Appendix A

Consent Decree Compliance Plan (CDCP)

UNITED STATES SEAFOODS

Date: 08/17/2017

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Introduction

Purpose and Policy

In 2017, United States Seafoods, LLC (USS) signed a Consent Decree with the United States, acting on behalf of the Environmental Protection Agency (EPA), which resolves claims that USS had violated certain regulatory requirements relating to the handling of ozone-depleting substances, including but not limited to Refrigerants, set forth in Section 608 of the Clean Air Act, 42 U.S.C. §§ 7671-7671q and EPA regulations promulgated thereunder at 40 C.F.R. Part 82.

It is the policy of USS to comply with all EPA Refrigerant regulations in 40 C.F.R. Part 82. However, the Consent Decree only addresses a subset of the regulatory requirements applicable to Refrigerants and imposes some additional enforceable requirements not contained in applicable regulations. This Consent Decree Compliance Plan (CDCP) is designed to assist employees in complying with Consent Decree obligations; it does not address all regulatory requirements or replace or change those obligations.

USS maintains a Refrigerant Compliance Management Plan (RCMP) to address the regulatory requirements not addressed in this CDCP. These additional requirements include, but are not limited to, regulations pertaining to the following:

- Comfort Cooling appliances,
- Appliances with a full charge of less than 50 pounds, and
- Vessels, per MARPOL, Annex VI, Regulation 12.

This CDCP is attached to the RCMP as Appendix A.

How to Use this CDCP

- Read this CDCP all the way through at least one time.

- All terms in this CDCP shall have the meanings set forth in Section III of the Consent Decree (located in the USS Homeport Facility in Seattle and available upon request). If not defined therein, such terms shall have the meanings set forth in the federal regulations codified at 40 C.F.R. Part 82. The following two key Consent Decree terms are reprinted here:

    1. Appliance means all Industrial Process Refrigeration or Commercial Refrigeration Appliances that are located on any Vessel and that normally contain more than 50 pounds of Covered Refrigerant, as defined in 40 C.F.R. 82.152 or 40 C.F.R 82.156(j), as applicable. See the *Applicability* section for a list of specific Appliances covered by this CDCP.

    2. Covered Refrigerant means any refrigerant, as defined in 40 C.F.R. 82.152 or 82.156(j) as applicable, with the exception of any exempt substitute as defined in 40 C.F.R. 82.152 and 82.154(a)(1). For purposes of this CDCP, this includes Chlorofluorocarbons (CFCs), Hydrochlorofluorocarbons (HCFCs), and Hydrofluorocarbons (HFCs).

- In the event of a conflict between the Consent Decree and this CDCP, or a conflict between the regulations and this CDCP, the obligations in the Consent Decree and the regulations govern.

- Any forms, records, or other documents (paper or electronic) that relate to issues in this CDCP must be maintained by USS for at least five years after termination of the Consent Decree. See the *Recordkeeping* section herein for more information.

- Each Vessel shall maintain a separate Forms Workbook for each Calendar Year. This will provide an opportunity to reconcile records on an annual basis and will provide for an organized response should records be requested by regulatory agencies. See the *Recordkeeping* and *Record Retention* sections for more information.

- All records will be maintained and available in an Electronic Records Portal ("Portal") for all Current Vessels and for all Appliances as described in the *Electronic Records Portal* section of this CDCP. All paper records or notes taken relating to compliance with this manual shall be preserved and maintained even though the information contained in such paper records and notes is entered into the Portal.

Applicability

All requirements in this CDCP apply to the following Vessels, which are also referred to as "Current Vessels":

Seafreeze Alaska (USCG #517242)
Vaerdal (USCG #611225)
Legacy (USCG #664882)
Alaska Beauty (USCG #544967)
Alaska Endeavor (USCG #608399)
Alaska Knight (USCG #996921)
Alaska Provider (USCG #651455)

The table below lists all Appliances currently owned by US Seafoods:

Table 1. Appliances owned by US Seafoods.

Vessel	Appliance(s)
Alaska Beauty	RSW System
Alaska Endeavor	RSW System
Alaska Provider	Walk-In Freezer
	Walk-In Cooler
	Main Freezer
Legacy	Main System
Seafreeze Alaska	Main System
Vaerdal	Main System
Alaska Knight	No Appliances

This CDCP will no longer apply to the above-listed Vessels once they have been converted to an ammonia-based refrigeration system.

New Vessels are not subject to all requirements outlined in the CDCP but are subject to all regulatory requirements in 40 C.F.R. Part 82, Subpart F, as well as the Training requirements outlined in this CDCP.

Background

Ozone Depleting Substances and their Substitutes

Chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) are Refrigerants that contain atoms of chlorine. These chlorine atoms inflict damage on the ozone layer, and are therefore called ozone-depleting substances.

Hydrofluorocarbons (HFCs) are used to replace CFCs and HCFCs because they do not deplete the ozone.

CFCs, HCFCs, and HFCs (Freon®)

"Freon®" is a registered trademark owned by E. I. DuPont de Nemours and Company. The name "Freon®" is used for products containing CFCs, HCFCs, HFCs, and related compounds. In this CDCP, "Freon®," "Refrigerant," and "Covered Refrigerant" are used interchangeably to refer to all ozone-depleting Refrigerants and their substitutes.

Phase-Out of HCFC Production and Importation

Although HCFCs have been used as transitional substitutes for CFCs as the United States moves toward eliminating use of ODS, the United States is phasing out HCFC use by first limiting and then prohibiting the production or importation of HCFCs. By 2030, all HCFCs will be phased out.

The Clean Air Act Provisions Relating to Ozone Depleting Substances

To protect the ozone layer from further destruction, the United States enacted Title VI of the Clean Air Act in 1990. Section 608 of Title VI covers requirements for recycling and emission reduction of Refrigerants. These regulations include but are not limited to the following:

- Require practices that minimize loss and maximize recycling of Refrigerants during the servicing and disposal of air-conditioning and refrigeration equipment.
- Restrict the sale of Refrigerant so that it is only sold to certified technicians and Appliance manufacturers.
- Set certification requirements for technicians who service equipment and for Refrigerant reclaimers.
- Set performance standards for Refrigerant recovery and recycling equipment.
- Establish safe disposal requirements to ensure removal of Refrigerants from goods that may enter the waste stream with the Refrigerant charge intact.
- Require the prompt repair of substantial leaks in certain types of refrigeration equipment and verification that the repair was successful.
- Require persons owning or operating certain refrigeration to maintain servicing records and records of Refrigerant additions, as well as other records.
- Prohibit deliberate venting or release of CFC, HCFC, or substitute Refrigerants to the atmosphere.
- Specify reporting and recordkeeping requirements for Refrigerant systems and related equipment.

In addition to the requirements summarized above, USS must comply with other requirements concerning Covered Refrigerants, which include the following:

- Other regulations under the Clean Air Act.
- The Consent Decree, while it remains in effect.
- ASHRAE Standard 26, Mechanical Refrigeration and Air-Conditioning Installations Aboard Ship
- Federal and State Emergency Planning & Community Right-to-Know Act (EPCRA) TRI and Tier II reporting.

Nothing in this CDCP alters the obligation of USS to comply with all applicable requirements including but not limited to those identified above.

US Seafoods Requirements and Policies

CDCP Contact Information

Use the following table to contact appropriate USS personnel when notifications are required:

Table 2. US Seafoods contact information.

Title	Name	Email	Phone
Port Engineer	George Martin	geom@usseafoods.net	Office: (206) 763-3133 Cell: (619) 840-3063
Vessel Manager	Matt Upton	mupton@usseafoods.net	Office: (206) 763-3133 Cell: (603) 520-2032

Management of CDCP

The following table summarizes the responsibilities that various individuals have under this CDCP.

Table 3. Management responsibilities in the CDCP.

Responsible Supervisor	Role	Specific Tasks
Port Engineer	Support and oversight of USS compliance with Consent Decree and CDCP. Communication with management and EPA	• Provide a program for managing Covered Refrigerants, including the necessary forms consistent with this CDCP. • Ensure compliance with applicable regulations, the Consent Decree, and this CDCP, and ensure that such compliance is a company priority and appropriate procedures are implemented to ensure compliance. • Ensure compliance with the training requirements of the Consent Decree and CDCP. • Ensure each Vessel's compliance documentation is audited by the Third Party Verifier as required by the Consent Decree. • Review the CDCP at least annually and update as needed. • Calculate the Annual Refrigerant Loss Percentage as required by the Consent Decree and CDCP.
Vessel Manager	Ensure that Consent Decree and CDCP requirements are properly implemented on the Vessel	• Ensure that documentation is accurate, complete and maintained according to Consent Decree and CDCP requirements. • Budget appropriately for compliance requirements. • Facilitate the resolution of all questions from company personnel and contractors regarding Consent Decree and CDCP issues. • Submit the Annual Report to EPA as required by the Consent Decree. • If necessary, report violations of the Consent Decree and/or CDCP to EPA as required by the Consent Decree.
Chief Engineer/Captain*	Responsible for program execution, recordkeeping, and supervision of all technicians and contractors	• Ensure certification of all technicians before they are allowed to work on equipment. • Identify and procure equipment and services required to comply with regulations, the Consent Decree and CDCP. Ensure recovery and recycling equipment meets EPA evacuation requirements. • Provide input for budget planning for Refrigerant management.

		• Monitor compliance with regulations, the Consent Decree, and CDCP and communicate deficiencies to management. • Communicate with contractors to ensure they understand and comply with the Consent Decree and CDCP. • Supervise all contractors performing work relating to activities covered by this CDCP.
Technician	Follow the program, complete records accurately and completely as directed	• Conduct leak inspection and detection of Appliances in accordance with the Consent Decree and CDCP. • Conduct servicing and repair of Appliances in accordance with the Consent Decree and CDCP and verify repairs of leaking Appliances. • Ensure Covered Refrigerants are not vented during servicing. • Evacuate Appliances and systems to EPA-required evacuation levels. • Follow all CDCP procedures. • Complete required records accurately and completely for specific Covered Refrigerant-related activities as required by the Consent Decree and CDCP.
Contractors	Follow the program, complete records accurately and completely as directed	• Ensure that all contractor employees are made aware of the applicable regulations and Consent Decree and CDCP requirements prior to working on Appliances. • Follow CDCP procedures and complete USS-specific forms and records where applicable. • Provide all required documentation to USS each time an Appliance is serviced consistent with the requirements of the Consent Decree and this CDCP.

*Chief Engineers are responsible for program execution, recordkeeping, and supervision of all technicians and contractors aboard Seafreeze Alaska, Vaerdal, and Legacy. Captains are responsible for program execution, recordkeeping, and supervision of all technicians and contractors aboard Alaska Beauty, Alaska Endeavor, Alaska Knight, and Alaska Provider.

Recordkeeping (Forms)

Compliance obligations are documented for each Vessel in part by using an annual Excel Forms Workbook and keeping supporting records on file. The following table summarizes information regarding the forms relevant to the CDCP:

Table 4. Summary of forms used for recordkeeping.

Form	Use	Completed Electronically or Hard Copy*	Location of Completed Form	Person Completing Form
A – Certified Technicians	Provides information on certified technicians employed by USS	Electronic	Forms Workbook	Chief Engineer/ Captain
B – Certified Contractors	Provides information on certified technicians employed by USS contractors	Electronic	Forms Workbook	Chief Engineer/ Captain
C – Recovery Devices	Provides information on recovery and recycling equipment on each Vessel	Electronic	Forms Workbook	Chief Engineer/ Captain
D – Appliance Disposal Record	Documents disposal of Appliances	Hard Copy	Electronic Records Portal	Technician
E – Refrigerant Appliances	Provides information on Appliances, including the Full Charge	Electronic	Forms Workbook	Chief Engineer/ Captain
F – Refrigerant Tracking and Leak Rate Log	Tracks information used to set the Full Charge each year, tracks Covered Refrigerant additions to and removals from Appliances, and calculates the Leak Rate	Electronic	Forms Workbook	Chief Engineer/ Captain
H – Maintenance Log	Tracks all maintenance, repairs, and leaks	Electronic	Forms Workbook	Chief Engineer/ Captain
I – Leak Repair Report	Documents all leak repairs and leak verification tests	Hard Copy	Electronic Records Portal	Technician
J – Appliance Leak Inspection Log	Documents leak inspections on the Appliance	Hard Copy	Electronic Records Portal	Technician
K – Plate Freezer Leak Inspection Log	Documents leak inspections on plate freezers	Hard Copy	Electronic Records Portal	Technician

N – System Pressure Test	Records the results of system pressure test, including the leaks found and repaired during testing	Electronic or Hard Copy	Forms Workbook or Electronic Records Portal	Contractor
O – Annual Refrigerant Loss Percentage Calculation	Calculates the annual loss rate, as required by the Consent Decree	Electronic	Port Engineer's Forms Workbook, or Electronic Records Portal	Port Engineer
P – Logbook of Changes	Tracks revisions to entries in all forms	Electronic	Forms Workbook	All, as necessary
Refrigerant Training Record	Documents Refrigerant training	Electronic or Hard Copy	Electronic Records Portal	Port Engineer

Forms Workbooks are maintained on an annual basis. Each Vessel will start new Forms Workbook on January 1st each year and will maintain the Forms Workbook through December 31st. All completed Form Workbooks will be kept for at least five years after the Consent Decree has been terminated.

Electronic Records Portal

All records will be maintained and available in an Electronic Records Portal (Portal) for all Current Vessels and for all Appliances.

Records (other than video records) related to the following activities will be uploaded to the Portal on at least a monthly basis:

- Full Charge determinations
- Leak inspections
- Leak Repairs
- Verification testing
- Covered Refrigerant additions
- Appliance servicing

Annual refrigerant loss percentage calculations will be uploaded once per year, within thirty (30) days of the calculation.

All other records, including video recordings, will be uploaded to the Portal as soon as practicable, but at least on a quarterly basis.

Paper records will be scanned and uploaded to the Portal at the intervals described in this section. Hardcopy records will be maintained on the Vessel until the Vessel returns to port at the end of the year. The **Port Engineer** will then collect all paper records created throughout the year and deposit them at the USS Homeport Facility in Seattle, which shall retain them in accordance with Consent Decree and CDCP requirements.

All records will be backed up to a secure location on at least a quarterly basis and maintained in accordance with the *Record Retention* section.

Recordkeeping Revisions

All records will be maintained in their original form. USS will not erase, change, or replace any original records but should follow the following procedures to ensure correct operation of the CDCP Forms when changes are necessary.

- If a CDCP Form must be revised to ensure operation, the individual documenting the revision must complete an entry in ***Form P – Logbook of Changes***. Each time the CDCP Forms must be changed, the original entry, the revised entry, and the reason for the revision must be documented on ***Form P***.

- For all other records, USS may create supplemental records to reflect corrections of errors on the original records. The supplemental records must accurately reflect the date and the circumstances under which the change was created. The original records shall be retained.

Reporting of Non-Compliance

Each employee shall report any instances of non-compliance with this CDCP to the **Port Engineer** and/or the **Vessel Manager** as soon as practicable. Oral reports shall be followed up in writing within a reasonable amount of time.

CDCP Review

The **Port Engineer** will review this CDCP annually and revise it as necessary to comply with all applicable requirements of 40 C.F.R. Part 82, Subpart F and the Consent Decree, or as necessary to account for changes in regulatory requirements, technology, or circumstances. Revisions will be submitted to EPA in the Annual Report. See the Consent Decree for more information on CDCP revisions.

Annual Report

The **Vessel Manager** will submit an Annual Report to EPA within 30 Days of the close of each Calendar Year. See the Consent Decree for the requirements of the Annual Report.

Record Retention

All records created under, referenced in, and relating to this CDCP must be retained until 5 years after the Consent Decree is terminated. These include paper records that reflect information input into CDCP forms or the electronic portal. Do not discard any paper or electronic records.

Technicians and Contractors

Technicians

A technician means any person who in the course of maintenance, service, repair, or disposal of an Appliance could be reasonably expected to violate the integrity of the circuit and therefore release Refrigerants into the environment.

Activities reasonably expected to violate the integrity of the Refrigerant circuit include but are not limited to:

- Attaching or detaching hoses and gauges to and from the Appliance;
- Adding or removing Covered Refrigerant or components; and
- Cutting Covered Refrigerant lines.

Only appropriately certified technicians (whether USS employees or contractors) may maintain, service, or repair an Appliance or (beginning January 1, 2019) conduct leak inspections. Technicians must have the appropriate level of certification for the Appliance with which they will work. Table 5 describes the certification types that are applicable to the Consent Decree.

The **Chief Engineer/Captain** will maintain ***Form A – Certified Technicians*** to keep records of certified technicians employed by the company.

The **Chief Engineer/Captain** will maintain ***Form B – Certified Contractors***, to keep certification records for each technician provided by outside service providers.

A hard or scanned copy of each technician's or contractor technician's certification card must be kept on each Vessel on which the technician services. Copies of certifications must be maintained for five years after the termination of the Consent Decree.

Type I, Type II, Type III, and Universal technicians can buy any Covered Refrigerant sold in containers of 20 pounds or more.

Table 5. Technician certifications applicable to the Consent Decree.

Type of Equipment Serviced	Certification Description	Level of Required Certification
High and very high pressure equipment, all R-22 systems.	Maintenance, service, repair, or disposal of medium-, high-, or very high-pressure Appliances and systems, except small Appliances.	Type II
Low pressure equipment, systems using HCFC-123 or CFC-11 (primarily chillers).	Maintenance, service, repair, or disposal of low-pressure Appliances and Systems.	Type III
All types.	Certified to perform all activities approved for Type I, II, and III technicians.	Universal*

*Universal does not include motor vehicles

Contractors

The **Contractor** shall comply with the Clean Air Act (CAA) Section 608, 40 C.F.R. Part 82, the Consent Decree and CDCP, and any state and local codes for all Covered Refrigerant-related work. Each **Contractor** shall ensure that its employees are made aware of the applicable requirements prior to beginning work on Covered Refrigerant-containing equipment.

The **Chief Engineer/Captain** will maintain ***Form B – Certified Contractors*** to keep records of outside service providers that perform work on a Vessel. Copies of certifications must be maintained for five years after the termination of the Consent Decree. The Chief Engineer/Captain will supervise contractor work related to activities covered by this CDCP.

Each **Contractor** shall submit the following information to the Vessel's **Chief Engineer/Captain** prior to starting any work on any USS Appliance:

- A list of all service technician names, EPA certification numbers, and level of certification;
- Copies of each technician's EPA Certification Card; and
- A list of all recovery and recycling equipment to be used.

The **Contractor** shall provide the following documentation to the **Chief Engineer/Captain** each time an Appliance is serviced:

- Equipment name/number
- Manufacturer and Model number
- Serial number
- Location of equipment
- Covered Refrigerant type
- Date of service
- Service, repair, or disposal description
- Quantity (in pounds) of Covered Refrigerant added, removed, recovered, recycled, reclaimed, or disposed of
- Quantity of lubricant disposed of, and method of disposal
- Detailed information on any leaks discovered and repaired
- Name(s) of EPA certified service technicians who performed work
- Recovery and recycling equipment used on Appliances

US Seafoods' Technician Training

Overview

On all Vessels and at all facilities, all employees who handle Covered Refrigerant, operate, service, inspect, or maintain Appliances, or complete records or reports related to Covered Refrigerants, must complete training on refrigeration management.

Frequency

Initial training will occur no later than January 31, 2018. All employees will undergo subsequent trainings at least every other year.

New employees will undergo training within the first 60 Days of their employment.

Additionally, on-the-job training will be provided and verified as needed. Each employee will be qualified and adequately trained in the job tasks that they will perform.

Requirements

Initial and Biannual Training shall include:

- Relevant requirements under Section 608 of the Clean Air Act, 42 U.S.C. 7671g, and its implementing regulations at 40 C.F.R. Part 82, Subpart F and the Consent Decree;
- USS policies and procedures, and employees' and contractors' individual responsibilities, for compliance with Section 608 of the Clean Air Act, 42 U.S.C. 7671g, and its implementing regulations at 40 C.F.R. Part 82, Subpart F and the Consent Decree, including but not limited to leak detection, Leak Rate calculation, leak repair and leak repair verification;
- The requirements, methodologies, and procedures as well as employees' and contractors' individual responsibilities set forth in this CDCP.

Procedures

All training will take place at the USS Homeport Facility in Seattle during the winter. If initial training or new employee training requires training to take place in non-winter months, training will take place within the applicable timeframe, regardless of season.

To make arrangements for training, contact the **Port Engineer**. The **Port Engineer** is responsible for ensuring that training is conducted in accordance with the Consent Decree and CDCP.

Documentation

The **Port Engineer** will document all Covered Refrigerant training on the ***Refrigerant Training Record***.

Documentation will include:

- Name of the trainer
- Name and title of trainee
- Date of training
- Description of training provided, including topics covered and the means used to verify understanding

Refrigerants and Appliances

Health, Safety, and Environmental Dangers Posed by Refrigerants

All fluorocarbon Refrigerants are heavier than air and release can cause asphyxiation by displacing air in low-lying areas or confined and enclosed spaces. They also pose other safety and health risks. Consequently, there are many applicable health and safety standards for refrigeration equipment. For example, machinery rooms must have properly sized ventilation systems and gas leak detectors.

Please contact the **Port Engineer** for information on health and safety requirements and issues.

In addition, because of the environmental degradation caused by Covered Refrigerants, the **deliberate venting or release of CFC, HCFC, or HFC Refrigerants to the atmosphere is prohibited.**

Recovering and Recycling Covered Refrigerant

Covered Refrigerants evacuated from an Appliance will be recovered, recycled, and/or disposed of in accordance the USS written procedures (SOP-01 Refrigerant Recovery Procedures) and the regulations at 40 C.F.R. Part 82.[1]

The **Chief Engineer/Captain** will fill out ***Form C – Recovery Devices*** to document all recovery and recycling equipment used on Appliances. All persons opening an Appliance for maintenance, service, repair, or disposal must have at least one piece of properly certified recovery or recycling equipment available on the Vessel.

All recovery and recycling equipment used for recovering, reclaiming, or recycling Covered Refrigerants must be certified by an Approved Equipment Testing Organization to be capable of achieving the applicable regulatory requirements. It is prohibited to alter certified recovery and recycling equipment in a way that would affect the equipment's ability to meet EPA's certification standards.

See *SOP-01 Refrigerant Recovery Procedures* in Appendix I of this CDCP for more information regarding proper recovery procedures, equipment, and containers and for troubleshooting tips.

Covered Refrigerant Purchases

The **Purchasing Manager** will upload all purchasing records (invoices, receipts, etc.) related to Covered Refrigerants to the Electronic Records Portal.

Purchasing records are also maintained in QuickBooks.

Tracking Covered Refrigerant in Appliances

The Clean Air Act and the Consent Decree require that USS keep records of its Covered Refrigerant purchases, use, recovery, recycling, and disposal. Each time Covered Refrigerant is added to an Appliance, USS must weigh the Covered Refrigerant added.

[1]Note that there are different regulatory requirements for servicing appliances with charges of less than fifty pounds. See the Refrigerant Compliance Management Plan for more information.

The **Chief Engineer/Captain** will use ***Form F – Refrigerant Tracking and Leak Rate*** to record all Covered Refrigerant additions to, and removals from, an Appliance. A separate ***Form F*** will be maintained for each Appliance.

Maintaining, Servicing, and Repairing Appliances

The **Chief Engineer/Captain** will maintain ***Form H – Maintenance Log***. The following items will be recorded on ***Form H***:

- Maintenance, service, and repair activities;
- All Covered Refrigerant additions to and removals from the Appliance;
- All Covered Refrigerant losses or releases, whether due to leaks or other causes; and
- Modifications to Appliances, including documentation of additions or removals of any components.

If a leak is being repaired, additional requirements apply. See the *Leak Inspection, Detection, Calculation, and Repair* chapter for procedures and forms.

Covered Refrigerant Additions and Removal

Whenever Covered Refrigerant is Added to or Removed from an Appliance:

- The Covered Refrigerant shall be weighed;
- The weight of Covered Refrigerant added to or removed from an Appliance shall be recorded on ***Form H – Maintenance Log*** and ***Form F – Refrigerant Tracking and Leak Log***. The reason for the additional or removal must be noted on ***Form F***;
- Where Covered Refrigerant is added to an Appliance, a leak rate must be calculated on ***Form F***.

Appliance Disposal

Appliances that are typically dismantled on-site before disposal must have the Covered Refrigerant recovered in accordance with EPA's requirements for servicing prior to their disposal.

The **Technician** will complete ***Form D – Appliance Disposal Record*** whenever disposing of an Appliance. See *SOP-01 Refrigerant Recovery Procedures* in Appendix I of this CDCP for more information regarding required evacuation practices.

Leak Inspection and Detection, Calculation, and Repair

Leak Inspection and Detection

Overview: Consent Decree Requirements

On at least a weekly basis, a trained **Technician** shall inspect each component of each Appliance on Current Vessels for leaks including all connection points for plate freezers, pumps, seals, valve bonnets and stems, flanged connections, fittings, hoses and any other accessible locations where leaks have known to occur. This requirement shall not apply to an Appliance during any period in which it is fully evacuated and contains no Covered Refrigerant.

Procedures and Recordkeeping

1. On at least a weekly basis, a **Technician** will complete a leak inspection on all Appliances, except for during any period in which an Appliance is fully evacuated and contains no Covered Refrigerant. In addition, an inspection should be immediately conducted if a leak is suspected. These leak inspections are to be performed in addition to the initial and follow-up verification tests used when repairing leaks.
2. **Technicians** will use halide leak detectors, electronic leak detectors, and/or soapy water to complete leak inspections. See the *Leak Detector Use* section for additional procedures on using leak detectors.
3. Using the halide or electronic leak detector, the **Technician** shall inspect all visible and accessible components, including all connection points for plate freezers, pumps, seals, valve bonnets and stems, flanged connections, fittings, hoses, and any other accessible location where leaks have been known to occur. When inspecting plate freezer hoses and connections, a soap bubble test should also be used. The following areas are exceptions and do not need to be inspected:
    a. When components are insulated, under ice that forms on the outside of equipment, underground, behind walls, or are otherwise inaccessible;
    b. Where personnel must be elevated more than two meters above a support surface; or
    c. Where components are unsafe to inspect, as determined by site personnel.
4. Wherever a leak is detected, the **Technician** will spray soapy water on the suspected leak location to confirm the presence of a leak. Soap bubbles will appear if a leak is present. Proceed to the *Leak Repair* section of this manual if a leak is detected.
5. The **Technician** will record the results of leak inspections:
    a. Use ***Form J – Appliance Leak Inspection Log*** to record leak inspections at components of the Appliance other than the plate freezers.
    b. Use ***Form K – Plate Freezer Leak Inspection Log*** to record leak inspections at the plate freezers if the Vessel uses plate freezers.
6. If using a pressure test as a part of the leak inspection process, the **Technician** will complete ***Form N – System Pressure Test*** to record testing data and to document leaks.

Procedures: Leak Detector Use

Halide Leak Detector

When burning pure fuel, the flame of a halide leak detector will be blue. When Refrigerant is present, the flame will turn green.

1. Ensure the area that the torch will be used is suitable for open flames.
2. Connect the halide torch to the fuel bottle (propane or map gas).
3. Ensure the suction hose is unrolled and there are no kinks in the hose.
4. Open the fuel regulator valve a fraction of a turn open until fuel can be heard flowing from the torch, then use a striker to ignite the fuel. Once flame is present, adjust the regulator flow until a desirable flame is present.
5. Move around the area slowly. Move the suction hose to areas of likely leakage, watching for the flame color to change to green.
6. As the torch flame changes to green, move the suction hose side to side.
7. When the green flame decreases, return in the direction of the green flame in a slow sweeping motion, pinpointing the location of the leak.
8. It is very important to move slowly through the area to allow the torch time to sample through the suction hose and give an accurate flame color for the area.

Electronic Leak Detector

1. Move around the leak area slowly, watching the detector lights/reading output.
2. As the detector lights/reading increases, follow the direction of the higher light/readings.
3. Move the detector side to side.
4. When the reading decreases, return in the direction of the higher reading in a slow, sweeping motion and continue to sweep until the reading starts to decrease again.
5. Reverse the direction of the sweep and continue to move in the direction of the higher readings until the source of the leak is located.
6. It is very important to move slowly through the area to allow the meter time to obtain the reading for the area.

Full Charge Calculation

Overview: Consent Decree Requirements

No later than seven (7) Days after each Current Vessel's first voyage of the Calendar Year commences, USS shall calculate the Full Charge of each Appliance on such Current Vessel using the procedures set forth below. USS shall establish the Full Charge only once for each Appliance in each Calendar Year and shall create a record reflecting the date the Full Charge was calculated and weight of the Full Charge for each Appliance.

During the time period before USS establishes a Full Charge for the Calendar Year in accordance with this section solely for the purpose of calculating the leak rate of any Refrigerant leaks occurring during this time period, the Full Charge shall be the weight of Refrigerant remaining in the Appliance from the prior Calendar Year as measured in Paragraph 28.b of the Consent Decree (which may be zero if the Appliance was evacuated at the end of the Calendar Year), plus the weight of any Refrigerant added to the Appliance prior to discovery of a leak.

Procedures and Recordkeeping Related to Full Charge Calculations

Procedure

The **Chief Engineer/Captain** will ensure that the Full Charge is determined using one of the following two methods:

1. If the Appliance was fully evacuated at the end of the prior Calendar Year:
    a. No later than seven (7) Days after the Current Vessel's first voyage of the Calendar Year commences, add the amount of Covered Refrigerant needed for operations for the year. The amount of Covered Refrigerant added will be the Full Charge for the current Calendar Year.
2. If the Appliance was not fully evacuated at the end of the prior Calendar Year, add the following two measurements to set the Full Charge:
    a. The pounds remaining in the Appliance as determined by a qualified and registered professional engineer. This will be determined no later than seven (7) Days after commencement of the vessel's first voyage of the Calendar Year and will be calculated using the procedures in the *Annual Refrigerant Loss Percentage* section below.
    b. The weight of any Covered Refrigerant added to the Appliance between the time of the engineer's calculation in 2.a above, through the seventh Day after commencement of the first voyage in the current Calendar Year.

Recordkeeping

1. The **Chief Engineer/Captain** will record the Full Charge on ***Form E – Refrigerant Appliances*** and ***Form F – Refrigerant Tracking and Leak Log***.
2. All additions to the Appliance to set the Full Charge will be documented on ***Form F – Refrigerant Tracking and Leak Log***. If an engineer calculates the pounds remaining in the appliance at the beginning of the year, this will also be documented on ***Form F***.
3. On ***Form E – Refrigerant Appliances***, in the "Method Used to Determine Full Charge" column, select option (1), "Amount added to fully evacuated system at beginning of year," or (2), "Sum of engineer's calculation and amount added to system at beginning of year."
4. On ***Form E***, if option (2) is selected for the charge method, complete the "Engineer's Calculation" and "Amount Added After Calculation" entries to document the separate measurements.

Leak Rate Calculation

Overview

Leak Rate means the rate at which an Appliance is losing Covered Refrigerant, measured between Covered Refrigerant charges. The Leak Rate is expressed in terms of the percentage of the Appliance's Full Charge that would be lost over a 12-month period if the current rate of loss were to continue over that period using the following formula:

$$\text{Leak Rate (\% per year)} = \frac{\text{pounds of Covered Refrigerant added}}{} \times \frac{365 \text{ days/year}}{} \times 100\%$$

pounds of Covered Refrigerant in Full Charge	shorter of: # days since Covered Refrigerant last added or 365 days

Procedures and Recordkeeping

1. Under the Consent Decree and applicable regulations, the Leak Rate will be calculated every time Covered Refrigerant is added to an Appliance. Each time Covered Refrigerant is added to an Appliance, USS will weigh the Covered Refrigerant added.
2. The **Chief Engineer/Captain** will calculate the Leak Rate using ***Form F – Refrigerant Tracking and Leak Log***. To calculate the Leak Rate on ***Form F***:
    a. Enter the date the Covered Refrigerant was added to the system in the "Date" column.
    b. Enter the amount of Covered Refrigerant added in the "Refrigerant Added (lbs.)" column.
    c. Enter the date the Appliance was last charged prior to the date of the current addition in the "Date Appliance was Last Charged Prior to Today" column.
    d. The leak rate will automatically calculate based on these values. All entries, including the Full Charge on page one (1) of ***Form F***, must be complete to ensure an accurate calculation.

Leak Repair: Required Timelines and Practices

Overview: Consent Decree Requirements

It is USS policy to repair all leaks as soon as possible. The Consent Decree requires repairs be made by the following deadlines:

- **For leaks where no leak rate has been calculated or where the leak rate is less than 20%** as calculated as described in this CDCP, USS will repair all discovered leaks as soon as practicable but no later than sixty (60) Days of discovery of the leak.

- **For all leaks where USS has calculated a leak rate that is equal to or exceeds 20%,** USS shall find and repair the leak within thirty (30) Days of discovery of the leak.

Procedures and Recordkeeping

1. Only certified **Technicians** may undertake repairs to Appliances containing Covered Refrigerants.
2. Prior to opening an Appliance for repair, the **Technician** must evacuate Covered Refrigerant using certified recovery and/or recycling equipment. See *SOP-01 Refrigerant Recovery* in Appendix I of this CDCP for recovery procedures and the *Opening an Appliance for Repair* section below to ensure that all regulatory requirements are met when making a repair.
3. The **Technician** will document all repairs on ***Form I – Leak Repair Report***. A separate ***Form I*** will be used for each repair.
4. Once the repairs have been made, **Technicians** must perform initial and follow-up verification tests. Proceed to the *Leak Repair Verification Test* section for the procedures to be used in the verification tests.
5. If leaks cannot be repaired within the applicable timeframe, notify the **Port Engineer** as soon as possible.

Opening Appliances for Repair

An Appliance may be opened for maintenance, service, or repair subject to the following requirements:

- Only an appropriately certified **Technician** may open[2] an Appliance for maintenance, service, or repair.
- Prior to opening an Appliance for repair, the **Technician** must have at least one piece of certified, Self-Contained Recovery Equipment available.
- Prior to opening an Appliance for maintenance, service, or repair, the Covered Refrigerant (including liquid Covered Refrigerant) must first be evacuated from the Appliance to the applicable levels using a properly certified recovery and/or recycling equipment (see ***Form D – Appliance Disposal Record*** for required evacuation levels). **Technicians** may evacuate either the entire Appliance or the part to be serviced, if the Covered Refrigerant in the part to be serviced can be isolated to an Appliance receiver. A **Technician** must verify that the applicable level of evacuation has been reached in the Appliance or the part before it is opened.

Evacuation of the Appliance to the levels outlined in ***Form D*** is not required in following two circumstances, provided that the specified substitute procedures are followed:

Repairs to Leaking Equipment. If **Technicians** cannot evacuate to the specified levels because of Covered Refrigerant leaks, evacuation to the required levels is not attainable, or because it would substantially contaminate the Covered Refrigerant being recovered, they must:

- Isolate the leak from non-leaking components wherever possible;
- Evacuate non-leaking components to the specified levels; and
- Evacuate leaking components to the lowest level that can be attained without substantially contaminating the Covered Refrigerant. This level cannot exceed 0 pounds per square inch (psig).

Repairs that are Not Major and Are Not Followed by Evacuation. If a **Technician** is not evacuating the equipment to the environment after a repair is completed, and if the repair is not major, [3] then the following requirements must be met:

- For medium-, high-, or very high-pressure Appliances[4], the equipment must be evacuated to a pressure no higher than 0 psig before it is opened.

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2 Opening an appliance means any maintenance, service, repair, or disposal of an appliance that would release any refrigerant in the appliance to the atmosphere. 40 C.F.R. § 82.152

[3] A "major" repair is one that requires the removal of the compressor, condenser, evaporator, or auxiliary heat exchange coil, or the maintenance, service, or does not require uncovering an opening of more than four (4) square inches of "flow area" for more than 15 minutes.

[4] Medium pressure appliance means an appliance that uses a refrigerant with a liquid phase saturation pressure between 45 psia and 170 psia at 104°F. This definition includes but is not limited to appliances using R-114, R124, R-12, R-401C, R-134a, R-406, and R-500. High-pressure appliance means an appliance that uses a Refrigerant with a liquid phase saturation pressure between 170 psia and 355 psia at 104°F. Examples include but are not limited to appliances using R-22, R-407A, R-407C, R-410A, and R-502. Very high-pressure appliance means an appliance that

- For low-pressure Appliances[5], the equipment must be pressurized to 0 psig before it is opened. Methods that require subsequent purging (e.g., nitrogen) cannot be used except with Appliances containing R-113.

Leak Repair Verification Tests

Overview: Consent Decree Requirements and Timing of Verification Tests

All repairs must pass an initial and follow-up verification test. The tests must be completed on an Appliance-wide basis after a leak is repaired.

The required schedule for leak repair verification tests varies based upon the Leak Rate. Follow the procedures outlined below to ensure verification tests are performed and documented in the appropriate timeframe:

1. **If the Leak Rate is less than 20%, or if no Leak Rate is calculated:**
    a. Repairs must be completed as soon as practicable but no later than sixty (60) Days of discovery of the leak.
    b. An **initial verification test** must be completed before adding any Covered Refrigerant or any additional Covered Refrigerant to the system. The test must demonstrate that leaks where a repair attempt was made are successfully repaired.
    c. A **follow-up verification test** must be performed within 10 days of the successful initial verification test or 10 days of system startup (if the Appliance or isolated component was evacuated for repairs). The test must demonstrate that leaks where a repair attempt was made are successfully repaired.
    d. Where verification tests indicate that a leak cannot be repaired within the applicable timeframe, contact the **Port Engineer** as soon as possible, as additional requirements will be triggered.

2. **If the Leak Rate is equal to or exceeds 20%:**
    a. All repairs and verifications test must be completed within 30 Days of the Leak Rate exceedance.
    b. An **initial verification test** must be conducted within 30 days of an Appliance exceeding the applicable Leak Rate. The test must demonstrate that leaks where a repair attempt was made are successfully repaired. The test must be completed before adding any Covered Refrigerant or any additional Covered Refrigerant to the system.
    c. A **follow-up verification test** must be performed within 10 days of the successful initial verification test or 10 days of system startup (if the Appliance or isolated component was

uses a Refrigerant with a critical temperature below 104°F or with a liquid phase saturation pressure above 355 psia at 104°F. Examples include but are not limited to appliances using R-13, R-23, R-503, R-508A, and R-508B.

[5] Low-pressure appliance means an appliance that uses a Refrigerant with a liquid phase saturation pressure below 45 psia at 104°F. Examples include but are not limited to appliances using R-11, R-123, R-113, and R-245fa.

evacuated for the repairs). The test must demonstrate that leaks where a repair attempt was made are successfully repaired.

d. If either the initial or follow-up verification test indicates that repairs were not successful, additional repairs and verification tests are allowed to bring the Appliance below the Leak Rate within the 30 Day time period.

e. If repairs are not successful after the 30 Day timeframe, or if verification tests indicate that a leak cannot be repaired within 30 Days, contact the **Port Engineer** as soon as possible, as additional requirements will be triggered. Also see the *Retrofit and Retirement* section for Retrofit and retirement requirements.

Acceptable Verification Test Methods

USS uses soap bubble tests to complete initial and follow-up verification tests and to verify that leaks were repaired.

Other acceptable initial and follow-up verification test methods include the following:

- Soap bubble test
- Electronic leak detectors
- Ultrasonic leak detectors
- Pressure test
- Vacuum test
- Fluorescent dye and black light test
- Infrared test
- Near infrared test
- Halon Refrigerant gas detection methods

Procedures and Recordkeeping

1. The **Technician** will use a soap bubble test during the initial and follow-up verification tests to ensure that repairs were successful. To complete these tests, soapy water will be sprayed on the location of the repair. If the soapy water does not bubble, the verification test is considered successful.
2. The **Technician** will document all initial and follow-up verification tests on ***Form I – Leak Repair Report***.

Retrofit and Retirement

Overview

A Retrofit or retirement plan must be created within 30 days of the following scenarios:

- A Commercial Refrigeration Appliance is leaking above 20% or an Industrial Process Refrigeration Appliance is leaking above 30%, and USS intends to Retrofit or Retire rather than repair the leak;
- A Commercial Refrigeration Appliance is leaking above 20% or an Industrial Process Refrigeration Appliance is leaking above 30%, and USS fails to take any action to identify or repair the leak; or

- A Commercial Refrigeration Appliance continues to leak above 20% or an Industrial Process Refrigeration Appliance continues to leak above 30% after repairs and verification tests have been conducted.

Procedures and Recordkeeping

1. The **Port Engineer** will prepare the Retrofit or retirement plan, which will include the following information:
    - Identification and location of the Appliance;
    - Type and full charge of the Refrigerant used in the Appliance;
    - Type and Full Charge of Refrigerant to which the Appliance will be converted, if Retrofitted;
    - Itemized procedure for converting the Appliance to a different Refrigerant, including changes required for compatibility with the new substitute, if Retrofitted;
    - Plan for the disposition of recovered Refrigerant;
    - A schedule, **not to exceed one year**, for completion of the Retrofit or retirement.
2. The plan must be signed and dated by an authorized company official.
3. This plan must be accessible at the site of the Appliance in paper copy or electronic format and available for EPA inspection upon request. Note that you **do not** need to automatically report this Retrofit or retirement plan to EPA.
4. **All identified leaks must be repaired as a part of any Retrofit plan.**
5. Unless granted additional time, all work performed in accordance with the plan must be finished within one year of the plan's date (not to exceed 13 months from when the plan was required).
6. For more information on Retrofit and retirement plans, including relief of obligations, extensions to the one-year schedule, and mothballing allowances, refer to 40 C.F.R. 82.157.

Annual Refrigerant Loss Percentage

Consent Decree Requirements

No later than thirty (30) Days after each Current Vessel has returned to port from its final voyage of each Calendar Year (typically in November or December of each Calendar Year), USS shall calculate a company-wide Annual Refrigerant Loss Percentage for that Calendar Year (the "Calculated Calendar Year" or "CCY") using the following equation:

$$\text{Annual Refrigerant Loss Percentage} = \frac{\textit{((Pounds Added during CCY) – (Pounds Remaining at end of CCY)) + Pounds Lost Off Season}}{\textit{(Full Charge for CCY)}} \times 100$$

Where:

Pounds Added during CCY is the sum of:

a. The Full Charges of all Appliances for the Calculated Calendar Year, as determined using the methods in the *Full Charge Calculation* section of the CDCP; and

b. The total number of pounds of Covered Refrigerant added to all Appliances during the Calculated Calendar Year at any time after the Full Charge calculation was made for the relevant Appliance.

Pounds Remaining at end of CCY is:

a. The sum of the pounds of Covered Refrigerant remaining in all Appliances at the end of the Calculated Calendar Year as determined using one of the following methods:

   i. Whenever operationally feasible to do so, USS will fully evacuate all Covered Refrigerant from each Appliance after the final voyage of the Vessel containing the Appliance in each Calendar Year, and will weigh the pounds of Covered Refrigerant actually recovered.

   ii. When it is not operationally feasible to evacuate an Appliance, USS will measure the pounds of Covered Refrigerant remaining in that Appliance by having a qualified and registered professional engineer conduct a measurement and calculation of the pounds of= Covered Refrigerant in the Appliance. The engineer's procedure must conform to the following criteria (See the Consent Decree Paragraph 28.b):

      (1) The engineer's measurement and calculation must be done with a repeatable process, using the same methodology, and substantially similar operating conditions such that year-to-year and Appliance-to-Appliance results may be directly compared with each other.

      (2) The engineer's process and conclusions must be documented and described in USS's Annual Report as described in paragraph 48 of the Consent Decree.

      (3) The engineer's process must determine the liquid and gas volumes of Covered Refrigerant in the Appliance at the time of the measurement, and must include considering or performing at least the following:

         (a) Monitor and record system pressures.

         (b) Determine the volume of all refrigeration system piping and equipment.

         (c) Determine liquid levels in the storage vessels as accurately as possible, by using level indication and sight glasses where no electronic probes are installed.

         (d) Confirm that plate freezers, cargo hold coils and/or evaporators are pumped out, where practicable, by checking the position of suction valves and thermal expansion valves which may prevent full pump-out of associated evaporators.

         (e) Inspect evaporators and empty vessels for signs of external ice buildup, which would indicate the presence of liquid Covered Refrigerant. If external ice build-up is noted, ice shall be removed prior to conducting the calculation.

         (f) Determine and note the position of closed liquid line valves; lines downstream of a closed valve shall be considered to be free of liquid Covered Refrigerant.

         (g) Include the mass of vapor in the system, given that refrigerant vapor is very dense.

         (h) Account for the fact that condenser drains are usually trapped, and that these large pipes may contain a significant mass of Covered Refrigerant liquid.

         (i) Weigh the pounds of Covered Refrigerant in the Appliance and record the value.

Pounds Lost Off Season is only calculated when an Appliance was not fully evacuated at the end of the Calendar Year prior to the CCY. It is calculated by finding the difference between the following:

a. The sum of the amount of Covered Refrigerant measured in all such Appliances at the end of the Calendar Year prior to the CCY as determined by the engineer's calculation as described in the *Pounds Remaining* section above; and

b. The sum of the pounds of Covered Refrigerant measured in all such Appliances at the start of the Calculated Calendar Year as described in the *Full Charge Calculation* section of the CDCP.

The total Annual Refrigerant Loss Percentage for each Calendar Year shall not exceed 25%. If the loss rate exceeds 25%, penalties will apply.

Procedures and Recordkeeping

The **Port Engineer** will follow the steps below to calculate the Annual Refrigerant Loss Percentage on ***Form O – Annual Refrigerant Loss Percentage Calculation***. Entries on ***Form O*** are made for each Appliance, and the form will use the values entered for each Appliance to calculate the company-wide Annual Refrigerant Loss Percentage:

1. Use each Appliance's ***Form F – Refrigerant Tracking and Leak Rate Log*** to determine the Full Charge of the Appliance that was set at the beginning of the Calendar Year. Enter this value on ***Form O***.
2. Use each Appliance's ***Form F – Refrigerant Tracking and Leak Rate Log*** to determine the **Pounds Added During CCY**. Record this value on ***Form O***. If there were no Covered Refrigerant additions, enter "0" in this field.
3. Ensure that the **Pounds Remaining** for each Appliance is determined after the final voyage of each vessel using one of the methods described above in *Consent Decree Requirements*. Enter the Pounds Remaining for each Appliance on ***Form O***.
4. If an appliance was not fully evacuated at the end of the Calendar Year prior to the CCY, ensure that the **Pounds Lost Off Season** is determined as described above in the *Consent Decree Requirements* section and entered on ***Form O***. This may require referencing the previous year's forms workbook. If an Appliance *was* fully evacuated at the end of the Calendar Year prior to the CCY, leave **Pounds Lost Off Season** blank for the Appliance on ***Form O***.
5. The Annual Refrigerant Loss Percentage will auto-calculate on ***Form O*** based on the entries made using this procedure. If the Annual Refrigerant Loss Percentage exceeds 25%, penalties will apply.
6. The Loss Rate will be reported to EPA in the Annual Report.

CDCP Glossary

CDCP Glossary

Appliance means all Industrial Process Refrigeration or Commercial Refrigeration Appliances located on any Vessel and that normally contain more than 50 pounds of Covered Refrigerant, as defined in 40 C.F.R. 82.152 or 40 C.F.R. 82.156(j), as applicable.

Calendar Year means the period of time beginning January 1 of a given year and running through December 31 of the same year, including weekend and holidays.

Comfort Cooling means air conditioning appliances used to provide cooling in order to control heat and/or humidity in occupied facilities including but not limited to residential, office, and commercial buildings. Comfort Cooling appliances include but are not limited to chillers, commercial split systems, and packaged roof-top units.

Commercial Refrigeration means the refrigeration appliances used in the retail food and cold storage warehouse sectors. Retail food appliances include the refrigeration equipment found in supermarkets, convenience stores, restaurants, and other food service establishments. Cold storage includes the refrigeration equipment used to store meat, produce, dairy products, and other perishable goods.

Covered Refrigerant means any Refrigerant, as defined in 40 C.F.R. 82.152 or 82.156(j) as applicable, with the exception of any exempt substitute as defined in 40 C.F.R. 82.152 and 82.154(a)(1).

Current Vessel or ***Current Vessels*** mean the aquatic fishing boats or Vessels with the following names as of the Date of Lodging of the Consent Decree: Seafreeze Alaska (USCG #517242), Vaerdal (USCG #611225), Legacy (USCG #664882), Alaska Beauty (USCG #544967), Alaska Endeavor (USCG #608399), Alaska Knight (USCG #996921), and Alaska Provider (USCG #651455). The term “Vessel” as used herein does not include any structure permanently located on land.

Day means calendar day unless expressly stated to be a business day. In computing any period of time under the Consent Decree, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business of the next business day.

Full Charge means a measurement of Covered Refrigerant made in accordance with the procedure described in Paragraph 21 of the Consent Decree.

Industrial Process Refrigeration means complex customized appliances that are directly linked to the processes used in, for example, the chemical, pharmaceutical, petrochemical, and **manufacturing** industries. This sector also includes industrial ice machines, appliances used directly in the generation of electricity, and ice rinks. Where one appliance is used for both Industrial Process Refrigeration and other applications, it will be considered Industrial Process Refrigeration equipment if 50 percent or more of its operating capacity is used for Industrial Process Refrigeration.

New Vessel or ***New Vessels*** means any aquatic fishing boat or Vessels acquired by USS after the date of lodging of the Consent Decree that are not included in the definition of Current Vessel.

Leak Rate means the rate at which an appliance is losing Covered Refrigerant, measured between Refrigerant charges. The Leak Rate is expressed in terms of the percentage of the appliance's Full Charge that would be lost over a 12-month period if the current rate of loss were to continue over that period.

The rate must be calculated using one of the following methods. The same method must be used for all appliances subject to the leak repair requirements located at an operating facility. Under the Consent Decree and this CDCP, the annualizing method of calculating the leak rate in 40 C.F.R. 82.156 should be used. This method is as follows:

(i) Step 1. Take the number of pounds of Covered Refrigerant added to the appliance to return it to a Full Charge, whether in one addition or if multiple additions related to same leak, and divide it by the number of pounds of Covered Refrigerant the appliance normally contains at Full Charge;

(ii) Step 2. Take the shorter of the number of days that have passed since the last day Covered Refrigerant was added or 365 days and divide that number by 365 days;

(iii) Step 3. Take the number calculated in Step 1 and divide it by the number calculated in Step 2; and

(iv) Step 4. Multiply the number calculated in Step 3 by 100 to calculate a percentage.

This method is summarized in the following formula:

$$\text{Leak Rate (\% per year)} = \frac{\text{pounds of Covered Refrigerant added}}{\text{pounds of Covered Refrigerant in Full Charge}} \times \frac{365 \text{ days/year}}{\text{shorter of: \# days since Covered Refrigerant last added or 365 days}} \times 100\%$$

Refrigerant means, for purposes of this subpart, any substance, including blends and mixtures, consisting in part or whole of class I or class II ozone-depleting substance or substitute that is used for heat transfer purposes and provides a cooling effect. Other refrigerants, such as ammonia and CO_2, are not regulated in the same way and are not covered by this plan.

Retire, when referring to an appliance, means the removal of the Refrigerant and the disassembly or impairment of the Refrigerant circuit such that the appliance as a whole is rendered unusable by any person in the future.

Retrofit means to convert an appliance from one Refrigerant to another refrigerant. Retrofitting includes the conversion of the appliance to achieve system compatibility with the new refrigerant and may include, but is not limited to, changes in lubricants, gaskets, filters, driers, valves, o-rings, or appliance components.

Self-contained Recovery Equipment means Refrigerant recovery and/or recycling equipment that is capable of removing the Refrigerant from an appliance without the assistance of components contained in the appliance.

Technician means any person who in the course of maintenance, service, or repair of an appliance (except MVACs) could be reasonably expected to violate the integrity of the refrigerant circuit and therefore release refrigerants into the environment. Technicians also means any person who in the course of disposal of an appliance (except small appliances, MVACs, and MVAC-like appliances) could be reasonably expected to violate the integrity of the refrigerant circuit and therefore release refrigerants from the appliances into the environment. Activities reasonably expected to violate the integrity of the

refrigerant circuit include but are not limited to: attaching or detaching hoses and gauges to and from the appliance; adding or removing refrigerant; adding or removing components; and cutting the refrigerant line. Activities such as painting the appliance, requiring an external electrical circuit, replacing insulation on a length of pipe, or tightening nuts and bolts are not reasonably expected to violate the integrity of the refrigerant circuit. Activities conducted on appliances that have been properly evacuated pursuant to 40 CFR 82.156 are not reasonably expected to release refrigerants unless the activity includes adding refrigerant to the appliance. Technicians could include but are not limited to installers, contractor employees, in-house service personnel, and owners and/or operators of appliances.

Vessel means any Current Vessel or New Vessel.

Appendix I: Standard Operating Procedures

SOP-01 Refrigerant Recovery

SOP-01 Refrigerant Recovery Procedures

Recovery Procedures

1. Prepare recycling/recovery equipment in accordance with manufacturer's instructions.

2. Drain oil as needed to ensure no contamination of the refrigerant occurs.

3. Begin to withdraw liquid, vapor, or both. Not all mechanical equipment is designed for access to the liquid refrigerant. It is the responsibility of the technician to determine from where to withdraw refrigerant.

   Note: The ability to withdraw liquid is preferable for these reasons:

   - Liquid withdrawal removes many contaminants in suspension while vapor recovery leaves them in the serviced system.
   - Water-charged heat exchangers will not freeze as readily.
   - Withdrawal may be quicker, though processing may not be.

4. If able to recover liquid, monitor the recovery process until all liquid is recovered, then change to vapor-recovery mode. Monitor the weight of refrigerant in the recovery cylinder at all times. Do not overfill cylinders.

5. Ensure that EPA-mandated vacuum levels are reached. Record the levels achieved (see the table in the **Recovery Devices** section of this SOP).

6. Use a digital or hanging scale to record the amounts of refrigerant recovered.

7. After reaching the required vacuum level, isolate the equipment, turn off the recovery unit, and watch the gauges. An increase in pressure indicates additional refrigerant in the equipment, thus requiring additional recovery.

8. When recovery is complete, secure all equipment and proceed with the repair or other action.

The table below provides additional information to help guide recovery efforts:

Recovery Troubleshooting	
If using:	**Then:**
An empty recovery cylinder	Evacuate to ensure no contamination occurs.
An unknown/unlabeled recovery cylinder that already contains refrigerant	Determine or test refrigerant quality and type if needed.
A recovery unit equipped with an automatic low pressure shutoff	Wait and watch after the unit shuts off when system goes into vacuum for as long as necessary

	to determine whether all liquid and residual vapors have been withdrawn. A rise in pressure indicates more refrigerant to recover.
A recovery unit which automatically restarts on system pressure rise	Let it cycle until all possible refrigerant has been recovered. This type of unit must not be operated unattended.
A refrigeration unit with a suspected air-side or water-side leak	Recover only to atmospheric pressure to prevent air or water from entering the system and document this action.

Recovery Devices

Recovery and recycling equipment used on Freon® systems must be certified by an approved equipment testing organization. Altering certified recycling and recovery equipment in a way that would affect the equipment's ability to meet EPA's certification standards is prohibited.

1. **Approved Testing Organizations.** EPA has approved Air-Conditioning, Heating, and Refrigeration Institute (AHRI) and Underwriters Laboratories (UL) as approved equipment testing organizations. Certified equipment can be identified by a label that states: "This equipment has been certified by AHRI/UL to meet EPA's minimum requirements for recycling and/or recovery equipment intended for use with [appropriate category of appliance]."

2. **Evacuation Levels.** The recovery device must be capable of achieving the following levels of evacuation:

Required Evacuation Levels Which Must Be Achieved by Recovery and/or Recycling Equipment (except for small appliances)		
Type of appliance for which recovery and/or recycling machine is intended to be used	**Recovery Unit Manufactured or Imported Date (Inches of Hg vacuum – relative to standard atmospheric pressure of 29.9 inches Hg)**	
	Before Nov. 15, 1993	**After Nov. 15, 1993**
R-22 appliances or components with a full charge of **less than 200 pounds**	0	0
R-22 appliances or components with a full charge of **200 pounds or more**	4	10
Very high-pressure appliances	0	0
Other high-pressure appliances or components with a full charge of **less than 200 pounds**	4	10
Other high-pressure appliances or components with a full charge of **200 pounds or more**	4	15

Medium-pressure appliances or components with a full charge of **less than 200 pounds**	4	10
Medium-pressure appliances or components with a full charge of **200 pounds or more**	4	15
Low-pressure appliance	25 mm Hg absolute	25 mm Hg absolute

Required Evacuation Levels for Appliances with Charges of 5 Pounds or Less		
All Small Appliances **Any ONE of the 3 methods below is acceptable.**	**Recovery Units Manufactured or Imported Date**	
	Before Nov 15, 1993	**After Nov. 15, 1993**
When compressor is operational	80%	90%
When compressor is not operational	80%	80%
Mercury vacuum level	4"	4"

3. **Labels.** Equipment manufactured after November 15, 1993 must have the following labels:

    a. A label stating the following:

> THIS EQUIPMENT HAS BEEN CERTIFIED BY [APPROVED EQUIPMENT TESTING ORGANIZATION] TO MEET EPA'S MINIMUM REQUIREMENTS FOR RECYCLING OR RECOVERY EQUIPMENT INTENDED FOR USE WITH [APPROPRIATE CATEGORY OF APPLIANCE.]

    b. A label showing the date of manufacture and serial number (if applicable) of the equipment. The label must be accessible and likely to remain on the equipment for the lifetime of the equipment. Do not remove equipment labels.

Recovery Containers

Colors

Per *AHRI* guidelines, the body of the recovery container must be gray, and the collar must be yellow (Because all recovery containers follow the gray/yellow color scheme regardless of the type of refrigerant recovered, it is imperative that recovered refrigerant containers be marked or tagged with the appropriate refrigerant name to avoid recovering different refrigerants into the same cylinder.)

Do not use any cylinders that are not color-coded or have an expired hydro-test date.

Shipping

Federal transportation law requires that each cylinder display green a DOT diamond "non-flammable gas" label. Figure 1 is an example of this type of label.

Figure 1 DOT Hazardous Material Label

FORMS WORKBOOOK

Forms Instructions

• Start a new workbook for each vessel at the beginning of each Calendar Year.

• All completed forms must be maintained for five (5) years after the termination of the Consent Decree. This includes paper records that reflect information input into CDCP forms. Documents will be maintained in the Electronic Records Portal.

• In addition to these forms, other documents are required to be maintained under the Consent Decree and/or applicable regulations, including copies of all technician certifications, Refrigerant purchasing records, and Full Charge determination documentation.

• This forms workbook includes separate tracking sheets for each Appliance. Use the Appliance's *Form F - Refrigerant Tracking and Leak Rate Log* to record Refrigerant transfers in and out of the system, calculate the leak rate when applicable, and document the Full Charge determination at the beginning of the year. Use *Form H - Maintenance Log* to track all maintenance, service, and repairs to the Appliance.

Certified Technicians
Form A

INSTRUCTIONS: The Chief Engineer/Captain will complete this form in electronic format and upload to the Electronic Records Portal at the intervals required by the Consent Decree. List every employee who services appliances, including date of certification, type of certification, and certification number. See the CDCP Glossary for a definition of Technician and for a description of individuals who must be certified. Retain this record until five (5) years after the termination of the Consent Decree.

Name of Technician	Date Certified	Type of Certification	Certification Number	Card on File?	Name of Individual Completing Form

Certified Technicians
Form A

Name of Technician	Date Certified	Type of Certification	Certification Number	Card on File?	Name of Individual Completing Form

Certified Contractors
Form B

INSTRUCTIONS: The Chief Engineer/Captain will complete this form in electronic format and upload to the Electronic Records Portal at the intervals required by the Consent Decree. List contractor company, name, type of certification, and certification number for all contract employees who work on appliances. See the CDCP Glossary for a definition of Technician and for a description of individuals who must be certified. ***Keep a hard or scanned copy of the card of each contract employee in the Electronic Records Portal.*** Retain this record until five (5) years after the termination of the Consent Decree.

Name of Contractor Company	Name of Contractor Employee	Type of Certification	Certification Number	Card on File?	Name of Individual Completing Form

Certified Contractors
Form B

Name of Contractor Company	Name of Contractor Employee	Type of Certification	Certification Number	Card on File?	Name of Individual Completing Form

Recovery Devices
Form C

INSTRUCTIONS: The Chief Engineer/Captain will complete this form in electronic format and upload to the Electronic Records Portal at the intervals required by the Consent Decree. Use this form to list recovery and recycling equipment owned by the company and available for use on the vessel. Each vessel must have recovery and recycling equipment on site. Retain this record until five (5) years after the termination of the Consent Decree.

Device Name	Model Number	Serial Number	Year Built	If built after 1993, does device have a legible label?	Vacuum level that can be achieved by device (Inches Hg)	Name of Individual Completing Form

Appliance Disposal Record
Form D

INSTRUCTIONS: The Technician will complete this form in hard copy format. The form will then be scanned and saved in the Electronic Records Portal at the intervals required by the Consent Decree. Use this form to document disposal, transfer, or sale of an appliance. If the appliance is being sold or transferred to another facility, attach the receipt from the receiving company to this record. Retain this record until five (5) years after the termination of the Consent Decree.

Equipment Name: _____

Manufacturer: _____

Model Number: _____

Serial Number: _____

Technician: _____

Refrigerant: _____

Amount Recovered: _____

Recovery Unit Used: _____

Vacuum Level: _____

Oil recovered? ☐ YES

Salvage Company: _____

Signature: _____

Print Name: _____

Company Name: _____

Address: _____

Date Recovered: _____

Required Evacuation Levels for Appliances with Charges of More Than 5 pound (Inches of Hg Vacuum)		
Type of Appliance	**Recovery Units Manufactured Date**	
	Before Nov 15, 1993	**On or After Nov. 15, 1993**
Very high pressure appliance	0	0
High-pressure appliance, or isolated component of such appliance, with a full charge of **less than 200 pounds** of Refrigerant	0	0
High-pressure appliance, or isolated component of such appliance, with a full charge of **200 pounds or more** of Refrigerant	4	10
Medium-pressure appliance, or isolated component of such appliance, with a full charge of **less than 200 pounds** of Refrigerant	4	10
Medium-pressure appliance, or isolated component of such appliance, with a full charge of **200 pounds or more** of Refrigerant	4	15
Low pressure appliance	25 mm Hg absolute	25 mm Hg absolute

Required Evacuation Levels for Appliances with Charges of 5 Pounds or Less		
All Small Appliances **Any ONE of the 3 methods below is acceptable.**	**Recovery Units Manufactured Date**	
	Before Nov 15, 1993	**After Nov. 15, 1993**
When compressor is working	80%	90%
When compressor is not working	80%	80%
Mercury vacuum level	4"	4"

USE THIS PORTION ONLY IF APPLIANCE WILL BE SOLD OR TRANSFERRED TO ANOTHER VESSEL, FACILITY, OR COMPANY.

Transferred To: _____ **Date:** _____

Contact Person: _____ **Phone:** _____

Address: _____

Sent Via: _____

IMPORTANT: Attach receipt from receiving company.

Refrigerant Appliances
Form E

INSTRUCTIONS: The Chief Engineer/Captain will complete this form in electronic format and upload to the Electronic Records Portal at the intervals required by the Consent Decree. List all appliances that contain Refrigerant and are not hermetically sealed. Include air conditioners, refrigerators, freezers, walk-ins, and large Appliances that are serviced by technicians. Very large Appliances will have multiple manufacturers, model numbers, and serial numbers – enter "NA" in the manufacturer, model, and serial number columns when this is the case. The Full Charge of Appliances with 50 or more pounds of Covered Refrigerant will be calculated using the procedures outlined in the CDCP. Retain this record until five (5) years after the termination of the Consent Decree.

*Charge Method: (1) Amount added to fully evacuated system at beginning of year
(2) Sum of engineer's calculation and amount added to system at beginning of year
A = Manufacturer's determination.
B = Calculations based on components, refrigerant, volume, etc.
C = Measurement of amount of refrigerant added or evacuated.
D = Established range based on best available data.

**Complete entries only if using Charge Method (2).

***Use Code: CC=Comfort Cooling
COMM=Commercial Refrigeration
IPR=Industrial Process Refrigeration

***NOTE: Appliances covered under the Consent Decree must use method (1) or (2). Methods A-D are only applicable to systems not covered by the Consent Decree.**

Appliance Name	Appliance Location	Manufacturer	Model Number	Method Used to Determine Full Charge*	Engineer's Calculation** (Lbs.)	Amount Added After Calculation** (Lbs.)	Refriger-ant Type	Full Charge (Lbs.)	Use Code***	Date of Charge Determin-ation	Individual Completing Form

Refrigerant Appliances
Form E

Appliance Name	Appliance Location	Manufacturer	Model Number	Method Used to Determine Full Charge*	Engineer's Calculation** (Lbs.)	Amount Added After Calculation** (Lbs.)	Refriger-ant Type	Full Charge (Lbs.)	Use Code***	Date of Charge Determin-ation	Individual Completing Form

Refrigerant Appliances
Form E

Appliance Name	Appliance Location	Manufacturer	Model Number	Method Used to Determine Full Charge*	Engineer's Calculation** (Lbs.)	Amount Added After Calculation** (Lbs.)	Refriger-ant Type	Full Charge (Lbs.)	Use Code***	Date of Charge Determin-ation	Individual Completing Form

Refrigerant Appliances
Form E

Appliance Name	Appliance Location	Manufacturer	Model Number	Method Used to Determine Full Charge*	Engineer's Calculation** (Lbs.)	Amount Added After Calculation** (Lbs.)	Refriger-ant Type	Full Charge (Lbs.)	Use Code***	Date of Charge Determin-ation	Individual Completing Form

Refrigerant Tracking and Leak Rate Log
Form F

INSTRUCTIONS: The Chief Engineer/Captain and/or Technician will fill out this form whenever Refrigerant is added to or removed from this Appliance beginning on pages three (3) and four (4) below, and they will use page one (1) of this form to set the Full Charge each year. Complete this form electronically and upload it to the Electronic Records Portal at the intervals required by the Consent Decree. Use ***Form H - Maintenance Log*** to maintain records of maintenance and repairs to this Appliance. Retain this record until five (5) years after the termination of the Consent Decree.

Appliance Name: F

Current Total in Appliance:	0.0 lbs.	0.0 kg
Total Refrigerant Leaked:	3,500.0 lbs.	1,587.6 kg
Leak Correction Amnt After Full Pumpout:**	2,500.0 lbs.	1,134.0 kg

Engineer's Calculation at End of Year* (lbs.):

*("Pounds Remaining at end of CCY") To be completed by a qualified and registered professional engineer if the Appliance is not pumped out at the end of the year.

**To be completed at end of year if appliance is pumped out or an engineer calculates the amount of refrigerant in the Appliance and amount recovered does not match Current Total in Appliance.

Setting the Full Charge: Complete this section when determining the Full Charge at the beginning of the year

Full Charge (lbs.): 5,000.0

INSTRUCTIONS: Record all additions to the Appliance needed for operations for the year. Note that all Full Charge calculations and additions must be completed no later than seven (7) Days after the vessel's first voyage of the year commences. If the Appliance was not evacuated at the end of the prior year, enter the pounds remaining in the system at the start of the year, as calculated by the qualified and registered professional engineer.

Pounds Remaining (lbs.) (Engineer's Calculation): 4,000.0

Date	Refrigerant Added (lbs.)	Technician Adding Refrigerant	Individual Completing Form	Additional Notes (If applicable)
1/20/2017	1,000.0	Matt Damon	Olivia Wilde	Added 1000 lbs. to bring system to full charge

***Annual leak rate reporting is not effective until 1/1/2019

Refrigerant Tracking and Leak Rate Log
Form F

INSTRUCTIONS: Page two (2) below is used by the Port Engineer at the end of the year. Beginning on page four (4) below, the Chief Engineer/Captain will complete an entry whenever Covered Refrigerant is added to an Appliance. Use ***Form I - Leak Repair Report*** to document leak repairs and verification tests.

Data on this page will be used by the Port Engineer

Annual Leak Rate:	70.00%
Report Required for Annual Leak Rate Exceedance?*:**	**No**
Annual leak rate not to exceed:	125%
Pounds Added During CCY (For Use on Form O):	1,000.0

***Annual leak rate reporting is not effective until 1/1/2019

Refrigerant Tracking and Leak Rate Log
Form F

Tracking Refrigerant: Complete this section after the Full Charge has been determined above								
Date	**Refrigerant Added (lbs.)**	**Refrigerant Added (kg)**	**If Adding Refrigerant, Select Reason for Addition**	**Refrigerant Removed (lbs.)**	**Refrigerant Removed (kg)**	**Technician Adding/Removing Refrigerant**	**Individual Completing Form Entry**	**Additional Notes (If applicable)**
3/1/2017	500.0	226.8	Replaces refrigerant that leaked		0.0	George Foreman	Olivia Wilde	Added to replace leak. See Form I for more information. Other notes can be added here if needed.
7/1/2017	500.0	226.8	Replaces refrigerant that leaked		0.0	George Foreman	George Foreman	Added to replace leak. See Form I for repair records. Can add more notes here if needed.
11/30/2017		0.0		2,500.0	1,134.0	Matt Damon	Olivia Wilde	Fully evacuated at end of year
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			

***Annual leak rate reporting is not effective until 1/1/2019

Refrigerant Tracking and Leak Rate Log
Form F

Leak Rate Calculations: Complete this section when refrigerant is added to the system			
Date Appliance was Last Charged Prior to Today	**Refrigerant Leaked to Air or Water?**	**Leak Rate**	**Additional Notes (If applicable)**
1/20/2017	Air	91.3%	
3/1/2017	Air	29.9%	

***Annual leak rate reporting is not effective until 1/1/2019

Refrigerant Tracking and Leak Rate Log
Form F

Date	Refrigerant Added (lbs.)	Refrigerant Added (kg)	If Adding Refrigerant, Select Reason for Addition	Refrigerant Removed (lbs.)	Refrigerant Removed (kg)	Technician Adding/Removing Refrigerant	Individual Completing Form Entry	Additional Notes (If applicable)
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			

***Annual leak rate reporting is not effective until 1/1/2019

Refrigerant Tracking and Leak Rate Log
Form F

Date Appliance was Last Charged Prior to Today	Refrigerant Leaked to Air or Water?	Leak Rate	Additional Notes (If applicable)

***Annual leak rate reporting is not effective until 1/1/2019

Refrigerant Tracking and Leak Rate Log
Form F

Date	Refrigerant Added (lbs.)	Refrigerant Added (kg)	If Adding Refrigerant, Select Reason for Addition	Refrigerant Removed (lbs.)	Refrigerant Removed (kg)	Technician Adding/Removing Refrigerant	Individual Completing Form Entry	Additional Notes (If applicable)
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			

***Annual leak rate reporting is not effective until 1/1/2019

VESSEL NAME

Refrigerant Tracking and Leak Rate Log
Form F

Date Appliance was Last Charged Prior to Today	Refrigerant Leaked to Air or Water?	Leak Rate	Additional Notes (If applicable)

***Annual leak rate reporting is not effective until 1/1/2019

VESSEL NAME

Refrigerant Tracking and Leak Rate Log
Form F

Date	Refrigerant Added (lbs.)	Refrigerant Added (kg)	If Adding Refrigerant, Select Reason for Addition	Refrigerant Removed (lbs.)	Refrigerant Removed (kg)	Technician Adding/Removing Refrigerant	Individual Completing Form Entry	Additional Notes (If applicable)
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			

***Annual leak rate reporting is not effective until 1/1/2019

VESSEL NAME

Refrigerant Tracking and Leak Rate Log
Form F

Date Appliance was Last Charged Prior to Today	Refrigerant Leaked to Air or Water?	Leak Rate	Additional Notes (If applicable)

***Annual leak rate reporting is not effective until 1/1/2019

VESSEL NAME

Refrigerant Tracking and Leak Rate Log
Form F

Date	Refrigerant Added (lbs.)	Refrigerant Added (kg)	If Adding Refrigerant, Select Reason for Addition	Refrigerant Removed (lbs.)	Refrigerant Removed (kg)	Technician Adding/Removing Refrigerant	Individual Completing Form Entry	Additional Notes (If applicable)
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			

***Annual leak rate reporting is not effective until 1/1/2019

VESSEL NAME

Refrigerant Tracking and Leak Rate Log
Form F

Date Appliance was Last Charged Prior to Today	Refrigerant Leaked to Air or Water?	Leak Rate	Additional Notes (If applicable)

***Annual leak rate reporting is not effective until 1/1/2019

VESSEL NAME

Refrigerant Tracking and Leak Rate Log
Form F

Date	Refrigerant Added (lbs.)	Refrigerant Added (kg)	If Adding Refrigerant, Select Reason for Addition	Refrigerant Removed (lbs.)	Refrigerant Removed (kg)	Technician Adding/Removing Refrigerant	Individual Completing Form Entry	Additional Notes (If applicable)
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			

***Annual leak rate reporting is not effective until 1/1/2019

VESSEL NAME

Refrigerant Tracking and Leak Rate Log
Form F

Date Appliance was Last Charged Prior to Today	Refrigerant Leaked to Air or Water?	Leak Rate	Additional Notes (If applicable)

***Annual leak rate reporting is not effective until 1/1/2019

Refrigerant Tracking and Leak Rate Log
Form F

Date	Refrigerant Added (lbs.)	Refrigerant Added (kg)	If Adding Refrigerant, Select Reason for Addition	Refrigerant Removed (lbs.)	Refrigerant Removed (kg)	Technician Adding/Removing Refrigerant	Individual Completing Form Entry	Additional Notes (If applicable)
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			

***Annual leak rate reporting is not effective until 1/1/2019

VESSEL NAME

Refrigerant Tracking and Leak Rate Log
Form F

Date Appliance was Last Charged Prior to Today	Refrigerant Leaked to Air or Water?	Leak Rate	Additional Notes (If applicable)

***Annual leak rate reporting is not effective until 1/1/2019

VESSEL NAME

Refrigerant Tracking and Leak Rate Log
Form F

Date	Refrigerant Added (lbs.)	Refrigerant Added (kg)	If Adding Refrigerant, Select Reason for Addition	Refrigerant Removed (lbs.)	Refrigerant Removed (kg)	Technician Adding/Removing Refrigerant	Individual Completing Form Entry	Additional Notes (If applicable)
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			
		0.0			0.0			

***Annual leak rate reporting is not effective until 1/1/2019

Refrigerant Tracking and Leak Rate Log
Form F

Date Appliance was Last Charged Prior to Today	Refrigerant Leaked to Air or Water?	Leak Rate	Additional Notes (If applicable)

***Annual leak rate reporting is not effective until 1/1/2019

VESSEL NAME

Maintenance Log
Form H

INSTRUCTIONS: The Chief Engineer/Captain and/or Technician will use this form to log the following:
-Maintenance, service, and repair activities, including refrigerant additions and removals;
-All Covered Refrigerant losses or releases, whether due to leaks or other causes; and
-Modifications to Appliances, including documentation of additions or removals of any components.
This form will be filled out electronically and uploaded to the Electronic Records Portal at the intervals required by the Consent Decree. Use ***Form F - Tracking Log*** to log any Refrigerant additions to or removals from the Appliance. Any leaks identified on Form H must also be identified on ***Form I - Leak Repair Report***. Retain this record until five (5) years after the termination of the Consent Decree.
Note: Any maintenance or repair that includes opening the Refrigerant circuit MUST be performed by a certified technician. Persons listed below as performing work on refrigerant circuits MUST match the record of certified technicians.

Appliance: _____

Date	Component Serviced	Description of Service (including Covered Refrigerant additions, losses or releases due to leaks or other causes)	Was service related to a leak?	Technician Completing Maintenance	Is Technician a Contractor?	Individual Completing Form

UNITED STATES SEAFOODS

Maintenance Log
Form H

Appliance: ______________________________

Date	Component Serviced	Description of Service (including Covered Refrigerant additions, losses or releases due to leaks or other causes)	Was service related to a leak?	Technician Completing Maintenance	Is Technician a Contractor?	Individual Completing Form

Maintenance Log
Form H

Appliance: ____________________

Date	Component Serviced	Description of Service (including Covered Refrigerant additions, losses or releases due to leaks or other causes)	Was service related to a leak?	Technician Completing Maintenance	Is Technician a Contractor?	Individual Completing Form

Maintenance Log
Form H

Appliance: ____________________

Date	Component Serviced	Description of Service (including Covered Refrigerant additions, losses or releases due to leaks or other causes)	Was service related to a leak?	Technician Completing Maintenance	Is Technician a Contractor?	Individual Completing Form

Maintenance Log
Form H

Appliance: ______________________________

Date	Component Serviced	Description of Service (including Covered Refrigerant additions, losses or releases due to leaks or other causes)	Was service related to a leak?	Technician Completing Maintenance	Is Technician a Contractor?	Individual Completing Form

Maintenance Log
Form H

Appliance: ______________________________

Date	Component Serviced	Description of Service (including Covered Refrigerant additions, losses or releases due to leaks or other causes)	Was service related to a leak?	Technician Completing Maintenance	Is Technician a Contractor?	Individual Completing Form

Maintenance Log
Form H

Appliance: ______________________________

Date	Component Serviced	Description of Service (including Covered Refrigerant additions, losses or releases due to leaks or other causes)	Was service related to a leak?	Technician Completing Maintenance	Is Technician a Contractor?	Individual Completing Form

Maintenance Log

Form H

Appliance: ______________________________

Date	Component Serviced	Description of Service (including Covered Refrigerant additions, losses or releases due to leaks or other causes)	Was service related to a leak?	Technician Completing Maintenance	Is Technician a Contractor?	Individual Completing Form

Maintenance Log
Form H

Appliance: ______________________________

Date	Component Serviced	Description of Service (including Covered Refrigerant additions, losses or releases due to leaks or other causes)	Was service related to a leak?	Technician Completing Maintenance	Is Technician a Contractor?	Individual Completing Form

Maintenance Log
Form H

Appliance: ______________________________

Date	Component Serviced	Description of Service (including Covered Refrigerant additions, losses or releases due to leaks or other causes)	Was service related to a leak?	Technician Completing Maintenance	Is Technician a Contractor?	Individual Completing Form

Maintenance Log
Form H

Appliance: ____

Date	Component Serviced	Description of Service (including Covered Refrigerant additions, losses or releases due to leaks or other causes)	Was service related to a leak?	Technician Completing Maintenance	Is Technician a Contractor?	Individual Completing Form

Maintenance Log
Form H

Appliance: _____

Date	Component Serviced	Description of Service (including Covered Refrigerant additions, losses or releases due to leaks or other causes)	Was service related to a leak?	Technician Completing Maintenance	Is Technician a Contractor?	Individual Completing Form

Leak Repair Report
Form I

Instructions: The Technician will complete this form in hard copy format for each repair. The form will then be scanned and uploaded to the Electronic Records Portal at the intervals required by the Consent Decree. Retain this record until five (5) years after the termination of the Consent Decree.

Appliance: _____ **Report #:** _____

Date leak discovered: _____ **Leak Rate:** _____

Technician making/supervising repair: _____

Name of contractor company (if applicable): _____ **Phone:** _____

Describe leak (component, location, etc.): _____

Estimate amount of refrigerant lost: ☐ 0 - 10 lbs. ☐ 10 - 100 lbs. ☐ 100+ lbs. Est. Lost (Lbs.): _____

Instructions: If the Leak Rate is less than 20% or if no Leak Rate was calculated, all repairs and verification tests must be completed within 60 Days of discovery of the leak. If the Leak Rate is equal to or exceeds 20%, all repairs and verification tests must be completed **within 30 days** of the Leak Rate exceedance. For all Leak Rates, a successful **initial verification test** must be completed before adding any Refrigerant or any additional Refrigerant to the Appliance. A successful **follow-up verification test** must be performed within 10 days of the successful initial verification test. If the Appliance is pumped out, all time requirements are suspended until Refrigerant is added back into the Appliance; the follow-up verification test must be performed within 10 days of Appliance startup.

Describe repair (check all that apply):

☐ Replaced seal/gasket/o-ring ☐ Replaced line/tube

☐ Tightened fitting, packing/bolts ☐ Other (describe below)

Date Repair(s) Completed: _____

Other/Notes:

INITIAL VERIFICATION TEST

(must be completed before adding any Refrigerant or any additional Refrigerant to the Appliance)

Initial verification test date: _____ **Leak test result:** ☐ Pass ☐ Fail

Initial verification test method (check all that apply):

☐ Halide torch ☐ Electronic ☐ Infrared ☐ Dye/UV ☐ Soap ☐ Other: _____

Technician performing test:

Comments:

FOLLOW-UP VERIFICATION TEST

(must be completed within 10 days of the successful initial verification test)

Follow-up verification test date: _____ **Leak test result:** ☐ Pass ☐ Fail

Follow-up verification test method (check all that apply):

☐ Halide torch ☐ Electronic ☐ Infrared ☐ Dye/UV ☐ Soap ☐ Other: _____

Technician performing test:

Comments:

Form J - Appliance Leak Inspection Log

INSTRUCTIONS: The Technician will complete this form in hard copy format on at least a weekly basis. See the CDCP. The completed forms will be uploaded to the Electronic Records Portal at the intervals required by the Consent Decree. Ensure each component is checked during each inspection. Inspections are not required on components that are insulated, more than six (6) feet above the walking surface, or are unsafe to inspect. Retain this record until five (5) years after the termination of the Consent Decree.

Appliance: _____ ☐ Leak inspection occurred during pressure test

Date	Component	Method Used	Leak(s) Discovered?	Number of Leaks Discovered	Form I Completed for Leak(s)?	Person Performing Inspection*
	Compressor(s)	☐ Halide torch ☐ Dye/UV ☐ Electronic ☐ Soap ☐ Infrared ☐ Visual	☐ Yes ☐ No	____ Leaks ☐ None	☐ Yes, Form I #: _____ ☐ No leaks	
	Pump(s)	☐ Halide torch ☐ Dye/UV ☐ Electronic ☐ Soap ☐ Infrared ☐ Visual	☐ Yes ☐ No	____ Leaks ☐ None	☐ Yes, Form I #: _____ ☐ No leaks	
	Condenser(s)	☐ Halide torch ☐ Dye/UV ☐ Electronic ☐ Soap ☐ Infrared ☐ Visual	☐ Yes ☐ No	____ Leaks ☐ None	☐ Yes, Form I #: _____ ☐ No leaks	
	Pressure Vessel(s)	☐ Halide torch ☐ Dye/UV ☐ Electronic ☐ Soap ☐ Infrared ☐ Visual	☐ Yes ☐ No	____ Leaks ☐ None	☐ Yes, Form I #: _____ ☐ No leaks	
	Evaporator(s) (except plate freezers**)	☐ Halide torch ☐ Dye/UV ☐ Electronic ☐ Soap ☐ Infrared ☐ Visual	☐ Yes ☐ No	____ Leaks ☐ None	☐ Yes, Form I #: _____ ☐ No leaks	
	Piping/Valve(s) not associated with equipment	☐ Halide torch ☐ Dye/UV ☐ Electronic ☐ Soap ☐ Infrared ☐ Visual	☐ Yes ☐ No	____ Leaks ☐ None	☐ Yes, Form I #: _____ ☐ No leaks	
Technician Certification		By signing this document, the technician certifies that all visible and accessible parts of the Appliance were inspected.		Certification: _____		

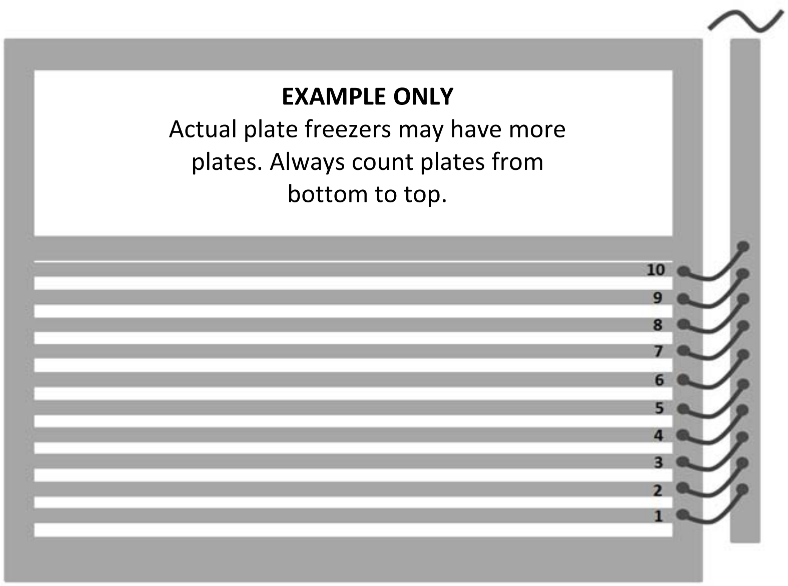
*As of 1/1/2019, person performing inspections must be a certified technician.
**See the Plate Freezer Leak Inspection Log to document leak inspections on plate freezers.

Plate Freezer Leak Inspection Log

Form K

INSTRUCTIONS: The Technician will complete this form in hard copy format. The form will then be scanned and uploaded to the Electronic Records Portal at the intervals required by the Consent Decree. Retain this record until five (5) years after the termination of the Consent Decree.

Person Performing Inspection: ______________________ **Date:** ____________



Note: Suction header is always the larger of the two headers.

Count plates and hoses from bottom to top.

Detection method(s) used:

☐ Halide torch ☐ Dye/UV

☐ Electronic ☐ Soap

☐ Infrared ☐ Visual

☐ Pressure Test

LEAK INFORMATION

Estimate amount of Refrigerant lost for all leaks:

☐ 0 - 10 lbs. ☐ 10 - 100 lbs. ☐ 100+ lbs.

Plate Freezer #: ____________	**Leak Location:** ☐ Fitting ☐ Plate ☐ Hose ☐ Other: ____________	**Plate #:** ____________	☐ Liquid ☐ Suction
Plate Freezer #: ____________	**Leak Location:** ☐ Fitting ☐ Plate ☐ Hose ☐ Other: ____________	**Plate #:** ____________	☐ Liquid ☐ Suction
Plate Freezer #: ____________	**Leak Location:** ☐ Fitting ☐ Plate ☐ Hose ☐ Other: ____________	**Plate #:** ____________	☐ Liquid ☐ Suction
Plate Freezer #: ____________	**Leak Location:** ☐ Fitting ☐ Plate ☐ Hose ☐ Other: ____________	**Plate #:** ____________	☐ Liquid ☐ Suction
Plate Freezer #: ____________	**Leak Location:** ☐ Fitting ☐ Plate ☐ Hose ☐ Other: ____________	**Plate #:** ____________	☐ Liquid ☐ Suction
Plate Freezer #: ____________	**Leak Location:** ☐ Fitting ☐ Plate ☐ Hose ☐ Other: ____________	**Plate #:** ____________	☐ Liquid ☐ Suction

Plate Freezer Leak Inspection Log
Form K

Plate Freezer #: ________	**Leak Location:**	☐ Fitting ☐ Plate ☐ Hose ☐ Other: ________	**Plate #:** ________	☐ Liquid ☐ Suction
Plate Freezer #: ________	**Leak Location:**	☐ Fitting ☐ Plate ☐ Hose ☐ Other: ________	**Plate #:** ________	☐ Liquid ☐ Suction
Plate Freezer #: ________	**Leak Location:**	☐ Fitting ☐ Plate ☐ Hose ☐ Other: ________	**Plate #:** ________	☐ Liquid ☐ Suction
Plate Freezer #: ________	**Leak Location:**	☐ Fitting ☐ Plate ☐ Hose ☐ Other: ________	**Plate #:** ________	☐ Liquid ☐ Suction
Plate Freezer #: ________	**Leak Location:**	☐ Fitting ☐ Plate ☐ Hose ☐ Other: ________	**Plate #:** ________	☐ Liquid ☐ Suction
Plate Freezer #: ________	**Leak Location:**	☐ Fitting ☐ Plate ☐ Hose ☐ Other: ________	**Plate #:** ________	☐ Liquid ☐ Suction
Plate Freezer #: ________	**Leak Location:**	☐ Fitting ☐ Plate ☐ Hose ☐ Other: ________	**Plate #:** ________	☐ Liquid ☐ Suction
Plate Freezer #: ________	**Leak Location:**	☐ Fitting ☐ Plate ☐ Hose ☐ Other: ________	**Plate #:** ________	☐ Liquid ☐ Suction
Plate Freezer #: ________	**Leak Location:**	☐ Fitting ☐ Plate ☐ Hose ☐ Other: ________	**Plate #:** ________	☐ Liquid ☐ Suction
Plate Freezer #: ________	**Leak Location:**	☐ Fitting ☐ Plate ☐ Hose ☐ Other: ________	**Plate #:** ________	☐ Liquid ☐ Suction
Plate Freezer #: ________	**Leak Location:**	☐ Fitting ☐ Plate ☐ Hose ☐ Other: ________	**Plate #:** ________	☐ Liquid ☐ Suction
Plate Freezer #: ________	**Leak Location:**	☐ Fitting ☐ Plate ☐ Hose ☐ Other: ________	**Plate #:** ________	☐ Liquid ☐ Suction
Plate Freezer #: ________	**Leak Location:**	☐ Fitting ☐ Plate ☐ Hose ☐ Other: ________	**Plate #:** ________	☐ Liquid ☐ Suction
Plate Freezer #: ________	**Leak Location:**	☐ Fitting ☐ Plate ☐ Hose ☐ Other: ________	**Plate #:** ________	☐ Liquid ☐ Suction

System Pressure Test Report
Form N

INSTRUCTIONS: The Contractor will fill out this form in electronic or hard copy format. The completed form will be uploaded to the Electronic Records Portal at the intervals required by the Consent Decree. Retain this record until five (5) years after the termination of the Consent Decree.

Technician: _____ **Date(s) of Pressure Test:** _____

Contractor Company: _____ **Contractor Technician:** _____ **Phone:** _____

PRESSURE TEST INFORMATION

Pressure Test After Appliance Pump Out

Test PSIG: _____ **Time Held:** _____

Vacuum Test: _____ ☐ Inches Hg ☐ Microns **Time Held:** _____

Pressure Test Using Refrigerant

Test PSIG: _____ **Time Held:** _____

LEAK INFORMATION

Leak Detection Method(s):

☐ Halide torch ☐ Electronic ☐ Infrared ☐ Dye/UV ☐ Soap ☐ Visual

Leaks Found/ Location	Repair Date	Initial Verification Test Date	Initial Verification Test Method (use code*)	Technician	Follow-Up Verification Test Date	Follow-Up Verification Test Method** (use code*)	Technician

***Leak Test Methods:**
1=Halide Torch; 2=Electronic; 3=Infrared; 4=Dye/UV; 5=Soap; 6=Visual
**Follow-Up Verification Test must be completed within 10 days of system startup

System Pressure Test Report
Form N

Leaks Found/ Location	Repair Date	Initial Verification Test Date	Initial Verification Test Method (use code*)	Technician	Follow-Up Verification Test Date	Follow-Up Verification Test Method** (use code*)	Technician

***Leak Test Methods:**
1=Halide Torch; 2=Electronic; 3=Infrared; 4=Dye/UV; 5=Soap; 6=Visual
**Follow-Up Verification Test must be completed within 10 days of system startup

System Pressure Test Report
Form N

Leaks Found/ Location	Repair Date	Initial Verification Test Date	Initial Verification Test Method (use code*)	Technician	Follow-Up Verification Test Date	Follow-Up Verification Test Method** (use code*)	Technician

***Leak Test Methods:**
1=Halide Torch; 2=Electronic; 3=Infrared; 4=Dye/UV; 5=Soap; 6=Visual
**Follow-Up Verification Test must be completed within 10 days of system startup

Annual Refrigerant Loss Percentage Calculation
Form O

INSTRUCTIONS: The Port Engineer will complete this form in electronic format and upload the completed record to the Electronic Records Portal within thirty (30) Days of completing the calculation. Retain this record until five (5) years after the termination of the Consent Decree. CCY = Current Calendar Year. Retain this record until five (5) years after the termination of the Consent Decree. See the CDCP for more information.

Annual Refrigerant Loss Percentage for CCY:	**37.89%**	**Total Full Charge:**	28,500.0	**Total Pounds Remaining:**	23,800.0
		Total Pounds Added:	31,600.0	**Total Pounds Lost Off Season:**	3,000.0

		Pounds Added (complete both entries)			**Pounds Remaining** (complete ONE of the entries)		**Pounds Lost Off Season** (Complete both entries if refrigerant was not fully evacuated at end of year prior to CCY, otherwise, leave blank)		
Name of Appliance	**Vessel**	**Full Charge for CCY**	**Pounds Added during CCY** (after setting Full Charge)	**Total Pounds Added For Appliance**	**Recovered Weight at end of CCY**	**Calculation at end of CCY**	**Calculation at end of *year prior* to CCY**	**Calculation at beginning of CCY**	**Pounds Lost Off Season**
A	A	6,000.0	0.0	6,000.0	5,800.0	0.0			0.0
B	B	4,000.0	500.0	4,500.0	3,000.0	0.0			0.0
C	C	5,000.0	1,000.0	6,000.0	4,000.0	0.0			0.0
D	D	4,500.0	600.0	5,100.0	0.0	4,500.0	4,000.0	4,000.0	0.0
E	E	4,000.0	0.0	4,000.0	4,000.0	0.0	5,000.0	3,000.0	2,000.0
F	F	5,000.0	1,000.0	6,000.0	2,500.0	0.0	5,000.0	4,000.0	1,000.0
				0.0					0.0
				0.0					0.0

Annual Refrigerant Loss Percentage Calculation
Form O

Name of Appliance	Vessel	Full Charge for CCY	Pounds Added during CCY (after setting Full Charge)	Total Pounds Added For Appliance	Recovered Weight at end of CCY	Calculation at end of CCY	Calculation at end of *year prior* to CCY	Calculation at beginning of CCY	Pounds Lost Off Season
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0

Annual Refrigerant Loss Percentage Calculation
Form O

Name of Appliance	Vessel	Full Charge for CCY	Pounds Added during CCY (after setting Full Charge)	Total Pounds Added For Appliance	Recovered Weight at end of CCY	Calculation at end of CCY	Calculation at end of *year prior* to CCY	Calculation at beginning of CCY	Pounds Lost Off Season
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0
				0.0					0.0

Logbook of Changes
Form P

INSTRUCTIONS: All records will be maintained in their original form. If, however, a CDCP form must be revised to ensure operation, complete an entry in this form. This form will be uploaded to the Electronic Records Portal at the intervals required by the Consent Decree. Retain this record until five (5) years after the termination of the Consent Decree.

Record/Form Changed	Original Entry	Revised Entry	Reason for Revision	Individual Initiating Change	Individual Completing Form