The Contractor must have an approved and current Facility Response Plan for any fixed or mobile facility transferring oil to or from the vessel whether the transfer is done by the Contractor or subcontractor. The Contractor plan must provide for fuel oil containment booms to surround the CG vessel during all fuel oil, lube oil, or other petroleum cargo on loads and offloads while the cutter while at the Contractor's facility. Requirement to provide fuel oil boom include, but is not limited to, the initial petroleum cargo offload

and the final liquid load on load at the end of the availability. The Contractor must have any other applicable Facility Response Plans, required by Federal, state, or local requirements, and these plans must be made available for review by the COR prior to the initiation of work.

A2.2.5 Hazardous waste disposal. The Contractor must dispose of hazardous, toxic, or universal waste or abandoned hazardous material in accordance with Federal, State and local regulatory requirements.

A2.2.5.1 Responsibilities for contractor's disposal. Provide all services necessary for the final treatment/disposal of hazardous material/waste in accordance with all local, State and Federal laws and regulations within sixty (60) days after the materials have been generated. The Contractor services must include all necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal), manifesting and/or completing waste profile sheets, equipment, and the compilation of all documentation.

A2.2.5.1.1 Contain all waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, 40 CFR 268, 40 CFR 270, 40 CFR 272, 40 CFR 273, 40 CFR 279, 40 CFR 280, and 40 CFR 761. Obtain a representative sample of the material generated for each project to provide waste stream determination.

A2.2.5.1.2 Provide two copies of the analysis for each sample taken and results to the KO. Determine the Department of Transportation (DOT) proper shipping names for all waste for each container requiring disposal, and will demonstrate how this determination is developed and supported by the sampling and analysis results provided to the KO.

A2.2.5.2 Disposal turn-in requirements. The Contractor must meet DOT requirements including requirements of 49 CFR173 for transportation of hazardous waste materials. This includes drums compatible with waste contents, banding and size limits on wooden pallets, banding sizing and location, recovery materials labeling (e.g., label location and data on the label indicating actual volume, material manufacturer, etc.), as well as three (3) to five (5) inches outage space above volume of material.

A2.2.6 Class I and II ODS prohibition. Be aware that Class I and II ODS must not be used, nor be provided as part of the equipment unless specifically authorized and defined in the Coast Guard specification. This prohibition must be considered to prevail over any other provision, specification, drawing, or referenced documents. Regulations related to the protection of stratosphere ozone may be found in 40 CFR 82.

A2.2.6.1 The Contractor’s heating and air conditioning technicians must be certified through an EPA-approved program. The Contractor must maintain copies of certifications at the employees' place of business and be carried as a wallet card by the technician, as provided by environmental law.

A2.2.7 Blasting operations. The Contractor must be aware that the use of silica sand is prohibited in sandblasting. Provide tarpaulin drop cloths and windscreens to enclose abrasive blasting operations to confine and collect dust, abrasive, agent, paint chips, and other debris. Perform work involving removal of hazardous material in accordance with 29 CFR 1910.

A2.2.7.1 Disposal requirements The Contractor must manage hazardous waste generated from blasting operations in accordance with applicable Federal, State and local regulatory requirements.

A2.2.8 National emission standards for hazardous air pollutants**.** The Contractor must provide appropriate notification to regional United States Environmental Protection Agency in accordance with the requirements of 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants), as well

as notification requirements of state and local air pollution control laws.

A2.2.8.1 Submit one legible copy, in electronic media, of notification required by EPA that has been provided to any regulatory authority for work on board the vessel to the KO within 48 hours of providing such notice to the regulatory authority.

A2.2.9 Safety data sheet/ material safety data sheet. The Contractor must maintain a current copy at the job site of the SDS/MSDS for each hazardous material that will be utilized aboard the ship or in the facility.

A2.2.10 Shipbuilding operations National Emission Standard for Hazardous Air Pollutants (NESHAPS) for Surface Coating Information. The Contractor must comply with 40CFR Part 63 (National Emission Standards for Hazardous Air Pollutants for Source Categories), as well as all additional state, and local regulations regulating Hazardous Air Pollutants for Source Categories involving Surface Coatings.

A2.2.11 Refrigerants. The Contractor must at all times adhere to the requirements of the Clean Air Act, 42 U.S.C. 7401, and all other Federal, state, and local regulations. The Contractor may not knowingly vent or otherwise release or dispose of any Class I or Class II refrigerants, as defined in 42 U.S.C. 7671a, into the environment. Ensure that when servicing small appliances such as refrigerators, freezers, and water coolers, high pressure or low pressure systems, that all servicing and recovery requirements for the appropriate level of equipment are met. Whenever reclaimed refrigerant is used, provide the COR proof that the refrigerant meets the relevant standard of purity. All Contractor servicing technicians must have obtained the required level of EPA certification necessary to service the equipment (e.g., small appliances, high pressure systems, low pressure systems, etc.). Submit documentation of EPA certification for each servicing technician to the KO or COR prior to the initiation of work.

A2.2.12 Hazardous material abatement.

A2.2.12.1 Government reporting of known hazardous substances. The Contractor must be aware that the Government will make every effort to inform the Contractor of the presence of known hazardous substances, such as lead, chromium, asbestos, or PCBs; and will inform the Contractor of the presence of said substances in specification items. However, the Contractor must be responsible for conducting all appropriate tests for determining necessary engineering controls and personnel protection actions to be taken, to protect Contractor, civilian and Government personnel, in accordance with applicable OSHA, state, and local regulations. Submit copies of all sample results to the COR prior to commencing work.

A2.2.12.2 Contractor surveying for the presence of suspected hazardous substances. If the presence of lead, chromium, asbestos, or PCB is suspected in any material which may be disturbed, and adequate survey of the work-area has not been accomplished by the Coast Guard to determine the extent of suspected hazardous substance, the Contractor must be responsible for conducting hazard evaluations pursuant to OSHA requirements. Provide COR with a description, location, and analysis results of samples taken during personnel hazard evaluations before work commences in the affected area.

A2.2.12.3 Lead Based Paint (LBP) compliance. When a work item requires disturbance of LBP, cleaning of lead dust or abatement of LBP, the Contractor must comply with all applicable local, state, and federal laws and regulations regarding LBP, when engaging in LBP activities, or when addressing LBP hazards and disposal. Applicable policy, laws or regulations include, but are not limited to: COMDTINST M5100.47 (series), 16 CFR 1303, 29 CFR 1910, 29 CFR 1915.1025, 29 CFR 1926.62, 15 U.S.C. 2601, and the Residential Lead-Based Paint Exposure Reduction Act.

NOTE

The inorganic zinc primer specified in SFLC Standard Specification 6310 may contain concentrations of lead, but not in excess of 0.009% by weight.

A2.2.12.3.1 Do not release lead or lead-contaminated materials into the environment. Conduct periodic air monitoring for lead in the worker's breathing zone, during the course of any abatement work involving lead containing materials, to prevent exposure at or above the PEL. Submit results of all air monitoring samples to the COR within 24-hours of completing the sampling, or upon receipt of the laboratory test results.

A2.2.12.3.2 Dispose of lead-contaminated materials in accordance with all applicable Federal, State and local regulations. When handling and storing lead contaminated materials, comply with 42 U.S.C. 9601-9675, 42 U.S.C.6901-6991, and all other applicable Federal, state, and local environmental laws and regulations.

A2.2.12.4 Asbestos abatement compliance. When a work item requires the removal of asbestos-containing materials, the Contractor must comply with all applicable Federal, state and local laws and regulations including COMDTINST M5100.47B, 40 CFR 61.150 and 29 CFR 1915.1001. Provide all notices to the EPA, as required by 40 CFR 61.145 and other applicable state and local agencies, prior to commencing asbestos removal work.

A2.2.12.5 Additional requirements during abatement of PLC/LBP and ACM. Abide by the following additional requirements, during work that involves disturbance or abatement PCL/LBP and ACM/vermiculite coatings:

A2.2.12.5.1 Certification documentation. At the Arrival Conference, submit documentation to the COR that all primary and sub-contractors fulfilling abatement requirements possess all local, state, and Federal certification licenses and applicable permits, for fulfilling those abatement requirements.

A2.2.12.5.2 Advance notification. Notify the COR 24 hours prior to any planned abatement actions. Additionally, notify the Quarterdeck and COR, prior to starting any abatement task, to ensure a timely announcement to Coast Guard personnel to vacate the affected area.

NOTE

Be aware that Coast Guard personnel are not permitted to be in the location of abated spaces while abatement is being performed.

A2.2.12.5.3 Additional protective measures. Take the following additional safety precautions:

- Separate work area from other non-affected areas.
- Do not permit non-essential personnel in the work area.
- Work in one compartment/space at a time.
- Prevent dust from migrating to other areas, as follows:
    - Seal doors, hatches, and all other openings between the work area and other areas with an airtight barrier, such as fire-rated polyethylene; seal both sides (inside the construction area, and inside the adjacent area) to provide a secondary dust barrier and prevent the doors and windows from being used (post alternative emergency exits, if applicable).
    - Maintain work area as a negative air pressure zone relative to adjacent areas and filter

exhaust air with a suitable HEPA filter.

- All workers must go through a proper decontamination process prior to exiting the abatement work area including but not limited to removal of contaminated clothing, footwear, and PPE. These items must be sealed in plastic after removal.
- De-contamination station workers must use a suitable HEPA filter equipped vacuum to remove dust from exiting abatement workers.
- Workers must shower and wash hair as soon as possible after leaving the work area.

- Remove and dispose of all protective covers, upon completion of work.

NOTES

1. Work area maintained as a negative air pressure zone relative to adjacent areas so that lead dust and/or asbestos particles are contained within the work area, and do not contaminate adjacent non-affected compartments. See OSHA Work practices and engineering controls for Class I Asbestos Operations – non-mandatory, 29 CFR 1926.1101 App F.
2. A HEPA vacuum removes 99.97% of particles that are less than 0.3 microns in size.
3. Use of compressed air, conventional vacuum, and dry-sweeping is not permissible during abatement.

A2.2.12.5.4 HAZMAT removal and surface preparation.

A2.2.12.5.4.1. ACM. Remove existing ACM by a suitable means and in accordance with all CG policy, local, state and federal regulations. Ensure all removed materials are handled, segregated and disposed of in accordance with all CG policy, local, state and federal regulations governing ACM.

A2.2.12.5.4.2. LBP. Remove LBP from identified areas, using one or a combination of the cleaning methods specified in Table A1 below, as applicable.

- Ensure that the presence of ACM and/or LBP adjacent to future weld repairs is readily apparent to welders through the use of signs on the compartment entry and local markings adjacent to repairs using a suitable means such as grease pencils. Be aware that any accidental disturbance of ACM and/or LBP by subsequent hot work or grinding associated with weld repairs must require clean up and clearance testing, at no cost to the Government.

TABLE A1 - SURFACE PREPARATION METHODS

MECHANICAL CLEANING		CHEMICAL STRIPPING
STEEL SUBSTRATE	**ALUMINUM SUBSTRATE**	Use a suitable chemical stripper to safely remove all existing coatings – and expose the bare substrate, in accordance with manufacturer's instructions.
1. Waterjet to a SSPC-SP WJ-2/NACE WJ-2 standard. 2. Abrasive-blast to SSPC-SP10/NACE No. 2, using grit conforming to MIL-A-22262 (1.5 to 2.5 mil anchor profile). 3. Power tool clean to a SSPC-SP 11 (1.0 mil anchor profile), with vacuum attachment, to capture lead dust and debris.	1. Waterjet to a SSPC-SP WJ-2/NACE WJ-2 standard. 2.Brush blast with clean, fine aluminum oxide, garnet or equivalent inert material conforming CID A-A-59316, Type I & IV, to remove all existing coatings and rust spots, down to bare metal (and produce a 1.0-1.5 mil anchor profile). 3. Mechanically clean using power sanders and abrasive paper with no metallic content; remove all existing coatings and rust to bare metal.	

NOTES

1. Abrasive-blasting creates lead dust, which requires extensive post-surface preparation cleaning in affected compartments. Wet-abrasive blast cleaning (water introduced into blast stream) may be used, to contain/eliminate dust.

2. Abrasive-blasting and waterjetting are not permissible inside machinery spaces or other outfitted spaces due to the difficulty of containing water spray and contamination of blasting dust particles. These methods are allowed to be performed in voids and tanks where full containment, negative ventilation, and isolation of the affected areas can be performed.

3. Known paint strippers meeting the requirements specified in Table 1 include, but are not limited to the following:

- **a. Franmar LeadOut**
- **b. STRIP-TOX Paint Stripper**
- **c. Aquastrip ACB**
- **d. Smart Strip™ Advanced Paint Remover**

WARNING

Paint strippers formulated with the following hazardous materials are strictly prohibited for use onboard CG vessels:

a. Methylene chloride
b. Chlorinated solvents
c. Phenols
d. Chromates
e. Ammonia
f. Amines

CAUTION

Any action that has the potential to generate dust (blasting, hand tooling) must be rigorously monitored to ensure contamination of the ship does not occur. Certifications are required for any personnel who engage in these practices.

A2.2.12.5.4.3. Precautionary measures when using chemical stripping. Take the following precautionary measures, when chemical stripping is selected as one of coating removal methods:

A2.2.12.5.4.3.1. Ventilation. In addition to all temporary ventilation requirements specified in SFLC Std 0000 and the General Requirements item, ensure the following:

- A flow rate ventilation (minimum 100 cfm) is installed in the affected compartment - and ventilation system inspected by COR, prior to commencement of work.
- Exhaust ducts from ventilation fans are run outside and away from the ship's ventilation intakes and downwind from cutter location. This must be monitored and adjusted as necessary if there are changes in wind direction.

A2.2.12.5.4.3.2. Chemical residue removal. After completion of coating removal, wash down all affected surfaces with suitable soap and water, required to ensure all solvents or solvent residues are removed.

A2.2.12.5.5 Treatment of existing coating edges bordering abated ACM or LBP areas. In lieu of abiding by the feathering guidance provided in SFLC Std Spec 6310, paragraph 3.1.13 (Touch-ups and minor coating repairs), build up new coating to overlap all existing adjacent coating edges.

WARNING

Feathering of edges will generate lead/asbestos dust.

A2.2.12.5.6 Post-surface preparation cleaning, clearance, and inspection. Upon completion of coating removal procedures, perform appropriate lead dust clean-up in accordance with CG policy and all local, state and federal regulations including but not limited to; COMDTINST 5100.47 (series) and CG-TTP 4-11.6 Lead Hazard Awareness and Management as well as 29 CFR 1910.25, and 29 CFR 1926.62

WARNING

1. Work Wet, Work Smart, and Work Clean. DO NOT GENERATE DUSTS. It is easier to effectively clean an area when dusts are not being generated to resettle on previously cleaned areas. Worker exposures may be high during wet sweeping.

2. A wet/dry HEPA unit is ideal for working with hazardous dust clean up.

3. Lead-contaminated objects that are porous or materials that may suffer damage from water may not be able to be sufficiently decontaminated by these methods and should be discarded.

A2.2.12.5.6.1. Post- abatement clearance. Upon acceptance of the visual inspection results by the COR, do the following:

A2.2.12.5.6.1.1. Lead dust wipe sampling. Conduct wipe sampling clearance testing, in accordance with ASTM 6966, in three locations in each affected compartment/space, as designated by the Coast Guard Inspector; to ensure that there exist no lead dust residues in excess of the concentrations specified below in TABLE A2. Submit a CFR with sample results. If a Change Request (CR) has been authorized and released, conduct additional wipe sampling and testing, as designated on the CR. Ensure that dust lead samples are analyzed by a laboratory certified by the National Lead Laboratory Accreditation Program (NLLAP) or the American Industrial Hygiene Association.

TABLE A2 - ACCEPTABLE LEAD AND ASBESTOS CONCENTRATIONS

LEAD DUST	ASBESTOS
Berthing and/or Food Preparation Areas: 40 micrograms/square foot (mcg/ft 2)	0.01 or less fiber per cubic centimeter
All Other Areas: 400 micrograms/square foot (mcg/ft 2)	

NOTES

1. Be aware that the Coast Guard reserves the right to coordinate additional wipe clearance testing, at no cost to the contractor, to verify the sample results.

2. All additional wipe clearance testing conducted by the Coast Guard must be witnessed by the Contractor, to verify where and how samples were collected.

A2.2.12.5.6.1.2. Aggressive sampling – asbestos. Take at least five aggressive air samples in each affected compartment/space, using the Phase Contrast Microscopy (PCM) method to determine that the level of airborne fibers for each sample inside the work site, to ensure no airborne asbestos in excess of the concentrations specified in TABLE A2. Perform aggressive air sampling in accordance with EPA 600/4-85-049. Asbestos samples must be analyzed by a laboratory certified by the National Voluntary Laboratory Accreditation Program (NVLAP) or the Environmental Laboratory Approval Program (ELAP). Submit a CFR.

NOTES

1. **Shipboard personnel are not permitted to access work area, while active abatement is being performed. Coast Guard Inspectors may enter with proper protective gear to perform inspections when abatement involves LBP removal only.**
2. **When abatement includes ACM removal, CG personnel will be authorized to enter an abated space ONLY after satisfactory aggressive air sample results.**

A2.2.12.5.6.2. Substrate inspection. Conduct a visual inspection, in the presence of the Coast Guard Inspector, to ensure that none of the following is present, and submit a CFR:

- Visible coatings on any part of the substrate, including pitted areas.
- Lead dust.
- Cleaning material haze.

A2.2.12.5.6.3. Additional cleaning and sampling. If laboratory analysis proves lead concentrations in excess of the thresholds specified in TABLE A2, perform lead dust cleaning, and take subsequent wipe samples until the concentration of lead falls below the above standards, at no additional cost to the Government.

A2.2.12.5.6.4. Surface coating and contaminant removal. Prior to applying primer coat, and in accordance with SFLC Std Spec 6310, paragraphs 3.1.8.7 (Flash rusting/surface oxidation limitations) and 3.1.8.6 (Hydrocarbon substance removal), Remove all flash rusting, as applicable. Remove all grease and oil surface contaminants.

A2.2.12.5.6.5. Surface coating and contaminant removal. Prior to applying primer coat, and in accordance with SFLC Std Spec 6310, paragraphs 3.1.8.7 (Flash rusting/surface oxidation limitations) and 3.1.8.6 (Hydrocarbon substance removal), Remove all flash rusting, as applicable. Remove all grease and oil surface contaminants.

A2.2.12.5.7 Coating application. Coat all prepared surfaces, in accordance with Table A3.

TABLE A3 - COATING SYSTEM

SPOT ABATED AREAS	FULLY-ABATED SURFACES AND COMPARTMENT/SPACES
Prime and coat all abated surfaces, including adjacent structural members, in accordance with SFLC Std Spec 6310, to match existing adjacent surfaces in accordance with SFLC Std Spec 6310, Appendix A and Appendix B, as applicable.	Prime and coat all abated surfaces, including adjacent structural members, as specified in applicable work item(s).

A2.2.12.5.8 Waste disposal. Collect, test, dispose of all generated wastes, including waste water from cleaning of work spaces, in accordance with all applicable Federal, state, and local regulations.

A2.2.12.6 PCB abatement compliance. When a work item requires the removal of PCB-containing materials, the Contractor must comply with the Toxic Substances Control Act, 15 U.S.C. 2601-2692; 40 CFR 761, and all other applicable Federal, state, and local laws and regulations related to the removal and disposal of PCB containing articles.

A2.2.12.7 Chromium abatement compliance. When a work item requires the removal, disposal or hazards of application of a chromium-containing coating, the Contractor must comply with all applicable Federal, state, and local laws and regulations regarding coatings containing chromium.

A2.2.12.7.1 The Contractor must not release chromium, or chromium-contaminated materials into the environment. The Contractor must conduct periodic air monitoring for chromium in the worker's breathing zone, during the course of any abatement work involving chromium containing materials, to prevent exposure above the PEL.

A2.2.12.7.2 The Contractor must dispose of materials containing chromium contaminated materials in accordance with all applicable Federal, state and local laws and regulations. When handling and storing chromium contaminated materials, Contractor must comply with 42 U.S.C. 9601-9675, 42 U.S.C.6901-6991, and all other applicable Federal, state, and local environmental laws and regulations.

A2.2.13 Volatile Organic Compounds. The Contractor must submit a VOC Plan to the KO or COR prior to the initiation of work. The VOC Plan must comply with all Federal, state, and local VOC laws and regulations, and must have an acceptable VOC compliance plan. The plan must demonstrate that the use of paints, solvents, adhesives and cleaners comply with local VOC laws and regulations. All required permits must be obtained, prior to starting work involving VOC, in the air quality district in which the work will be performed. An acceptable compliance plan must contain, as a minimum: a listing of each material subject to restrictions in the air quality management district in question, the rule governing its use, a description of the actions which the Contractor will use to comply with the laws and regulations, and any changes in the status of compliance during the life of the contract. Alternatively, if no materials are subject to the restrictions in the air quality management district where the work will be performed, or if there are no restrictions, the compliance plan must so state.

A2.2.14 Containment - general. The Contractor must employ suitable containment methods to include, but not be limited to those listed below; to protect the air and waterways, during the performance of exterior surface preparation and coating application procedures, and performance of other tasks involving dust creation.

A2.2.14.1 Containment during preservation tasks.

A2.2.14.1.1 The Contractor must utilize fixed or floating platforms as work surfaces, when working at the water surface. The Contractor must ensure that platforms are also used to provide a surface to catch spent abrasives, slag, paint products, trash, and other debris/pollutants. The Contractor must collect and dispose of all debris at the end of each work shift.

A2.2.14.1.2 The Contractor must ensure that the bottom edges of free hanging barriers are weighted, in order to hold them in place during light breezes. When performing topside surface preparation procedures, the Contractor ensure that all vessel openings and open areas between decks, including but not limited to scuppers, railings, freeing ports, ladders, and doorways, are properly covered to prevent discharges into waterways.

A2.2.14.1.3 The Contractor must direct all shipboard cooling water and process water away from contact with spent abrasives, paint and other debris. The Contractor must ensure proper segregation and control of wastewater streams.

A2.2.14.1.4 The Contractor must ensure that all mixing tasks involving paints and solvents are done in locations and under conditions such that no accidental spills will enter adjacent waterways.

A2.2.14.1.5 The Contractor must not mix paints and solvents in areas where spillage would have direct access to waterways, unless containment measures are employed. The Contractor must employ suitable drip pans or other protective devices such as drop cloths or tarpaulin for all paint mixing and solvent transfer operations, unless the mixing operation is carried out in controlled areas away from storm drains, surface waters, shorelines and piers. The Contractor must ensure absorbents are always on hand, to soak up liquid spills.

A2.2.14.1.6 The Contractor must ensure that all paint and solvent spills are treated as oil spills and are prevented from reaching storm drains or deck drains and subsequently discharging into the water.

NOTE

Other forms of containment include, but are not limited to:

1. Total or mini enclosures.

2. Use of surface preparation tools equipped with vacuum attachments.

3. Water injection into abrasive stream during abrasive blasting, to reduce/eliminate dust.

A2.2.14.1.7 The Contractor must capture, contain, and dispose all run-offs from waterjetting and washing operations, to prevent from entering the ground, waterways, stormwater and sewer systems.

A2.2.14.1.8 The Contractor must control painting overspray, to minimize the spreading of windblown materials. Contractor must perform frequent cleanups of affected areas to prevent paint wastes from being washed into storm sewers or adjacent waterways.

A2.2.14.2 Dust control. The Contractor must minimize airborne and waterborne dust release at all times. As such,

- No dry power brooming is permitted. Contractor must use vacuuming, wet mopping, wet sweeping, or wet power brooming.
- Air blowing is permitted only for cleaning non-particulate debris.
- No abrasive blasting is permitted unless dust is confined. Contractor must control blasting dust to minimize windblown materials, and perform cleanup of affected areas to prevent blasting wastes from being washed into storm sewers or adjacent waterways.
- No unnecessary shaking of bags is permitted where bagged material is used.

A2.2.15 Noise control. The Contractor must make the maximum use of low-noise-emission products as certified by EPA and described by 40 CFR Part 204. Contractor must comply with applicable portions of 42 USC §4901 to 4918. The Contractor is responsible for complying with all other Federal, state, and local noise control laws and regulations.

A2.2.16 Use of recovered materials. The Contractor must, to the greatest extent possible and at no additional cost to the Coast Guard, use recovered materials that meet existing performance standards when performing work under this specification. The Contractor must be aware that it is the Government's policy to use, in a cost-effective manner, products composed of the highest percentage of recovered materials practical without adversely affecting performance requirements or exposing vendor employees to undue hazards from the recovered materials.

A2.2.17 Booming requirements during the offload or onload of petroleum products. The Contractor must provide a containment boom system and boom off the cutter during all petroleum cargo on loads and offloads. The cutter must be boomed off by the Contractor during both shipyard functions and the final bunkering of the cutter by ship's force. The Contractor is responsible to provide the labor to deploy and recover the boom during all operations, including operations conducted by ship's force. The containment boom must at a minimum fully encapsulate the cutter from the pier wall in front of the cutter to the pier wall at the stern of the cutter. When moored alongside a pier that does not provide a fully intact pier wall that will contain a spill, the containment boom must wrap completely around the cutter on all sides to provide spill containment. For tug and barge configurations, the containment boom must encapsulate both the cutter and the barge, as applicable.

APPENDIX B

REQUIREMENTS FOR ENVIRONMENTAL PROTECTION AT USCG FACILITIES

B1 SCOPE

B1.1 Intent. This appendix describes the requirements for ensuring Contractor environmental protection compliance at/on USCG Facilities.

B2 REQUIREMENTS

B2.1 Environmental management plan. The Contractor must submit an acceptable environmental management plan to the KO as part of pre-award submission. The plan must outline how the Contractor will handle hazardous materials, petroleum products, hazardous substances, hazardous wastes, and other solid wastes. The Plan must comply with all Federal, state, and local regulations applicable to handling and disposal of hazardous materials, hazardous wastes, and or non-hazardous wastes; and must address, at a minimum, the following requirements. The plan, inventory, procedures, certifications, licenses and permits will be reviewed and determined to be consistent and conformant with Host procedures within 5 working days of submission by the local Environmental Compliance Coordinator (e.g., Facility Environmental Protection Specialist or Unit Environmental Coordinator), and must be approved prior to the initiation of work.

- Contractor General Storage Site Plan requirements.
- An inventory of all hazardous chemicals, compounds and other agents to be brought on-site accompanied by their respective SDS/MSDS. For each hazardous material brought on-site, the Contractor will identify the quantity, use, container sizes, storage, and daily product management activity.
- A list of all anticipated hazardous wastes (HW) to be generated and a Federal/state/local regulation cross reference list for those wastes. All HW will be managed and disposed through the Host Environmental Protection Agency (EPA) ID number and managed in a manner consistent and conformant with Host procedures. All HW activities will be coordinated with by the local Environmental Compliance Coordinator.
- Waste collection and containment procedures.
- A Hazardous Material (HM) Spill and Cleanup Plan per the requirements of 40 Code of Federal Regulation (CFR) 265.15 and 29CFR 1910.1200, including tools and materials that will be on hand and readily available to facilitate containment and cleanup. A Spill Prevention, Control, and Countermeasure (SPCC) activities plan in accordance with 40 CFR 112 must be included as required or requested.
- Training certifications for the Contractor's hazardous waste manager and all personnel conducting hazardous waste activities must be made available upon request, including applicable personnel EPA certifications, HW licenses and/or permits, if applicable.
- Methods used to analyze and identify whether or not generated material, such as but not limited to blasting debris, paint waste, and universal wastes is considered hazardous.

- Air district permits. All air emissions must be detailed within Attachment A, B and C documents, and submitted to the KO. The KO will submit to the local Environmental Compliance Coordinator for determination of consistent and conformant with Host procedures.
- Any permits required by the National Pollutant Discharge Elimination System (33 U.S.C. 1342). All surface water discharges, including process and storm water, must be inventoried and submitted to the local Environmental Compliance Coordinator and determined to be consistent and conformant with Host procedures.
- A Volatile Organic Compounds (VOC) Plan. The VOC Plan must comply with all Federal, state, and local VOC laws and regulations, and must have an acceptable VOC compliance plan as defined herein.

B2.2 General compliance. The Contractor must provide and maintain environmental protection during the life of the Contract to control pollution or to correct conditions that develop during performance of the contract, and comply with all Federal, state, and local laws and regulations pertaining to water, air, and noise pollution. Contractor submitted Environmental Management Plan must additionally meet all requirements of this Standard Specification.

NOTE

The Coast Guard has the right to require removal from the contract any Contractor or subcontractor whose performance fails to comply with any environmental laws and regulations, or who fails to provide appropriate evidence of compliance with regulations.

B2.2.1 Report(s). The Contractor must submit a CFR with the following completed reports, as applicable:

- Monthly Solid Waste Management Report as per B2.2.2.2.
- Waste Determination as per B2.2.2.4.
- End of Project Hazardous Material Management as per B2.2.4.
- Contractor Hazardous Material Inventory Log as per B2.2.4.1.
- Hazardous Waste/Debris Management as per B2.2.4.3.
- Regulated Waste Storage/Satellite Accumulation/90 Day Storage Areas as per B2.2.4.5.
- Laboratory Analysis as per B2.2.4.7.
- Disposal Documentation for Hazardous and Regulated Wastes as per B2.2.4.8.
- Release/Spills of Oil and Hazardous Substances as per B2.2.7.
- Responsibilities for Contractor's Disposal as per B2.2.9.3.2.
- Refrigerants as per B2.2.10.1.
- Disposal Requirements as per B2.2.11.1.
- National Emission Standards for Hazardous Air Pollutants as per B2.2.12.
- Hazardous substance abatement as per B2.2.14.

B2.2.2 Waste management. With the exception of materials specifically indicated or specified to be salvaged for reuse, and turned over to the Government, the Contractor must assume responsibility for removal of all non-hazardous wastes and demolished materials from the job site, daily. Disposal of non-hazardous wastes, industrial wastes, and construction and demolition debris must be reviewed by the local Environmental Compliance Coordinator for consistency and conformance with Host procedures. Contractor must comply with 49 CFR 178, in regards to proper storage container and labeling of wastes, and must comply with the HW disposal requirements specified and agreed to in the General Compliance and Environmental Management Plan for the locality in which the repair availability will occur.

B2.2.2.1 Solid waste management plan and permit. The Contractor must provide to the Contracting Officer and to the local Environmental Compliance Coordinator written notification of the quantity of solid waste, trash/debris that is anticipated to be generated. Include in the report the locations where various types of waste will be disposed or recycled, letters of acceptance or as applicable, submit one copy of a State and local Solid Waste Management Permit or license showing such agency's approval of the disposal plan before transporting wastes off Government property. Disposal of solid wastes will be reviewed by the local Environmental Compliance Coordinator and determined to be consistent and conformant with Host procedures.

B2.2.2.2 Solid waste management report. The Contractor must at least monthly, submit a solid waste disposal report to the local Environmental Compliance Coordinator, with a courtesy copy to the KO. For each waste, the report must state the classification, using the definitions provided in this section, amount, location, and name of the business receiving the solid waste. The Contractor must include copies of the waste handling facilities' weight tickets, receipts, bills of sale, and other sales documentation. In lieu of sales documentation, the Contractor may submit a statement indicating the disposal location for the solid waste which is signed by an officer of the Contractor firm authorized to legally obligate or bind the firm. The sales documentation or Contractor certification must include the receiver's tax identification number and business, EPA or State registration number, along with the receiver's delivery and business addresses and telephone numbers. For each solid waste retained by the Contractor for his own use, the Contractor must submit on the solid waste disposal report the information previously described in this paragraph. Prices paid or received do not need to be reported to the local Environmental Compliance Coordinator or Contracting Officer, unless required by other provisions or specifications of this Contract or public law.

B2.2.2.3 Control and management of solid wastes. The Contractor must pick up solid wastes and trash, and place in covered containers which are regularly emptied, must not prepare or cook food on the project site, and must prevent contamination of the site or other areas when handling and disposing of wastes. At project completion, the Contractor must leave the areas clean. Recycling is encouraged at USCG Facilities and can be coordinated with the local Environmental Compliance Coordinator and the facility. The Contractor must remove all solid waste and trash, including non-hazardous debris, from Government property and dispose off-site at an approved landfill. Solid waste disposal off-site must comply with local, State, and Federal requirements including 40 CFR 241, 40 CFR 243, and 40 CFR 258. The Contractor must manage spent hazardous materials, including but not limited to, aerosol cans, waste paint, cleaning solvents, contaminated brushes, and dirty/used rags per environmental laws.

B2.2.2.4 Waste determination. The Contractor must complete the appropriate Waste Determination analysis and documentation for all Contractor derived wastes to be generated, and base the waste determination upon either a constituent listing from the manufacturer used in conjunction with consideration of the process by which the waste was generated, EPA approved analytical data, or laboratory analysis. Safety Data Sheets/Material Safety Data Sheets by themselves are not adequate basis for this determination. Attach all support documentation to the Waste Determination form. As a minimum, a Waste Determination form must be provided for the following wastes, and may be increased based upon Contractor list of anticipated HW; oil and latex based painting and caulking products, solvents, adhesives, aerosols, petroleum products, and all containers of the original materials. Waste determination documentation for all spent wastes or wastes derived from a process must be analyzed for hazardous waste characteristics and analysis provided with the Waste Determination form.

B2.2.3 Petroleum products and refueling. The Contractor must manage and dispose of petroleum products and petroleum contaminated water in accordance with procedures meeting Federal, state, and local laws and regulations. Conduct the fueling and lubricating of equipment and motor vehicles in a manner that protects against spills and evaporation, and manage all used oil generated on site in accordance with 40 CFR 279. Determine if any used oil generated while on-site exhibits a characteristic of hazardous waste. Used oil containing 1000 parts per million of Total Halogens must be considered a hazardous waste and disposed of at Contractor's expense, as used oil mixed with a hazardous waste.

B2.2.3.1 Oily and hazardous substances. The Contractor must prevent oil or hazardous substances from entering the ground, drainage areas, or navigable waters, and in accordance with 40 CFR 112, must surround all temporary fuel oil or petroleum storage tanks with a temporary berm or containment of sufficient size and strength to contain the contents of the tanks, plus 10 percent freeboard for precipitation. The berm must be impervious to oil for 72 hours and be constructed so that any discharge will not permeate, drain, infiltrate, or otherwise escape before cleanup occurs. The approved SPCC activities plan applies.

B2.2.3.2 Fuel tanks. The Contractor may keep petroleum products and lubricants required to sustain up to 30 days of activity on Government property. The Contractor must ensure storage and refilling practices comply with 40 CFR Part 112, and must provide secondary containment to be no less than 110 percent of the tank volume plus five inches of free-board. If a secondary berm is used for containment, the berm must be impervious to oil for 72 hours and be constructed so that any discharge will not permeate, drain, infiltrate, or otherwise escape before cleanup occurs. The Contractor must ensure drips pans are used and that tanks must be covered during inclement weather.

B2.2.4 Hazardous material management. No hazardous material must be brought onto Government property by the Contractor that does not directly relate to requirements for the performance of this contract, and determined to be consistent and conformant with Host procedures. The Contractor plan must address hazardous material control procedures and proper handling of hazardous materials, including the appropriate transportation requirements, and a SDS/MSDS and estimated quantities to be used for each hazardous material and provided to the local Environmental Compliance Coordinator and Contracting Officer prior to bringing the material on base. Typical materials requiring SDS/MSDS and quantity reporting include, but are not limited to: oil and latex based painting and caulking products, solvents, adhesives, aerosol, and petroleum products. At the end of the project, provide the local Environmental Compliance Coordinator and Contracting Officer with the maximum quantity of each material that was present at the site at any one time, the dates the material was present, the amount of each material that was used during the project, and how the material was used. Contractor must ensure that hazardous materials are utilized in a manner that will minimize the amount of hazardous waste that is generated, and ensure that all containers of hazardous materials have National Fire Protection Association (NFPA) labels or their equivalent. Keep copies of the SDS/MSDS for hazardous materials on site at all times and provide them to the local Environmental Compliance Coordinator and Contracting Officer at the end of the project. Certify that all hazardous materials removed from the site are hazardous materials and do not meet the definition of hazardous waste per 40 CFR 261.

B2.2.4.1 Contractor hazardous material inventory log. The Contractor must submit the Contractor Hazardous Material Inventory Log, Attachment C, which provides information required by Emergency Planning and Community Right-to-Know Act (EPCRA) Sections 312 and 313, along with corresponding SDS/MSDS to the local Environmental Compliance Coordinator and Contracting Officer at the start and within 30 days from final acceptance, and if necessary, update no later than January 31 of each calendar year during the life of the contract. The Contractor must furnish documentation for any spills/releases, environmental reports or off-site transfers that may be requested by the local Environmental Compliance Coordinator and Contracting Officer.

B2.2.4.2 Facility hazardous waste generator status. The Contractor must be aware that the USCG activity Generator Status will be provided to the Contractor, within the solicitation. The Contractor must ensure that all work conducted within the boundaries of the USCG activity/facility meets the regulatory requirements of the generator designation. Comply with all provisions of Federal, State and local regulatory requirements applicable to the generator status regarding training and storage, handling, and disposal of all construction derived wastes, as well as Facility specific hazardous waste procedures.

B2.2.4.3 Hazardous waste/debris management. The Contractor must be responsible for all activities which will generate hazardous waste/debris and provide a documented waste determination for all resultant waste streams. Hazardous waste/debris must be identified, labeled, handled, stored, and disposed of by the Contractor in accordance with all Federal, state, and local regulations including 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, and 40 CFR 268. Hazardous waste must be managed by the Contractor in accordance with the approved Hazardous Waste Management Section of the Environmental Protection Plan. Store hazardous wastes in approved containers in accordance with 49 CFR 173 and 49 CFR 178. Hazardous waste generated by the Contactor within the confines of Government facilities must be identified as being generated by the Government. Prior to removal of any hazardous waste from Government property, the Contractor must ensure all hazardous waste manifests are signed by a qualified and properly trained USCG activity personnel. No hazardous waste will be brought onto Government property by the Contractor. The Contractor must provide to the local Environmental Compliance Coordinator and Contracting Officer a copy of waste determination documentation for any solid waste streams that have any potential to be hazardous waste or contain any chemical constituents listed in 40 CFR 372-SubPart D. For hazardous wastes spills, the Contractor must verbally notify the local Environmental Compliance Coordinator and Contracting Officer immediately.

B2.2.4.4 Regulated waste storage/satellite accumulation/ 90 day storage areas. If the work requires the temporary storage/collection of regulated or hazardous wastes, the Contractor must utilize the existing Host procedures for storing or managing HW, or request from the local Environmental Compliance Coordinator the establishment of a Regulated Waste Storage Area, a Satellite Accumulation Area at the point of generation, or a 90 Day Storage Area. Be aware that the local Environmental Compliance Coordinator will determine consistency and conformance with Host procedures. The Contractor must submit a request in writing to the local Environmental Compliance Coordinator providing the following information:

Contract Number	[_____]
Contractor	[_____]
Haz/Waste or Regulated Waste POC	[_____]
Phone Number	[_____]

Type of Waste	[_____]
Source of Waste	[_____]
Emergency POC	[_____]
Phone Number	[_____]
Location of the Site	[_____]

B2.2.4.5 The Contractor must attach a waste determination form and allow ten working days for processing the request. Barricade the designated area where waste is being stored and at a minimum post a sign identifying as follows:

DANGER

Unauthorized personnel keep out!

B2.2.4.6 Sampling and analysis of hazardous waste. The Contractor must sample waste in accordance with and as designated by the local Environmental Compliance Coordinator to be consistent and conformant with Host procedures, as well as Federal, state, and local requirements. Each sampled drum or container must be clearly marked with the Contractor's identification number and cross referenced to the chemical analysis performed.

B2.2.4.7 Laboratory analysis. The Contractor must follow the analytical procedure and methods in accordance with the 40 CFR 261 and 262. Provide all analytical results and reports performed to the local Environmental Compliance Coordinator and Contracting Officer.

B2.2.4.8 Disposal documentation for hazardous and regulated wastes. The Contractor must manifest, pack, ship and dispose of hazardous or toxic waste and universal waste that is generated as a result of the contract in accordance with the generating facilities generator status under the Recourse Conservation and Recovery Act (RCRA), and in a manner approved by the local Environmental Compliance Coordinator, and determined to be consistent and conformant with Host procedures. Contact the Contracting Officer, local Environmental Compliance Coordinator for the facility RCRA identification number that is to be used on each manifest. The Contractor must submit a copy of the applicable EPA and or State permit(s), manifest(s), or license(s) for transportation, treatment, storage, and disposal of hazardous and regulated waste by permitted facilities. Hazardous or toxic waste manifests must be reviewed, signed, and approved by the Coast Guard before the Contractor may ship waste. Specific disposal instructions will be coordinates with the local Environmental Compliance Coordinator.

B2.2.5 Pollution prevention/ hazardous waste minimization. The Contractor must minimize use of hazardous materials and the generation of hazardous waste, and must include procedures for pollution prevention/ hazardous waste minimization in the Hazardous Waste Management Section of the Environmental Management Plan. Consult with the KO for local Environmental Compliance Coordinator suggestions and to obtain a copy of the installation's pollution prevention/hazardous waste minimization plan for reference when preparing this part of the plan. If no written plan exists, the Contractor must contact the Contracting Officer, and provide description of the types of the hazardous materials expected to be used in the project when requesting information.

B2.2.6 Hazardous materials/ waste prohibition. No hazardous material or hazardous waste must be disposed of on Government property by the Contractor. No hazardous material must be brought onto

Government property that does not directly relate to requirements for the performance of this contract by the Contractor. Be aware that the Government is not responsible for disposal of Contractor's waste material brought on the job site and that is not required in the performance of this contract. The intent of this provision is to dispose of that waste identified as hazardous material/hazardous waste as defined herein that was generated as part of this contract and existed within the boundary of the Contract limits and not brought in from offsite by the Contractor. Incidental materials used to support the contract including, but not limited to aerosol cans, waste paint, cleaning solvents, contaminated brushes, rags, clothing, etc. are the responsibility of the Contractor. The Contractor is not authorized to discharge any materials to sanitary sewer, storm drain, or to navigable waterways or conduct waste treatment or disposal on Government property without written approval of the Contracting Officer and the local Environmental Compliance Coordinator.

B2.2.7 Release/ spills of oil and hazardous substances. The Contractor must exercise due diligence to prevent, contain, and respond to spills of hazardous material, hazardous substances, hazardous waste, sewage, regulated gas, petroleum, lubrication oil, and other substances regulated by environmental law. In the event of a spill, the Contractor must use spill cleanup equipment and materials maintained by the Contractor at the work site, and take prompt, effective action to stop, contain, curtail, or otherwise limit the amount, duration, and severity of the spill/release. In the event of any releases of oil and hazardous substances, chemicals, or gases, the Contractor must immediately notify the Base or Activity Fire Department, the Activity Command Duty Officer, the Contracting Officer or the local Environmental Compliance Coordinator. If the Contractor's response is deemed inadequate, the Coast Guard may respond, and if this should occur, the Contractor will be required to reimburse the Government for spill response assistance and analysis. The Contractor must be responsible for all contract/availability related spills, and perform these actions based upon the reviewed and approved SPCC plan. Be aware that this contractual authority to assume cleanup direction is in addition to, and does not affect, the Coast Guard's regulatory authority to initiate Federal spill control and cleanup operations, as prescribed under the National Oil and Hazardous Substances Contingency Plan, 40 CFR 300. The Contractor's responsibility must also include the removal of spill response waste from the work site, upon completion of spill cleanup.

B2.2.7.1 The Contractor must be responsible for verbal and written notifications as required by 40 CFR 355, State, local regulations and Coast Guard Instructions. Immediately notify the local Environmental Compliance Coordinator and Contracting Officer along with the required agencies. Provide copies of the written notification and documentation that a verbal notification was made within 20 days.

B2.2.7.2 The Contractor's spill response must be in accordance with 40 CFR 300 and applicable State and local regulations. The Contractor must maintain spill cleanup equipment and materials at the work site, and must clean up all hazardous and non-hazardous waste spills. The Contractor must contain and clean up these spills without cost to the Government. If Government assistance is requested or required, the Contractor must reimburse the Government for all material, equipment, sample analysis materials and protective clothing generated during any spill cleanup. The Government must initiate its own spill cleanup procedures for Contractor responsible spills, when the Contractor has not begun spill cleanup procedure within one hour of spill discovery/occurrence, or if, in the Government's judgment, the Contractor's spill cleanup is not adequately abating life threatening situation and/or is a threat to any body of water or environmentally sensitive areas.

NOTE

The Coast Guard will assume control of the spill response, if the Contractor's response is deemed inadequate by Government. The Contractor must be responsible for reimbursing the Coast Guard for all expenses incurred.

B2.2.8 Oil spill response plan. The Contractor must be aware that transfers of any amount of oil, as defined by 33 CFR 154.105, between the vessel and the Contractor's mobile tank facility or Marine Transportation Related (MTR) Facility, subcontracted or otherwise arranged by the Contractor, are subject to the oil spill response plan requirements of 33 CFR 154.1010. The Contractor must have an approved and current Response Plan for any mobile facility transferring oil to or from the vessel whether the transfer is done by the Contractor or Subcontractor, if required by 33 CFR 154.1010. As part of this oil spill response plan, the Contractor must provide fuel oil containment booms to surround the CG vessel during all fuel oil, lube oil, or other petroleum cargo on loads and offloads. Requirement to provide fuel oil boom includes, but is not limited to, the initial petroleum cargo offload and the final liquid load on load at the end of the availability. The required plans must be made available for review by the local Environmental Compliance Coordinator and Contracting Officer prior to the initiation of work.

NOTE

A current USCG Marine Safety Office (MSO) / Captain of the Port (COTP)-approved Facility Response Plan per 33 CFR Section 154.1017 will be considered acceptable in meeting these requirements.

B2.2.9 Hazardous waste disposal. The Contractor must not dispose of hazardous, toxic, or universal waste or abandoned hazardous material on Government property. Unless otherwise noted in the contract, the Government is not fiscally responsible for disposal of Contractor generated waste material. The disposal of incidental materials used to accomplish the work including, but not limited to aerosol cans, waste paint, cleaning solvents, contaminated brushes, rags, clothing, etc. are the responsibility of the Contractor.

B2.2.9.1 The Contractor is not authorized to discharge any materials to sanitary sewer, storm drain, or water way or conduct waste treatment or disposal on Government property without written approval of the Contracting Officer and the local Environmental Compliance Coordinator.

B2.2.9.2 The Contractor must maintain control of stored waste, packaging, sampling, analysis, and disposal.

B2.2.9.3 Responsibilities for contractor's disposal. Contractor responsibilities include any generation of HW solid or liquid. The Contractor agrees to provide all service necessary for the final treatment/disposal of the hazardous material/waste in accordance with all local, State and Federal laws and regulations, and the terms and conditions of the contract. The Contractor services must include all necessary personnel, labor, transportation; packaging, and detailed analysis if required for disposal, and/or transportation, including manifesting or completing waste profile sheets, equipment, and the compilation of all documentation is required.

B2.2.9.3.1 The Contractor must contain all waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, 40 CFR 268, 40 CFR 270, 40 CFR 272, 40 CFR 273, 40 CFR 279, 40 CFR 280, and 40 CFR 761. Obtaining a representative sample of the material generated for each task to provide waste stream determination.

B2.2.9.3.2 The Contractor must provide analysis for each sample taken and provide two copies of the results to the Contracting Officer and Local Environmental Compliance Coordinator. The Contractor must determine the DOT proper shipping names for all waste, each container requiring disposal, and will demonstrate how this determination is developed and supported by the sampling and analysis requirements contained herein to the Contracting Officer and local Environmental Compliance Coordinator.

B2.2.10 Class I and II ODS prohibition. Be aware that Class I and II Oxygen Depleting Substances (ODS) must not be used nor be provided as part of the equipment, unless specifically authorized and defined within the Coast Guard specification. This prohibition will be considered to prevail over any other provision, specification, drawing, or referenced documents. Regulations related to the protection of stratosphere ozone may be found in 40 CFR 82.

B2.2.10.1 Refrigerants. The Contractor must adhere to the requirements of the Clean Air Act, 42 U.S.C. 7401, and Federal, state, and local regulations. The Contractor may not knowingly vent or otherwise release or dispose of any Class I or Class II refrigerants, as defined in 42 U.S.C. 7671a, into the environment. The Contractor must ensure that when servicing small appliances such as refrigerators, freezers, and water coolers, high pressure or low pressure systems, that all servicing and recovery requirements for the appropriate level of equipment are met. Whenever reclaimed refrigerant is used, the Contractor must provide the COR proof that the refrigerant meets the relevant standard of purity. All Contractor servicing technicians must have obtained the required level of EPA certification necessary to service the equipment (e.g., small appliances, high pressure systems, low pressure systems, etc.). The Contractor must submit documentation of EPA certification for each servicing technician to the KO, COR, or local Environmental Compliance Coordinator at the Arrival Conference.

B2.2.10.2 Technician certifications. The Contractor's heating and air conditioning technicians must be certified through an EPA-approved program. The Contractor must maintain copies of certifications at the employees' place of business and be carried as a wallet card by the technician, as provided by environmental law. The Contractor must report accidental venting of a refrigerant release to the Contracting Officer and local Environmental Compliance Coordinator.

B2.2.11 Blasting operations. The Contractor must be aware that the use of silica sand is prohibited in sandblasting. The Contractor must provide tarpaulin drop cloths and windscreens to enclose abrasive blasting operations to confine and collect dust, abrasive, agent, paint chips, and other debris. Contractor must perform work involving removal of hazardous material in accordance with 29 CFR 1910.

B2.2.11.1 Disposal requirements. The Contractor must submit analytical results of all non-recyclable debris generated from abrasive blasting operations per paragraph entitled Laboratory Analysis. Hazardous waste generated from blasting operations will be managed in accordance with paragraph entitled Hazardous Waste\Debris Management and with the approved Environmental Management Plan. Disposal of non-hazardous abrasive blasting debris will be in accordance with paragraph entitled Control and Disposal of Solid Wastes.

B2.2.12 National emission standards for hazardous air pollutants**.** The Contractor must provide appropriate notification to regional United States Environmental Protection Agency (EPA) in accordance with the requirements of 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants), as well as notification requirements of state and local air pollution control laws.

B2.2.12.1 Submit one legible copy, in electronic media, of notification required by EPA that has been provided to any regulatory authority for work on board the vessel to the Environmental Compliance Coordinator within 48 hours of providing such notice to the regulatory authority.

B2.2.12.2 Maintain a current copy at the job site of the SDS/ MSDS for each hazardous material that will be utilized aboard the ship or in Coast Guard facility during the performance of this Contract.

B2.2.12.3 Submit one legible copy, in hard copy or electronic media, to the local Environmental Compliance Coordinator and Contracting Officer upon request. Each SDS/ MSDS requires a one-time submittal/acceptance unless the SDS/ MSDS changes.

B2.2.13 Shipbuilding Operations National Emission Standard for Hazardous Air Pollutants (NESHAPS) for Surface Coating Information. The following are specific requirements to meet 40 CFR Part 63 (National Emission Standards for Hazardous Air Pollutants for Source Categories), Subpart II.

B2.2.13.1 Government facility availabilities. The Contractor must provide certification to the local Environmental Compliance Coordinator or Contracting Officer using Attachment A for VOC Option 1, 2, and 3 thinning requirement use only, or Attachment B for Volatile Organic Hazardous Air Pollutants (VOHAP) for Option 4 thinning requirement, on the as-supplied coating by the manufacturer, or similar form as authorized by the Contracting Officer.

B2.2.14 Hazardous material abatement.

B2.2.14.1 Government reporting of known hazardous substances. The Contractor must be aware that the Government will make every possible effort to inform the Contractor of the presence of hazardous substances, such as lead, chromium, asbestos, and polychlorinated biphenyl (PCB); and will inform the Contractor of the presence of said substances in specification items, when applicable. However, the Contractor must be responsible for conducting all appropriate tests for determining necessary engineering controls and personnel protection actions to be taken, to protect Contractor, civilian and Government personnel, in accordance with applicable OSHA, state, and local regulations. Submit copies of all sample results to COR prior to commencing work.

B2.2.14.2 Contractor surveying for the presence of suspected hazardous substances. If the presence of lead, chromium, asbestos, or PCB is suspected in any material which may be disturbed, and adequate survey of the work-area has not been accomplished by the Coast Guard to determine the extent of suspected hazardous substance, the Contractor must be responsible for conducting hazard evaluations pursuant to OSHA requirements, before work commences as well as monitoring during work activities. Provide COR with a description, location, and analysis results for all materials samples taken during personnel hazard evaluations before work commences in the affected area.

B2.2.14.3 Lead Based Paint (LBP) compliance. When a work item requires disturbance of LBP, cleaning of lead dust or abatement of LBP, the Contractor must comply with all applicable local, state, and federal laws and regulations regarding LBP, when engaging in LBP activities, or when addressing LBP hazards and disposal. Applicable policy, laws or regulations include, but are not limited to: COMDTINST M5100.47 (series), 16 CFR 1303, 29 CFR 1910, 29 CFR 1915.1025, 29 CFR 1926.62, 15 U.S.C. 2601, and the Residential Lead-Based Paint Exposure Reduction Act.

NOTE

The inorganic zinc primer specified in SFLC Standard Specification 6310 may contain concentrations of lead, but not in excess of 0.009% by weight.

B2.2.14.3.1 Do not release lead or lead-contaminated materials into the environment. Contractor must conduct periodic air monitoring for lead in the worker's breathing zone, during the course of any abatement work involving lead containing materials inside encapsulated spaces(s) as well as immediately adjacent to these encapsulated space(s), to prevent exposure at or above the Permissible Exposure Limit (PEL). Submit results of all air monitoring samples to COR within 24-hours of completing the sampling, or upon receipt of laboratory test results.

B2.2.14.3.2 Dispose of lead-contaminated materials in accordance with all applicable Federal, State and local regulations. When handling, storing or shipping lead contaminated materials, the Contractor must comply with 42 U.S.C. 9601-9675, 42 U.S.C.6901-6991,49 CFR 171-177 and all other applicable Federal, state, and local environmental laws and regulations.

B2.2.14.4 Asbestos abatement compliance. When a work item requires the removal of asbestos-containing materials, the Contractor must comply with all applicable Federal, state and local laws and regulations including 40 CFR 61.150 and 29 CFR 1915.1001. Provide all notices to the EPA, as required by 40 CFR 61.145 and other applicable state and local agencies, prior to commencing asbestos removal work.

B2.2.14.5 Additional requirements during abatement of PCL/LBP and asbestos-containing material. Abide by the following additional requirements, during work that involves disturbance or abatement of PCL/LBP and asbestos-containing material (ACM)/vermiculite coatings.

B2.2.14.5.1 Certification documentation. At the Arrival Conference, submit documentation to the COR that all primary and sub-contractors fulfilling abatement requirements related to the preceding disclosure paragraph possess all Local, State, and Federal certification licenses and applicable permits, for fulfilling those abatement requirements.

B2.2.14.5.2 Advance notification. Notify the COR 24 hours prior to any planned abatement actions. Additionally, notify the Quarterdeck and COR, prior to starting any abatement task, to ensure a timely announcement to Coast Guard personnel to vacate the affected area.

NOTE

Be aware that Coast Guard personnel are not permitted to be in the location of abated spaces while abatement is being performed.

B2.2.14.5.3 Additional protective measures. Take the following additional safety precautions:

- Separate work area from other non-affected areas.
- Do not permit non-essential personnel in the work area.
- Work in one compartment/space at a time.
- Prevent dust from migrating to other areas, as follows:
    - Seal doors, hatches, and all other openings between the work area and other areas with an airtight barrier, such as fire-rated polyethylene; seal both sides (inside the construction area, and inside the adjacent area) to provide a secondary dust barrier and prevent the doors and windows from being used (post alternative emergency exits, if applicable).
    - Maintain work area as a negative air pressure zone relative to adjacent areas and filter exhaust air with a suitable HEPA filter.
    - All workers must go through a proper decontamination process prior to exiting the abatement work area including but not limited to removal of contaminated clothing, footwear, and PPE. These items must be sealed in plastic after removal.
    - De-contamination station workers must use a suitable HEPA filter equipped vacuum to remove dust from exiting abatement workers.
    - Workers must shower and wash hair as soon as possible after leaving the work area.
- Remove and dispose of all protective covers, upon completion of work

NOTES

1. Work area maintained as a negative air pressure zone relative to adjacent areas so that lead dust and/or asbestos particles are contained within the work area, and do not contaminate adjacent non-affected compartments. See OSHA Work practices and engineering controls for Class I Asbestos Operations – non-mandatory, 29 CFR 1926.1101 App F.
2. A HEPA vacuum removes 99.97% of particles that are less than 0.3 microns in size.
3. Use of compressed air, conventional vacuum, and dry-sweeping is not permissible, during abatement.

B2.2.14.5.4 HAZMAT removal and surface preparation.

B2.2.14.5.4.1 ACM. Remove existing ACM by a suitable means and in accordance with all CG policy, local, state and federal regulations. Ensure all removed materials are handled, segregated and disposed of in accordance with all CG policy, local, state and federal regulations governing ACM.

B2.2.14.5.4.2 LBP. Remove LBP from identified areas, using one or a combination of the cleaning methods specified in Table B1 below, as applicable.

- Ensure that the presence of ACM and/or PCL/LBP adjacent to future weld repairs is readily apparent to welders through the use of signs on the compartment entry and local markings adjacent to repairs using a suitable means such grease pencils. Be aware that any accidental disturbance ACM and/or PCL/LBP by subsequent hot work or grinding associated with weld repairs must require clean up in and clearance testing, at no cost to the Government.

TABLE B1 - SURFACE PREPARATION METHODS

MECHANICAL CLEANING		CHEMICAL STRIPPING
STEEL SUBSTRATE	**ALUMINUM SUBSTRATE**	Use a suitable chemical stripper to safely remove all existing coatings – and expose the bare substrate, in accordance with manufacturer's instructions.
1. Waterjet to a SSPC-SP WJ-2/NACE WJ-2 standard. 2. Abrasive-blast to SSPC-SP10/NACE No. 2, using grit conforming to MIL-A-22262 (1.5 to 2.5 mil anchor profile). 3. Power tool clean to a SSPC-SP 11 (1.0 mil anchor profile), with vacuum attachment, to capture lead dust and debris.	1. Waterjet to a SSPC-SP WJ-2/NACE WJ-2 standard. 2. Brush blast with clean, fine aluminum oxide, garnet or equivalent inert material conforming CID A-A-59316, Type I & IV, to remove all existing coatings and rust spots, down to bare metal (and produce a 1.0-1.5 mil anchor profile). 3. Mechanically clean, using power sanders and abrasive sandpaper with no metallic contents, to remove all existing coatings and rust spots, down to bare metal.	

NOTES

1. Abrasive-blasting creates lead dust, which requires extensive post-surface preparation cleaning in affected compartments. Wet-abrasive blast cleaning (water introduced into the blast stream) may be used, to contain/eliminate dust.

2. Abrasive-blasting and waterjetting are not permissible inside machinery spaces or other outfitted spaces due to the difficulty of containing water spray and contamination of blasting dust particles. These methods are allowed to be performed in voids and tanks where full containment, negative ventilation, and isolation of the affected areas can be performed.

3. Known paint strippers meeting the requirements specified in Table 1 include, but are not limited to the following:

- **a. Franmar LeadOut**
- **b. STRIP-TOX Paint Stripper**
- **c. Aquastrip ACB**
- **d. Smart Strip™ Advanced Paint Remover**

WARNING

Paint stripper formulated with the following hazardous materials are strictly prohibited for use onboard CG vessels:

a. Methylene chloride
b. Chlorinated solvents
c. Phenols
d. Chromates
e. Ammonia
f. Amines

CAUTION

Any action that has the potential to generate dust (blasting, hand tooling) must be rigorously monitored to ensure contamination of the ship does not occur. Certifications are required for any personnel who engage in these practices.

B2.2.14.5.4.3 Precautionary measures when using chemical stripping. Take the following precautionary measures, when chemical stripping is selected as one of coating removal methods:

B2.2.14.5.4.3.1 Ventilation. In addition to all temporary ventilation requirements specified in SFLC Std 0000 and the General Requirements item, ensure the following:

- A flow rate ventilation (minimum 100 cfm) is installed in the affected compartment - and ventilation system inspected by COR, prior to commencement of work.
- Exhaust ducts from ventilation fans are run outside and away from the ship's ventilation intakes and downwind from cutter location. This must be monitored and adjusted with changes in wind direction.

B2.2.14.5.4.3.2 Chemical residue removal. After completion of coating removal, wash down all affected surfaces with suitable soap and water, required to ensure all solvents or solvent residues are removed.

B2.2.14.5.5 Treatment of existing coating edges bordering abated areas. In lieu of abiding by the feathering guidance provided in SFLC Std Spec 6310, paragraph 3.1.13 (Touch-ups and minor coating repairs), build up new coating to overlap all existing adjacent coating edges.

WARNING

Feathering of edges will generate lead/asbestos dust.

B2.2.14.5.6 Post-surface preparation cleaning, clearance, and inspection. Upon completion of coating removal procedures, perform appropriate lead dust clean-up in accordance with CG policy and all local, state and federal laws and regulations including but not limited to; COMDTINST 5100.47 series and CG-TTP 4-11.6 Lead Hazard Awareness and Management as well as 29 CFR 1910.25, and 29 CFR 1926.62.

WARNING

1. Work Wet, Work Smart, and Work Clean. DO NOT GENERATE DUSTS. It is easier to effectively clean an area when dusts are not resettling on cleaned areas. Worker exposures may be high during wet sweeping.

2. A wet/dry HEPA unit is ideal for working with hazardous dust clean up.

3. Lead-contaminated objects that are porous or materials that may suffer damage from water may not be able to be sufficiently decontaminated by these methods and should be discarded.

B2.2.14.5.6.1 Post- abatement clearance. Upon acceptance of the visual inspection results by the COR, do the following:

B2.2.14.5.6.1.1 Lead dust wipe sampling. Conduct wipe sampling clearance testing, in accordance with ASTM 6966, in three locations in each affected compartment/space, as designated by the Coast Guard Inspector; to ensure that there exist no lead dust residues in excess of the below-listed concentrations, as specified below in TABLE B2. Submit a CFR with sample results. If a Change Request (CR) has been authorized and released, conduct additional wipe sampling and testing, as designated on the CR. Ensure that dust lead samples are analyzed by a laboratory certified by the National Lead Laboratory Accreditation Program (NLLAP) or the American Industrial Hygiene Association.

TABLE B2 - ACCEPTABLE LEAD AND ASBESTOS CONCENTRATIONS

LEAD DUST	ASBESTOS
Berthing and/or Food Preparation Areas: 40 micrograms/square foot (mcg/ft 2)	0.01 or less fiber per cubic centimeter
All Other Areas: 400 micrograms/square foot (mcg/ft 2)	

B2.2.14.5.6.2 Aggressive sampling – asbestos. Take at least five aggressive air samples in each affected compartment/space, using the Phase Contrast Microscopy (PCM) method to determine that the level of airborne fibers for each sample inside the work site, to ensure no airborne asbestos in excess of the concentrations specified in TABLE B2. Perform aggressive air sampling in accordance with EPA 600/4-85-049. Asbestos samples must be analyzed by a laboratory certified by the National Voluntary Laboratory Accreditation Program (NVLAP) or the Environmental Laboratory Approval Program (ELAP). Submit a CFR.

NOTE

Shipboard personnel are not permitted to access work area while active abatement is being performed. Coast Guard Inspectors may enter with proper protective gear to perform inspections when abatement involves LBP removal only. When abatement includes ACM removal, CG personnel will be authorized to enter an abated space only after satisfactory aggressive air sample results.

B2.2.14.5.6.3 Substrate inspection. Conduct a visual inspection, in the presence of the Coast Guard Inspector, to ensure that none of the following is present, and submit a CFR:

- Visible coatings on any part of the substrate, including pitted areas.
- Lead dust.
- Cleaning material haze.

B2.2.14.5.6.4 Additional cleaning and sampling. If laboratory analysis proves lead concentrations in excess of the thresholds specified in TABLE B2, perform lead dust cleaning, and take subsequent wipe samples until the concentration of lead falls below the above standards, at no additional cost to the Government.

NOTES

1. Be aware that the Coast Guard reserves the right to coordinate additional wipe clearance testing, at no cost to the contractor, to verify the sample results.

2. All additional wipe clearance testing conducted by the Coast Guard must be witnessed by the Contractor, to verify where and how samples were collected – and thus, prevent contract disputes.

B2.2.14.5.6.5 Surface coating and contaminant removal. Prior to applying primer coat, and in accordance with SFLC Std Spec 6310, paragraphs 3.1.8.7 (Flash rusting/surface oxidation limitations) and 3.1.8.6 (Hydrocarbon substance removal), respectively. Remove all flash rusting, as applicable. Remove all grease and oil surface contaminants.

B2.2.14.5.7 Coating application. Coat all prepared surfaces, in accordance with Table B3.

TABLE B3 - COATING SYSTEM

SPOT ABATED AREAS	FULLY-ABATED SURFACES AND COMPARTMENT/SPACES
Prime and coat all abated surfaces, including adjacent structural members, in accordance with SFLC Std Spec 6310, to match existing adjacent surfaces in accordance with SFLC Std Spec 6310, Appendix A and Appendix B, as applicable.	Prime and coat all abated surfaces, including adjacent structural members, as specified in applicable work item(s).

B2.2.14.5.8 Waste disposal. Collect, test, dispose of all generated wastes, including waste water from cleaning of work spaces, in accordance with all applicable Federal, state, and local regulations.

B2.2.14.6 PCB abatement compliance. When a work item requires the removal of PCB-containing materials, the Contractor must comply with the Toxic Substances Control Act (TSCA), 15 U.S.C. 2601-2692; 40 CFR 761, and all other applicable Federal, state, and local laws and regulations related to the removal and disposal of PCB containing articles.

B2.2.14.7 Chromium abatement compliance. When a work item requires the removal, disposal or hazards of application of a chromium-containing coating, the Contractor must comply with all applicable Federal, state, and local laws and regulations regarding coatings containing chromium.

B2.2.14.7.1 The Contractor must not release chromium or chromium contaminated materials into the environment. The Contractor must conduct periodic air monitoring for chromium in the worker's breathing zone, during the course of any abatement work involving chromium containing materials, to prevent exposure above the PEL. The Contractor must submit results of all air monitoring samples to COR within 24-hours of completing the sampling, or upon receipt of the laboratory test results.

B2.2.14.7.2 The Contractor must dispose of materials containing chromium contaminated materials in accordance with all applicable Federal, state and local laws and regulations When handling and storing chromium contaminated materials, Contractor must comply with 42 U.S.C. 9601-9675, 42 U.S.C.6901-6991, as well as other applicable Federal, state, and local environmental laws and regulations.

B2.2.15 Volatile Organic Compounds (VOCs) - regulations governing VOC emissions and solvent content in paints, coatings, solvents, adhesives and cleaners. Contractor must submit a VOC Plan to the KO. The VOC Plan must comply with all Federal, state, and local VOC laws and regulations, and must have an acceptable VOC compliance plan. The plan must demonstrate that the use of paints, solvents, adhesives and cleaners comply with local VOC laws and regulations. All required permits must be obtained, prior to starting work involving VOC, in the air quality district in which the work will be performed. An acceptable compliance plan must contain, as a minimum: a listing of each material subject to restrictions in the air quality management district in question, the rule governing its use, a description of the actions which the Contractor will use to comply with the laws and regulations, and any changes in the status of compliance during the life of the contract. Alternatively, if no materials are subject to the restrictions in the air quality management district where the work will be performed, or if there are no restrictions, the compliance plan must so state.

B2.2.16 Containment - general. The Contractor must employ suitable containment methods to include, but not be limited to those listed below; to protect the air and waterways, during the performance of exterior surface preparation and coating application procedures, and performance of other tasks involving dust creation.

B2.2.16.1 Containment during preservation tasks.

B2.2.16.1.1 The Contractor must utilize fixed or floating platforms as work surfaces, when working at the water surface. The Contractor must ensure that platforms are also used to provide a surface to catch spent abrasives, slag, paint products, trash, and other debris/pollutants. The Contractor must collect and dispose of all debris at the end of each work shift.

B2.2.16.1.2 The Contractor must ensure that the bottom edges of free hanging barriers are weighted, in order to hold them in place during light breezes. When performing topside surface preparation procedures, the Contractor must ensure that all vessel openings and open areas between decks, including but not limited to scuppers, railings, freeing ports, ladders, and doorways, are properly covered to prevent discharges into waterways.

B2.2.16.1.3 The Contractor must direct all shipboard cooling water and process water away from contact with spent abrasives, paint and other debris.

B2.2.16.1.4 The Contractor must ensure that all mixing tasks involving paints and solvents are done in locations and under conditions such that no accidental spills will enter adjacent waterways.

B2.2.16.1.5 The Contractor must not mix paints and solvents in areas where spillage would have direct access to waterways, unless containment measures are employed. The Contractor must employ suitable drip pans or other protective devices such as drop cloths or tarpaulin for all paint mixing and solvent transfer operations, unless the mixing operation is carried out in controlled areas away from storm drains, surface waters, shorelines and piers. The Contractor must ensure absorbents are always on hand, to soak up any liquid spills.

B2.2.16.1.6 The Contractor must ensure that all paint and solvent spills are treated as oil spills and are prevented from reaching storm drains or deck drains and subsequently discharging into the water.

NOTE

Other forms of containment include, but are not limited to:

1. Total or mini enclosures.

2. Use of surface preparation tools equipped with vacuum attachments.

3. Water injection into abrasive stream during abrasive blasting, to reduce/eliminate dust.

B2.2.16.1.7 The Contractor must ensure proper segregation and control of wastewater streams. The Contractor must capture, contain, and dispose all run-offs from waterjetting and washing operations, to prevent from entering the ground, waterways, and stormwater and sewer systems. All wastewater must be removed from Government property for processing.

B2.2.16.1.8 The Contractor must control painting overspray, to minimize the spreading of windblown materials. Contractor must perform frequent cleanups of affected areas to prevent paint wastes from being washed into storm sewers or adjacent waterways.

B2.2.16.2 Dust control. The Contractor must minimize airborne and waterborne dust release at all times. To minimize dust, the Contractor must adhere to the following:

- No dry power brooming is permitted. Contractor must use vacuuming, wet mopping, wet sweeping, or wet power brooming.
- Air blowing is permitted only for cleaning non-particulate debris.
- No abrasive blasting is permitted unless dust is confined. Contractor must control blasting dust to minimize windblown materials, and perform cleanup of affected areas to prevent abrasive-blasting wastes from being washed into storm sewers or adjacent waterways.
- No unnecessary shaking of bags is permitted where bagged material is used.

B2.2.17 Noise control. The Contractor must make the maximum use of low-noise-emission products as certified by EPA and described by 40 CFR Part 204. Contractor must comply with applicable portions of 42 USC §4901 to 4918. The Contractor is responsible for complying with all other Federal, state, and local noise control laws and regulations.

B2.2.18 Use of recovered materials. The Contractor must, to the greatest extent possible and at no additional cost to the Coast Guard, use recovered materials that meet existing performance standards. The Contractor must be aware that it is the Government's policy to use, in a cost-effective manner, products composed of the highest percentage of recovered materials practical without adversely affecting performance requirements or exposing vendor employees to undue hazards from the recovered materials.

B2.2.19 Booming requirements during the offload or onload of petroleum products in non-Government facilities. The Contractor must provide a containment boom system and boom off the cutter during all petroleum cargo onloads and offloads. The cutter must be boomed off by the Contractor during both shipyard functions and the final bunkering of the cutter by ship's force. The Contractor is responsible to provide the labor to deploy and recover the boom during all operations, including operations conducted by ship's force. The containment boom must at a minimum fully encapsulate the cutter from the pier wall in front of the cutter to the pier wall at the stern of the cutter. When moored alongside a pier that does not provide a fully intact pier wall that will contain a spill, the containment boom must wrap completely around the cutter on all sides to provide spill containment. For tug and barge configurations, the containment boom must encapsulate both the cutter and the barge, as applicable.

ATTACHMENT A: VOLATILE ORGANIC COMPOUNDS (VOC) (FOR OPTION 1, 2, AND 3 THINNING REQUIREMENT USE ONLY)

ATTACHMENT A
(For Option 1,2,& 3 Thinning Requirement Use Only)
VOC DATA SHEET
PROPERTIES OF THE COATING "AS SUPPLIED" BY THE MANUFACTURER

Coating Manufacturer: _____
Coating Identification: _____
Batch Identification: _____
Supplied To: _____

Properties of the coating as supplied to the customer:

A. Coating Density: $(D_c)_2$ _____ g/L

____ ASTM D 1475-90 ____ Other[1]

B. Total Volatiles: $(m_v)_s$ _____ Mass Percent

____ ASTM D 2369-93 ____ Other[1]

C. Water Content:

1. $(m_v)_s$ _____ Mass Percent

____ ASTM D 3792-91 ____ ASTM D 4017-90 ____ Other[1]

2. $(v_w)_s$ _____ Volume Percent

____ Calculated ____ Other[1]

D. Organic Volatiles: $(m_o)_s$ _____ Mass Percent

E. Nonvolatiles: $(v_n)_s$ _____ Volume Percent

____ Calculated ____ Other[1]

F. VOC Content $(VOC)_s$:

1. _____ g/L solids (nonvolatiles)

2. _____ g/L coating (less water and exempt compounds)

G. Thinner Density: D_{th} _____ g/L

____ ASTM _____ ____ Other[1]

Remarks: (use reverse side)

H. Certification:

Signed: _____ Date: _____

[1] Explain the other method used under "Remarks"

ATTACHMENT B: VOLATILE ORGANIC HAZARDOUS AIR POLLUTANTS (VOHAP) (FOR OPTION 4 THINNING REQUIREMENT)

ATTACHMENT B
(For Option 4 Thinning Requirement Use Only)
VOHAP DATA SHEET
PROPERTIES OF THE COATING "AS SUPPLIED" BY THE MANUFACTURER

Coating Manufacturer: _____
Coating Identification: _____
Batch Identification: _____
Supplied To: _____

Properties of the coating as supplied to the customer:

A. Coating Density: $(D_c)_2$ _____ g/L

____ ASTM D 1475-90 ____ Other[1]

B. Total Volatiles: $(m_v)_s$ _____ Mass Percent

____ ASTM D 2369-93 ____ Other[1]

C. Water Content:

1. $(m_v)_s$ _____ Mass Percent

____ ASTM D 3792-91 ____ ASTM D 4017-90 ____ Other[1]

2. $(v_w)_s$ _____ Volume Percent

____ Calculated ____ Other[1]

D. HAP Volatiles: $(m_{hap})_s$ _____ Mass Percent

E. Nonvolatiles: $(v_n)_s$ _____ Volume Percent

____ Calculated ____ Other[1]

F. VOHAP Content $(VOHAP)_s$:

1. _____ g/L solids (nonvolatiles)

2. _____ g/L coating (less water and exempt compounds)

G. Thinner VOHAP Density: $D_{th\,(vohap)}$ _____ g/L

____ ASTM _____ ____ Other[1]

Remarks: (use reverse side)

H. Certification:

Signed: _____ Date: _____

[1] Explain the other method used under "Remarks"

ATTACHMENT C: HAZARDOUS MATERIAL INVENTORY LOG

CONTRACTOR HAZARDOUS MATERIAL INVENTORY LOG
(EPRCA)

PRIME COMPANY NAME: _____ CONTRACT NO: _____

PROJECT TITLE / LOCATION: _____

Material Name	Manufacturer	MSDS Number	State (i.e. Liquid, Solid, Gas)	Storage Quantity		Quality (lbs/gals) used in Calendar Year [ ]
				Average Daily	Max Daily	

Contractor(s) certifies that the hazardous material(s) removed from installation will be used/reused for its intended purpose.

_____ _____
Company Using Material Listed Above Company Representative's Signature

Submitted By: _____ Phone: _____ Fax: _____ Date: _____
Printed Name

Contracting Officer _____ Phone: _____ Fax: _____

Page ____ of ____

CONTRACTOR HAZARDOUS MATERIAL INVENTORY LOG
(EPRCA)
Continuation Sheet

PRIME COMPANY NAME: _____ CONTRACT NO: _____

PROJECT TITLE / LOCATION: _____

Material Name	Manufacturer	MSDS Number	State (i.e. Liquid, Solid, Gas)	Storage Quantity		Quality (lbs/gals) used in Calendar Year [ ]
				Average Daily	Max Daily	

Page ____ of ____

ATTACHMENT D: CODE OF FEDERAL REGULATIONS

For Reference Only

Title 16 Commercial Practices

PART 1303 BAN OF LEAD-CONTAINING PAINT AND CERTAIN CONSUMER PRODUCTS BEARING LEAD-CONTAINING PAINT

Title 29 Labor

PART 1910 OCCUPATIONAL SAFETY AND HEALTH STANDARDS

PART 1915 OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR SHIPYARD EMPLOYMENT

PART 1926 SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION

Title 33 Navigation and Navigable Waters

PART 154 FACILITIES TRANSFERRING OIL OR HAZARDOUS MATERIAL IN BULK

Title 40 Protection of the Environment

PART 61 NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

PART 63 NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES

PART 82 PROTECTION OF STRATOSPHERIC OZONE

PART 112 OIL POLLUTION PREVENTION

PART 204 NOISE EMISSION STANDARDS FOR CONSTRUCTION EQUIPMENT

PART 241 SOLID WASTES USED AS FUELS OR INGREDIENTS IN COMBUSTION UNITS

PART 243 GUIDELINES FOR THE STORAGE AND COLLECTION OF RESIDENTIAL, COMMERCIAL, AND INSTITUTIONAL SOLID WASTE

PART 256 GUIDELINES FOR DEVELOPMENT AND IMPLEMENTATION OF STATE SOLID WASTE MANAGEMENT PLANS

PART 258 CRITERIA FOR MUNICIPAL SOLID WASTE LANDFILLS

PART 261 IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

PART 262 STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE

PART 263 STANDARDS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE

PART 264 STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

PART 265 INTERIM STATUS STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

PART 266 STANDARDS FOR THE MANAGEMENT OF SPECIFIC HAZARDOUS WASTES AND SPECIFIC TYPES OF HAZARDOUS WASTE MANAGEMENT FACILITIES

PART 268 LAND DISPOSAL RESTRICTIONS

PART 270 EPA ADMINISTERED PERMIT PROGRAMS: THE HAZARDOUS WASTE PERMIT PROGRAM

PART 272 APPROVED STATE HAZARDOUS WASTE MANAGEMENT PROGRAMS

PART 273 STANDARDS FOR UNIVERSAL WASTE MANAGEMENT

PART 279 STANDARDS FOR THE MANAGEMENT OF USED OIL

PART 280 TECHNICAL STANDARDS AND CORRECTIVE ACTION REQUIREMENTS FOR OWNERS AND OPERATORS OF UNDERGROUND STORAGE TANKS (UST)

PART 300 NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTINGENCY PLAN

PART 355 EMERGENCY PLANNING AND NOTIFICATION

PART 372 TOXIC CHEMICAL RELEASE REPORTING: COMMUNITY RIGHT-TO-KNOW

PART 761 POLYCHLORINATED BIPHENYLS (PCBs) MANUFACTURING, PROCESSING, DISTRIBUTION IN COMMERCE, AND USE PROHIBITIONS

Title 49 Transportation

PART 173 SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

PART 178 SPECIFICATIONS FOR PACKAGINGS